Observations ON THE ETIOLOGY OF PAIN.

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Few inquiries in physiology and pathology would be fraught with more general interest and with more practical results, if conducted to a satisfactory conclusion, than a comprehensive investigation of pain in all its relations. Strange to say, although pain is man's melancholy birthright, he scarcely knows what it is: attempts to define it end in vague assertions or tautological phrases; and, as no means of measuring it are known, we cannot in any way render it tangible, tabulate its variations, or train our students to a proper estimate of its relative importance. When Unzer says, "A very strong disagreeable impression is pain" (*Principles of Physiology*, Sydenham Society Edition, p. 53), he does not, in reality, get much further than Polonius, who, in attempting to define madness, avers:

"To define true madness,
What is it else than to be mad?"

Polonius, on the whole, has the best of it, for nobody can gainsay his dictum; whereas there can be no doubt that we undergo, in the course of our lives a great number of extremely disagreeable impressions that could not, except by a metaphor, be regarded as coming under the denomination of pain. The schoolboy experiences a very disagreeable impression if he has to get up in the dark winter morning in order to be in time for chapel or lessons, but does not complain of pain; the man would attribute to an emetic a very disagreeable impression without calling its effects painful; the sensitive female complains bitterly of the disagreeable impression made by cold feet, but she does not maintain it to be pain. More modern physiologists and pathologists do not attempt a definition; and until we know a little more than we do of its intimate nature, of the changes that take place in the tissues when the phenomena of pain manifest themselves, we are not likely to arrive at a satisfactory definition of the term. In the meantime, it may be interesting to review cursorily the various manifestations of pain and its relation to some of the morbid conditions that come under the notice of the medical man.

One of the first things that strikes the inquirer, is the anomaly which constantly presents itself as to the irregular relation which disease bears to pain. Pain, irksome as it is, is so commonly regarded by the sufferer as indicative of some previously unrecognised disease, that its absence is only too often considered a proof that there can be no serious malady, although the individual may himself be conscious of other symptoms indicating a departure from health. But the physician has only too many opportunities of noting that this may be classed among the popular errors, and that many of the most fatal maladies run their entire course with comparatively little pain, or even without any such derangement of sensation as merits the name of pain. Speaking teleologically, it naturally suggests itself

to account for the object of pain by regarding it as a warning to prevent more serious injury, and put the sufferer on his guard; the physician cannot deny that it often acts beneficially in this manner, but clinically we miss this warning so often in serious disease, and on the other hand meet with it so frequently in trivial affections, that it is difficult to account for the apparent incongruity upon that ground. Speaking from a purely medical point of view, we often wish for a more uniform relation between the severity of pain and the intensity and danger of disease.

This anomaly occurs so frequently, that one might be almost disposed to assert that the danger of a malady is in the inverse ratio of the pain with which it is associated. It is owing to the absence of any uniform relation between pain and the significance of morbid action, that some egregious medical impostures have flourished, by seizing hold of many indefinite symptoms, and exalting them into pathognomonic indications of dangerous diseases. This could not be possible if pain, which is so peculiarly a feature cognisable to the patient himself, served as a species of barometer by which he could measure the severity of his malady. Haller goes so far as to say, "*Dolori multa fere cum voluptate communia sunt*;" but although few could be induced to subscribe to such a paradox, it appears to involve the doctrine that pain and danger are not commensurate with one another. A just estimate of the importance of pain in its relation to disease is, therefore, an essential element in the diagnosis and prognosis of disease; and the young practitioner should especially be on his guard not to depend upon the indications afforded by pain, but to give it a subordinate place in the estimate he forms of his patient's condition.

Although medical science, as it treats of the entire human being in his pathological aberrations, is one and indivisible, still disease presents itself under different aspects to the eye of the surgeon and to that of the physician. The former would probably see more of actual pain directly associated with lesions of the parts he has to treat; while the latter would meet with more cases illustrating the general tenor of the preceding remarks. That a writer should be biassed by the general direction of his studies is but natural; and as this paper comes from the pen of a physician, it is not unlikely that he may delineate pain in somewhat different relations than they would assume if his knowledge of surgery corresponded with his admiration of that branch of the common profession. Still the subject is one which in its general aspects is the common property of every section of the healing art; and even if it be treated in a partial manner, we may attain to a limited appreciation of truth, and thus help towards the attainment of a correct theory of pain in its entire relations to morbid phenomena.

How varied are the considerations which suggest themselves when we attempt to give a full account of pain, appears at once when we begin to analyse the different conditions which influence it. We may investigate pain in regard to age, sex, and idiosyncrasy; we may inquire into the characters of pain as determined by the different tissues affected by disease; we may delineate pain as associated with individual organs, or as affecting their parenchyma or investing membranes; we may examine it as manifesting itself in internal passages or channels, and at their respective orifices; we may develop the relations of pain to conditions of the system as manifested by anæmia or hyperæmia, which in their turn may be more or less local or general; acute and chronic disease exhibit peculiar relations to the phenomena under consideration; pain, again, may be of purely local origin, or it may depend upon general

causes directly affecting the nervous system, while the nervous system may on the other hand be but secondarily involved.

It is proposed to examine somewhat more closely into these different relations of pain; and though it is not intended that the subject should be exhaustively treated, which neither time nor space would permit, it can scarcely be devoid of interest to ponder upon some of those phenomena and apparent contradictions, which the clinical study of disease affords in regard to this feature.

1. How is the manifestation of pain influenced by age? Do we see any indication of a general law, determining variations in character, duration, or intensity, at different periods of man's career? In early life the powers of endurance are feeble; and it may be stated as a general fact, that pain is not a predominant feature in the disease of childhood. There are fewer painful maladies in early life than during subsequent stages; and where pain, from the nature of the tissues affected, is unavoidable, there appears a merciful provision to induce delirium or unconsciousness, so as to mitigate, in a measure, the severity of the suffering. The genuine neuralgiae are almost unknown in childhood, and the morbid growths that compress or involve nerve-filaments, are of comparative rarity. The malignant disease which we see sometimes developed to so enormous an extent in the very young, cerebriiform or medullary cancer, may absorb the entire nutritive power of the individual, and from first to last there may be no greater suffering than that entailed by progressive debility and exhaustion. The chief degenerative malady of childhood, scrofula, is proverbially sluggish; sluggish in its growth, sluggish in its origin, sluggish in its reaction to remedies; but, fortunately for the patient, sluggish also, in not exciting pain. Spasm and reflex irritation would appear to be the peculiar prerogatives of childhood; at least, at no later period of life do we meet with them so frequently, and the later they occur the more they are associated with that symptom, for which in childhood they appear to be substituted. As the powers increase, and the individual becomes endowed with greater endurance, we find that pain assumes a more prominent position among the symptoms of disease. It is not only that the pure neuralgiae* increase, as I have formerly demonstrated, and attain their maximum frequency, but a host of painful diseases, previously rare or unknown, enter upon the field, and tax the vital energies. Acute inflammations of serous and synovial membranes, pleurisy, peritonitis, arthritis, inflammation of the bones and periosteum, whether idiopathic or consecutive, acute abscesses of internal organs, as the brain, the liver, the kidneys, the whole host of rheumatic disorders, gout and lithiasis, acute inflammations of the kidneys, stomach, liver, ovaries, and uterus; these and others now make their appearance, and torture the poor mortal, who in his own person, or in the persons of his ancestors, has refused due obedience to those sanitary laws, which are ordained, not as so many traps for the unwary, but as means to our physical and intellectual development. Life passes on, and decays sets in, the precursors of the grave. Old age in many respects justifies the saying that it is a second childhood. The frequency of actual pain diminishes; degenerative and chronic disease prevail, and death, so often arrayed by the ignorant moralist with undue terrors, releases the aged pilgrim from the burthen of a worn out body, insensibly, quietly, peacefully; but the errors of the past still bear fruit, and when rheumatism and gout, or renal

and liver disease have taxed the system in earlier days, these fell enemies still retain their grasp, though it becomes feebler, and the sufferings they entail become less perceptible as the media through which they act lose their power of vital reaction. And yet again the resemblance to childhood is maintained, by the recurrence or production of spasmodic disease, previously unknown; angina pectoris, paralysis agitans, epilepsy, belong to the decline of years, or, as in the case of the last, reappear at a time when the nervous system shows especial exhaustion and feebleness.

2. As we discover differences in the mode in which pain manifests itself, in regard to age, so also we note variations and modifications dependent upon sex. The peculiarities of the organisation of the two sexes show themselves in this as in other phenomena. The greater sensitiveness of the female, her more delicate organisation, is exhibited by the greater frequency of painful affections, though, by way of balance, she is endowed with more placid and patient endurance than generally characterises the members of the ruder sex; but there would seem to be this prevailing feature in the former, that pains are much less frequently of a purely local character than in the latter, or, to use more technical phrases, that in woman pain is commonly due to reflex or reflected irritation, while, in man, the presence of pain ordinarily justifies our looking for the mischief to which it is due, in the part where the pain is felt. Spinal irritation, infammammary pain, headache, hysteria, sexual derangement, tendon pain, gastric disturbance, are some of the many forms under which we disguise this peculiarity of the female, and many a time does the physician, from failing to remember or recognise the sensitive organisation of the female nervous system, which displays itself at all points, and baffles the inquirer's endeavours to localise the malady, allow himself to deal blows at random, and in the dark, not always to the destruction of the malady or the benefit of the patient. The difficulty of appreciating the exact relation of pain to the fundamental disease in woman, is further enhanced by her proclivity to emotional influences, and the greater motility and excitability of her imagination. Were the pulse, or the temperature, or any other measurable quantity, a means by which we could, objectively, determine the amount and form of pain, the surrounding elements to which allusion has been made would cause less difficulty or uncertainty. At present, in the absence of an dynamometer, we can only arrive at a satisfactory conclusion by a roundabout way of examining all the organs of the body, and thus indirectly determining the real source of any particular pain complained of.

In both sexes, individual constitution, or idiosyncrasy, determines the actual amount of suffering undergone in consequence of the same lesions. Many men exhibit all the sensitiveness of the woman, while we occasionally meet with women who suffer pain with all the fortitude ordinarily regarded as a characteristic of the man. Pain always appears to be associated with a waste of tissue of a peculiar kind, as those remedies are most serviceable which are known most completely to arrest the waste, or most rapidly to replace the consumption; narcotics on the one hand, alcoholic stimulants on the other. It is probable therefore, that the greater sensitiveness of different individuals, in a measure depends upon the relative rapidity with which their tissues are metamorphosed. This view, however, can only be true in part, and must be subordinate to a higher law, as it does not entirely accord with the physiological differences exhibited at the different stages of man's existence, in this respect; the rapidity of

* See a series of papers on this subject in the *Lancet* for 1861.

tissue-changes has been well shown to be greatest in childhood, and to be at its minimum in adult life. If pain bore an uniform ratio to tissue-change, pain ought to prevail most in early life, which our experience tells us it does not. The contradiction may not unreasonably be reconciled by the consideration of two facts; one being, that the diseases accompanied by most pain only supervene at and after puberty; the other, that when pathological conditions, inducing pain, occur in the child, it is likely to be masked by delirium or unconsciousness. Whether there is also a peculiar cerebral organisation in different adult individuals, to which we may refer the differences of reaction to pain, is more than probable. Moral endurance or courage does not indicate a low degree of sensibility, but is a grand illustration of the principle that mind and spirit may acquire dominion over the flesh. As in paralysed persons sensations travel in a sluggish and indolent manner, demonstrable to the bystander; so, doubtless, there are varying degrees of rapidity and intensity, with which in health painful impressions are conveyed from the point of lesion to the optic thalamus and other centres of sensation. To take an illustration from telegraphy: the material of the conducting wires may be coarse or impure so as to increase the resistance to the current, and, without any actual breach of continuity, the messages are delivered slowly and hesitatingly, although the battery at one end, and the index at the other, are in perfect order. In the same way, the nerves, the conductors of the painful impression, vary in their intimate organisation, so that in one person the most delicate derangement is at once perceived or received at the brain-end, representing the telegraphic index; while in another, a more or less partial arrest takes place *en route*, and the brain slowly and imperfectly recognises the changes at the opposite extremity of the conducting nerve. It is upon the hints obtained by these considerations that our treatment depends—as we direct it either to the impression made at the point of lesion, to the media of transmission, or to the central organ by which the impressions are received.

If we might hazard a general assertion as to the value of remedies in the two sexes, we should be disposed to regard the male sex as more generally benefited by treatment directed to the seat of lesion itself or the conducting nerves; while, in the female, the treatment most likely to prove beneficial, would be that calculated to allay the general sensitiveness of the system, and to increase the power of resistance; the remedies in the former would be mainly local, in the latter we should rely chiefly upon general agents.

3. If we examine the various tissues of the body in regard to the frequency, character, or severity of the pain occurring in them, we find, as is well-known, a very great divergence. Strange to say, nerve-tissue does not appear to occupy the most prominent position in the sad list; at least, it by no means claims that pre-eminence to which its name would appear to entitle it. It would be difficult to state a definite law governing these phenomena. Pain does not associate itself exclusively either with tissues of a high or with those of a low rank; there certainly is nothing sycophantic in its behaviour; for, on the whole, it rather affects those parts which play a subordinate part in the economy, than those which are of vital importance. Thus the fibrous tissues generally, though possessed of a comparatively low vitality, endowed with small vascularity and a limited supply of nerve, give rise to as much acute pain as probably no other class of tissues, were it possible to obtain a sum total of misery due to one or the other. The

muscles with which the former are in such close relation do not themselves appear to be the seat of frequent pain; on the contrary, we find them passing through profound degenerative changes without a twinge of suffering, and even when they are the seat of pain, this is of a dull, heavy character, devoid of the racking agony which their subordinate associates cause. Again, the serous membranes, especially of the chest and abdomen, are certain to sound a loud tocsin of alarm if in any way injured; and the heroic remedies, venesection, calomel and opium have always been most loudly called for when disease attacks them, though their diseases very rarely prove fatal if left alone, or, on the other hand (as in the case of the peritoneum), are of a secondary character, implying a fundamental and different disease to which attention should rather be directed. Yet no one will assert that the rank of the serous membranes is equal to that of the organs which they envelope. As a general rule, the pains of those parts are most acute that are under the dominion of the cerebro-spinal system, but the rule is liable to many exceptions; or visceral pain would be one of the curiosities of medical experience instead of a common occurrence. But the mere site of a tissue has much to do with the amount of pain consequent upon its morbid conditions. There is a marked difference, for instance, between endocarditis and pericarditis, in the relative amount of pain which each entails; inflammation of the serous layer of the pericardium ordinarily causing the patient to draw the physician's attention to the part, while, as a rule, the stethoscope alone can detect the inflammation that affects the lining membrane of the heart. The difference in the liability of the tissues to pain is well shown if we examine the effect produced by a disease like cancer; varying in its forms, it presents certain common features of being a more or less exuberant new growth, involving the surrounding tissues in destruction, and exhibiting a tendency to appear at different points of the body, while it has essentially a proclivity towards death. But it differs much in the amount of pain it induces in different persons or in different parts of the body. The sharp agonising pain ordinarily associated with carcinoma of the breast is not met with when the malignant growth invades the pulmonary texture; and cancer-nodules occupying the greater part of the hepatic tissue may give rise to jaundice and a cancerous cachexia, but there may be no severe pain from the beginning to the end. Again, the abdomen of a lad may be distended like that of an ascitic patient by medullary cancer, and he may complain of no pain at all; while a denser variety of malignant disease, alveolar cancer or pancreatic sarcoma, affecting or involving the cæcum or rectum of a man, may cause excruciating agony. It may be said by some, that disease of the orifices of the body is more liable to be painful than morbid conditions of the parts to which they lead; and were this true the teleologist would have a ready explanation in the greater sensitiveness of the portals of the body as guardians to the vital parts; but, although disease of the rectum and anus is generally accompanied by much pain, the upper apertures show no similar connection; neither the mouth itself (excepting, of course, one of its appendages, the teeth), nor the separate orifices within the mouth, are often the seats of severe pain. The urino-genital orifices, again, are rarely the seat of suffering, while the organs to which they lead are in man and woman the source of great agony.

In discussing the relation of the different tissues of the body to painful sensations, it is impossible to overlook the peculiarities which mark the behaviour of the outer and inner investments of the human body. The sensibility of the skin and the mucous membrane

varies, as we all know, at different parts according to their respective functions; but the character and degree of sensibility of each are widely apart. The tactile sensibility, so often a source of pain in the skin, becomes a species of gustatory sensibility in the mucous membrane, less liable to be excited to actual pain by the infliction of injury such as produces it on the surface, but prone to suffering from causes that interfere with its peculiar function of secretion or elective absorption. The profusest colliquative sweat causes no surface pain, while intense gastrodynia results from vicious secretion in the stomach. An arrest of secretion, as in lead colic, is a cause or accompaniment of agonising pain, while a dry skin may feel hot and pungent, but is not actually painful. The bronchial mucous membrane scarcely seems capable of giving rise to actual pain, but manifests its resentment at any lesion by other symptoms chiefly explicable on the theory of reflected irritation. These considerations are fraught with much practical interest, but we cannot pursue the vagaries of the mucous membranes at present any further.

The manifestations of pain at the surface of the body vary in a greater degree than anywhere else; and it appears more than probable that this is owing to the presence of nerves which have distinct functions, and are capable of receiving impressions of a widely different character. Heat and cold may in certain pathological conditions cause pain, where, at the same time, a pinch, prick, or blow may not induce a proportionate amount of discomfort. The sensibility to temperature is very peculiar, and if conveyed to the brain by the same nerves as those which inform us that we have cut our finger, we must assume that the changes taking place in the nerve-tissue in each process must be equally distinct. What has justly been called the muscular sense, by which we determine the resistance offered to the movement or contraction of superficial muscles, also indicates a sensibility distinct from tactile sensation. Each of these varieties of sensibility may be the cause of pain; and if we assume them to be communicated to the brain by the same channels, we are at a loss to find an analogue in physiology for the production of different effects by the same media. Possibly the different manifestations of the electric current, according as it is produced by galvanism, by the glass disc or the magnet, may aid us in our inquiry, since it has been clearly shown (more particularly by Dr. Radcliffe) that the same tissues act very differently in different pathological states to one or the other. Still the assumption of different sets of nerves for distinct sensations appears more in consonance with the general laws that govern the body. The matter must be regarded as yet as unsettled.

In whatever locality pain is perceived, it is, however, evident that the nerves play two distinct parts. They are either themselves the actual seat of morbid action, and we then have to deal with genuine neuralgia; or they merely convey the morbid impression from the site of injury to the sensorium, and are then solely conductors without active participation in the disease. Their conduction in the latter case may either be centripetal (the ordinary occurrence) or centrifugal, the less frequent and often very puzzling phenomenon.

Nowhere is the relation of the vessels and nerves in the phenomena of pain more clearly exhibited than in pathological conditions of the skin. Thus we occasionally meet with genuine cutaneous neuralgia, followed by purpuric extravasations; the inflammatory affections of the skin, lichen, eczema, herpes, above all herpes zoster, furuncles, and the like, are associated with more or less pain of the part, which appears essential to the character of the disease.

Why some even destructive diseases of the cutaneous surface, as epithelioma, herpes, and certain forms of syphilis, are comparatively painless, is not capable of further explanation than by the tautological statement, that sensibility is differently affected in them than in those morbid affections which are characterised by a different behaviour.

4. The preceding remarks are not supposed even remotely to exhaust the topics which have been considered under the various heads. It is necessarily desired that they may suggest thoughts for reflection, and serve to elicit from others possessed of greater leisure and ability, fuller inquiries into a most pregnant subject. The same applies to the consideration of pain as it is manifested in the different diseases that we meet with in nosology. A paper like the present cannot treat fully even a tithe of the various aspects under which we may regard the subject; but, as medical literature does not possess a general treatise on pain, it appears useful to draw attention to a few facts, and to point out some of the apparent anomalies supplied by the history of morbid action.

Even the tyro in medicine can scarcely help being struck by the circumstances observable after a very brief clinical study, that pain and danger are by no means commensurate. They often appear, as was already remarked at the commencement of this paper, to occupy an inverse ratio to one another. Many of the most fatal diseases run their course almost without pain, while, on the other hand, long continued suffering may stretch the patient on the rack, without materially abridging life. Let us illustrate these statements by drawing upon our practical experience of disease. The greatest number of deaths in Great Britain are due in the first instance to the zymotic, and in the second, to tubercular diseases; although neither of these classes can be termed painless, pain does not ordinarily assume a prominent character in either, and is rather due to a complication, or to a subordinate feature, than to the actual pathological condition. Excepting variola, all the zymotic diseases of our country very commonly pass through their entire course without acute suffering, such as we denominate pain; and especially with regard to typhoid, all physicians are familiar with instances in which death may take place from perforation, without any suspicion having arisen, in the mind of the patient or his friends, that anything serious was the matter. Certainly the head and abdomen very often are the seat of severe pain, but not with such uniformity or severity as in themselves to serve as indices of the importance of the malady. The class of tubercular diseases affords a still better illustration of the incongruity under consideration. Here pain is only an exceptional concomitant; and our daily experience shows us how, but for the indication afforded by the stethoscope and other modes of objective examination, the localisation of the disease is impossible, and the patient has no subjective symptom to adduce but that of general *malaise* and weakness. Extensive consolidation of one or both lungs may have insidiously established itself before advice is sought; and, on the other hand, patients constantly present themselves complaining of sensations referable to other organs than those of respiration, in whom the main source of evil can only be determined by physical exploration. What a practical demonstration is this of the advantage of a thoroughly scientific education, an education that shall lead the medical man to depend upon himself and the various aids afforded by science, rather than to be guided by the mere symptomatology which shall be indicated by the patient's feelings. How many other maladies

are there in which we may say of our patient, with Prince Henry?—

"That all his blood is touched corruptibly,"

and yet pain scarcely attract the attention to the malady that is sapping the powers of life.

The whole host of degenerative diseases which only modern science has revealed, run their course but too frequently without exciting pain, and when this is manifested it occurs incidentally, and from some fortuitous complication. Atheroma of the arteries, fatty degeneration of the heart and vessels; amyloid, fatty and granular degeneration of the liver and kidneys, are some of the many fatal changes that occur in our bodies, unrecognised in old times on account of their insidiousness, and especially from the absence of any concomitant pain. What should be said of a physician now, who, because there is no pain in the region of the kidneys, would set down these organs as healthy? or would say that a ruptured heart was normal up to the time of the fatal accident, because the naked eye fails to detect any well-marked disorganisation? and why is it that even now so many *post mortem* records reveal deep-seated mischief, not observed during life, but because pain fails to guide us; nay, because it so often misleads us negatively and positively, and we do not possess adequate physical means of exploration to detect hidden processes?

We notice in all these painless conditions one common feature, that they are chronic; their course is essentially sluggish; it may be said as a general rule, that, the more acute the changes that supervene upon health, the more pain is likely to be a concomitant symptom. This is well illustrated by those diseases which present themselves both in the chronic and acute forms. Acute pleurisy rarely fails to be characterised by sharp lancinating pains, most ordinarily occurring at the seat of injury; but we often meet with cases in which there is no record of severe pain, in which a gradually increasing exudation, of inflammatory origin, has caused the pleural sac to become distended with serum. The same applies to other analogous diseases.

The painful diseases which the physician has to deal with, are, besides the acute inflammations, generally and especially those of the involucria of organs, gout, rheumatism, and neuralgia proper. Among the chronic maladies we must mention cerebral abscess, gastric ulceration, renal and hepatic calculus, certain forms of cancer; but in all these cases, before the disease is localised, there are antecedent morbid conditions, affecting the general nutrition of the body, which are unaccompanied by pain, but which it is important to recognise, if we wish to give full scope to the powers of medicine in anticipating disease. Among the skin-diseases, few are characterised by actual pain; they are all liable to be associated with local and reflected hyperæsthesia, but the hyperæsthesia, except in herpes zoster, eczema, and, occasionally, variola, rarely reaches such a development as to justify the appellation of pain. As no eruption can take place without involving both nerves and vessels, this would not have been concluded *a priori*. In studying disease clinically, however, we must observe the symptoms, and seek to harmonise them with our knowledge of physiology; or, if this fail to afford the desired explanation, we must regard it as a proof that our acquaintance with the mechanism and function of the body is as yet imperfect. And this, it is to be feared, is the conclusion forced upon us by a review of the phenomena with which pain is associated.

In bringing these somewhat desultory remarks on a subject embracing the whole scope of medicine

to a close, we would urge a more rigid study and analysis of the various circumstances under which pain occurs, and the different forms it assumes. It is not a poetic subject; for even Shakespeare, familiar as he is with all human suffering, scarcely alludes to physical pain; in the Bible, a still more perfect record of all that concerns man, the subject rarely occurs, even in those parts where disease is dwelt upon; it is in heathen writers chiefly, that interest is excited by the delineation of the painful injury or painful disease. The inference doubtless is, that our intellectual and spiritual nature has loftier interests to deal with, and that physical suffering belongs rather to pathological detail than to poetic imagery, or to the history of God's dealing with man; nor does physical pain excite the interest and sympathy that is accorded to mental suffering. Nevertheless, the physician may not overlook this one of many symptoms of morbid action and is called upon to seek to mitigate or to allay it. To do so completely, he has yet to learn the actual changes that occur in the body during its manifestation, even though he may already do much to quiet the apprehension of it, or to arrest its occurrence; he has to discover a means by which to judge of its intensity and its variations, in order to control and guide it to a wholesome end. But the result of all these endeavours will still be only palliative; his main object must be to anticipate it by aiding in the removal of the many predisposing causes of a physical and moral nature, which tend to the production and perpetuation among our species of pain.

PRESENTATION TO THE RESIDENT PHYSICIAN OF THE BRISTOL GENERAL HOSPITAL. On the 30th ult., the students of the Bristol General Hospital held a meeting for the purpose of expressing their regret at the resignation of Dr. Walter Harris (late house physician), and at the same time presented him with a gold watch, in token of their esteem and regard.

SMALL-POX HOSPITAL. At the annual meeting of the governors of the Small-Pox Hospital, it appeared from the report of the medical officers, that a much larger number of patients had been admitted during the year 1866 than in any other year since the foundation of the hospital, in 1746, and the excess was looked upon as enormous. The excess of admissions: in the last year over either of the three preceding years had been essentially due to the persistence of epidemic causes. The numbers admitted during the year 1866 were 2,069, being an excess of 25 per cent. over 1863, the year of largest admissions prior to last year. This was a ratio out of all proportion to the extension of the metropolis and the augmentation of the population. The small-pox epidemic which was now prevailing, without any sign of cessation, had really commenced in London so far back as 1862, and had continued with varying degrees of intensity up to the present time. The numbers admitted in 1863 were 1,537; in 1864, 836; in 1865 they were 1,240, and last year, as before stated, 2,069. Of 2,037 of the last mentioned number, 425 occurred to persons who had not been vaccinated, and three of the cases were to persons who had before suffered. In the course of the year there had been 271 deaths, 152 of which were of persons who had not been vaccinated, so that 35·7 of the unvaccinated died as against a percentage of 7·2 (117 out of 1,605) in the vaccinated persons, or, deducting 10 deaths in this class from antecedent or superadded disease, the percentage of this class was only 6·7. In the year, 398 persons had been vaccinated at the hospital, and 580 charges of lymph supplied to members of the medical profession.