THE HIGHLY STRUNG NERVOUS SYSTEM.

BY GUTHRIE RANKIN, M.D., F.R.C.P.,

PHYSICIAN TO THE DREADNOUGHT AND ROYAL WATERLOO HOSPITALS.

"THERE can be nothing more sure in physiology than this: that as we go upwards in the scale of creation, so the nervous system becomes more highly strung. But if, on the one hand, it becomes more intense in the enjoyment of pleasure, it must also, on the other hand, be more sensitive to pain and to disturbing sensations of all sorts."

Thus wrote the late Sir James Goodhart so long ago as 1891, and the truth of his statement becomes more firmly established in clinical experience as time goes on. As habits of life become gradually altered, so of necessity do the disorders which interfere with the regular fulfilment of these habits slowly assume new features and fresh significance. Of all the tissues of the human body there are none so sensitive to the influence of changing conditions as those that go to the make-up of the nervous system. Hence it is that we are confronted with an apparent increase of nerve disturbances and diseases out of proportion to those associated with other organs or systems. But, while this is true of disorders that have earned a title to a name because by ascertainable signs and symptoms they have acquired an individuality by which they can be recognized, the same cannot be said of the functional departures from normal stability. These confront us at every turn and are bewildering in the multiplicity of their manifestations and often also in the perversity with which they mimic true disease dependent upon actual tissue change. How far functional disturbance is a harbinger of organic mischief is a question at present impossible to answer, but in the case, for instance, of such a disorder as disseminated sclerosis there is reason to suspect that an inherited poor quality of nervous structure may pass through the trials of functional poverty and end in the bankruptcy of established disease.

The term "neurosis" is now used as descriptive of nerve disturbance for which no corresponding pathological changes in the nervous system can be found. Many neurotic conditions are essentially of central origin, and are concerned with every variety of subjective sensation. They are more common in women than in men, and are liable to declare themselves under the influence of grief, excitement, anger, jealousy, and other passions by which emotional centres are aroused to unwonted, and often uncontrolled, activity. The storm soon blows itself out, but it leaves behind a wreckage of shattered nerves, which with each succeeding ebullition find increasing difficulty in settling down to a well-balanced placidity.

The central neuroses, infinite in number and variety, do not fall within the compass of this communication, which is intended to deal only with those that manifest themselves, in all their most prominent symptoms, through one or other of the great organic systems. If we turn our attention, in the first place, to the cerebro-spinal system, we have no difficulty in finding examples which, to distinguish them from those that are properly regarded as central or mental, may be conveniently differentiated as neuroses of peripheral type. How many of the headaches, for instance, with which we are called upon to deal, are simple neural manifestations!—the occipital discomfort that, coming after an unusually arduous day, cries out for rest to a wearied head against a high-backed arm-chair with a roll-cushion collar, and creates an earnest desire for an early retirement to bed because of the sure knowledge that a good night's rest will chase all the aching headache away; or the piercing distress of the unilateral pain that after some unusual worry or excitement suddenly conveys a feeling as of a spike being driven into the temple; or even the ordinary migraine, presaged on first waking in the morning by premonitory warnings which come to be recognized as the unfailing intimation of a hemispheric headache that before middle day will have made work impossible and compelled a retirement to bed in a darkened room where active sickness and subsequent sleep are prayed for as the blissful termination of a wretchedness that finds relief through no other channel. Are not all these headaches varieties of neural disturbance

which circumstance directs along one channel or other according to the idiosyncratic or inherited tendencies of the individual? Rest is the one essential to their cure, and a toxæmic invasion of tired-out and unstable centres the most probable explanation of their incidence. But in a certain proportion of cases this much-needed rest eventually fails to come to the rescue. The martyr to one or other form of functional headache has treated his disorder with scant courtesy. He feels so well between whiles that his headache becomes forgotten in the rush of life until a successor arrives to remind him that his physiological sins must again pay the penalty. He becomes subject to noises in the ears, and uncomfortable sensations of giddiness; to waves of heat and cold; to numbness, "pins and needles" and various other paraesthesias; and, finally, to insomnia, all of which are merely so many additional neuroses—finger-posts on the road to the terminal goal of a generalized tiredness and inertia pathognomonic of the condition which we nowadays call neurasthenia.

If, again, we consider the spine as a centre for highly strung manifestations, how many varieties of backache bear close resemblance to headache! The difference is merely one of distribution, and putting on one side the great group of diseases which result from organic change either in the cord itself or in the structures of the spinal canal which contains it, a whole volume might be written on the vagaries of functional disturbance which group themselves round the spine as their seat of origin. The essential symptom is pain, referred to one or more of the spinal vertebrae, most frequently in the lower dorsal or lumbar regions, which is always aggravated by movement or pressure. Tenderness, it will be remembered, is never a prominent symptom in cases of myelitis or other organic lesions of the spinal cord. This backache, like the functional headache, has no organic explanation; it comes to those who are run down from anxiety or overwork, and mostly is associated with a hereditary predisposition to nervous disorders. The complaint is almost to be recognized by the dejected appearance, shuffling gait, rigid attitude, and deliberate movements of the patient when he enters the room. There is a long recital of broken health, impaired appetite, disturbed sleep, and malaise, with, generally as a terminal event, some unimportant injury to the back caused either by a casual blow, a slight fall, or an accidental twist. From that moment the spine becomes painful, and when it is examined one or two vertebral processes somewhere below the middle of the column are found to be exquisitely tender to touch. There is no interference with the competency of the sphincters, and there are no disturbances of common sensation. The deep reflexes are exaggerated, but none of the usual symptoms of organic cord lesion are present. The patient is only comfortable in bed, and his persistent sense of tiredness almost reconciles him to the additional misery of backache because it provides an excuse for a temporary withdrawal from every attempt at effort. It is a remarkable feature of this form of neurosis that when it occurs in a man it is very frequently accompanied by a profound conviction that it is somehow connected with a failure of power or a fault somewhere in his sexual mechanism. The act of coitus or the occurrence of a nocturnal seminal emission induces an alarming sense of prostration, and at once brings about a disturbing increase of his spinal tenderness. Unfortunately it is just in persons of this unstable type that the sexual centres are most readily activated, and a physiological process comes to be regarded as a pathological fact whose early termination will surely be a complete loss of virility. It is to this unlucky type of man that all the pernicious literature of the quack appeals. Long before the pain in his back has become so acute as to lay him up, he has indulged in one variety of secret remedy after another in a vain endeavour to "preserve his manhood." Whatever that may mean, it adorns the pamphlets of every rogue who knows how to make money by an appeal to the groundless fears of this class of neurasthenic.

In women functional spinal tenderness is most apt to locate itself either over the prominent seventh cervical vertebra, or at the other end of the spine over the coccyx. In either situation severe pain may be caused by inflammatory changes, but where no such explanation of the suffering exists the solution is to be found in a highly strung nervous system with, for some reason or other, a localized incidence of subjective pain in one or other of

these situations. The match to the gunpowder is often provided by a slight and wholly inadequate traumatism, but as often as not the closest inquiry fails to elicit any sufficient exciting cause.

Intercostal neuralgia is another example of spinal distress. The frequency of its occurrence in women in the fourth or fifth left intercostal space is one of the problems of functional disturbance which no one yet has been able to explain. We are all familiar with it as a clinical fact which creates in the mind of many a sufferer the fear of heart disease, cancer of the breast, or pleurisy.

The spinal manifestations which sometimes follow on the shock of a serious accident have come to be recognized as a disease-entity under the name of "railway spine," but the fact that the same train of symptoms may result equally from a profound mental impression as from a physical shock or concussion, suffices to prove that in certain persons the functional balance of the nervous system can be seriously deranged by a wide variety of exciting causes. Most cases ultimately recover completely, but where litigation is pending as a result of an accident, the symptoms tend to increase rather than diminish. A settlement of claim often starts the patient on the road to complete and perfect recovery.

In the circulatory system we find another large variety of manifestations dependent upon a highly strung nervous system. To tell a neurasthenic patient that he has a "weak heart," as is not infrequently done, means supplying him with a peg on which to hang all his miseries, and one which it does not take much to convince him is insecurely fixed and liable at any moment to "peg out." It may confidently be asserted that, except as part of a general debility, there is no such thing as a "weak heart." The subjective consciousness of the heart's action is, in the large majority of cases, no evidence of heart disease, and, more often than not, means nothing worse than a disturbed digestion. Irregularity or rapidity of rhythm, a feeble first sound, a small and soft pulse, are among the indefinite and untrustworthy phenomena upon which this pernicious diagnosis of "weak heart" is founded. In the absence of physical evidence of disease at the valvular orifices or of changes in the walls of the heart itself, such a diagnosis is vague and worthless to those who know, but precise enough to be alarming to those concerning whom it is pronounced.

The significance of the feelings of faintness experienced by those who suffer from so-called "weak heart" is another of the problems which may be readily misunderstood. They occur mostly in feeble women, and the usual story is that the person experiences sensations which make her believe she is about to faint but that she never actually loses consciousness. She feels cold all over and looks pale, but immediately after flushes, has palpitations, and breaks out in a perspiration. Apart from the possibility of such attacks being epileptic in character (and such an interpretation must never be lost sight of), it is safe to assert that faint feelings of this description originate in some form of reflex disturbance in the vasomotor nerve centres, and are not a result of any radical fault either in the heart or circulatory system.

True syncope is met with in cases where there is dilatation of the heart, or valvular disease, or myocardial degenerative changes, but in each of these instances, if search be made, ample evidence will be found in physical signs to guide the diagnosis aright; the condition, moreover, is generally one of actual fainting with temporary loss of consciousness, and not one of mere faint feeling with all its apprehensive accompaniments.

In this connexion there is a long string of neuro-vascular manifestations which are in close relationship: Chilblains, dead fingers, cold feet, urticaria, erythromelalgia, acroparaesthesia, angio-neurotic oedema, imperfectly developed types of Raynaud's disease, or of Graves's disease, and the perplexing symptomatological vagaries of the menopause. All these conditions are met with in people who, either by inheritance or acquisition, are possessed of highly strung nervous systems, however much they may differ in temperamental type. Most of them begin and end as examples of functional disturbance, but experience would seem to suggest that, in some, the perversion of function proves the prelude to determinate organic lesions. This would seem to be exemplified in cases in which intermittent arterial spasm or claudication may be accepted as a reasonable explanation of the symptoms presented. Urticaria, erythro-

melalgia, and Raynaud's disease, are familiar instances to which such an explanation may be applicable. But there are others—migraine, epilepsy, asthma, and angina pectoris, being among the most notable—in which, where there is no obvious organic change to account for them, it may be legitimate to regard arterial spasm as a possible contributory element. Arterial claudication is known to be responsible for a variety of cramp in the muscles of the legs which may be so severe as to make ordinary walking temporarily impossible, but it is not so fully recognized that apparently the same cause affecting the central vessels may be responsible for a train of symptoms closely analogous to those associated with thrombosis, embolism, or hæmorrhage. This was illustrated in the following case:

A lady of 64 years of age, who had over a period of many years been the subject of successive illnesses, all conditional upon a highly strung nervous system, had recently become liable to unaccountable and distressing attacks of vertigo. She was of the neurasthenic type, but the only forthcoming evidences of structural change were found in the vascular system. The arteries were moderately thickened and tortuous, the second aortic sound was distinctly accentuated, and the urine contained a faint haze of albumin. Suddenly one morning, on rising from bed, she experienced a more than usually severe attack of giddiness, which was immediately followed by inability to speak, partial paralysis of her face, some loss of power in one arm, and numbness, with tingling, in the corresponding leg. The speech defect developed into distinct aphasia which lasted over two days and then entirely disappeared. As the speech returned to normal, both arm and leg regained their usual power and comfort. The same sequence of events was repeated in many subsequent attacks of a precisely similar nature, and it came to be recognized that they usually occurred either after a fit of bad temper, to which she was prone, or after an unwise and over-abundant meal in which she loved to indulge. She was a full blooded, gouty type of woman whom Nature had unkindly endowed with a prodigious appetite and a digestion that could always rise to the occasion. Under a more carefully restricted diet and a better regulated life her health improved, and she had no occurrence of her hemiplegic threatenings.

In such a case as this there would seem to be no more likely explanation of the symptoms than faulty nerve control, causing a spasm of the cerebral vessels analogous to the condition that is regarded as responsible for claudication in the vessels of the lower extremities.

In the respiratory system it is again easy to find examples of disturbance which can be reasonably explained by the hypothesis of a highly strung nervous system. In the overwrought anaemic woman who seeks advice from time to time on account of aphonia the complete loss of voice usually comes on suddenly and causes serious alarm. It may continue over a period of weeks or months, but more frequently it disappears as suddenly as it came and leaves the patient none the worse. Hiccough is a minor ailment, due to spasmodic contraction of the diaphragm, which sometimes proves very rebellious to treatment. It usually comes in paroxysms of longer or shorter duration according to the severity of the exciting cause. In hysterical or neurotic patients it is not a symptom of serious gravity, however long it may continue, nor is it of any consequence when it arises from highly spiced or unduly hot food, but it is often indicative of serious possibilities when met with in advanced conditions of abdominal disease or in the later stages of gout, diabetes, or Bright's disease. Paroxysmal sneezing is another example of nerve-storm affecting the upper air passages. Apart from patients in whom some actual lesion in the naso-pharynx is found to account for the recurrent irritation, cases occur with considerable frequency in which more or less severe attacks of sneezing occur from time to time for no apparent reason. They are often associated with a gouty state. Hay fever is closely allied to this condition, from which it only differs in being more persistent, characterized by difficulty in breathing rather than by persistent sneezing, and associated with states of atmosphere abnormally charged with the pollen of grasses or fine dust of one kind or another. It is a near friend to paroxysmal asthma, which, though sometimes induced by one of several organic causes, is in many instances a true product of a highly strung nervous system.

In addition to these classified types of what may be regarded as respiratory neuroses, there is yet another, not so common, but exceedingly interesting on account of the diagnostic doubts and difficulties which its occurrence raises—namely, simple rapidity of the respiratory act. It

is, like the others, a paroxysmal affection which comes and goes without apparent cause and leaves the respiratory movements between whiles quite normal. There is no true dyspnoea and no symptoms referable to the upper air passages. Any difficulty there may be is concerned with the inspiratory part of the respiration cycle, and even this may not exist as a subjective experience. The breathing is rapid and shallow, often reaching 30 or 40 a minute, and the knowledge of it causes the patient much emotional disturbance and makes him afraid to move about lest he loses his wind altogether. Here is a typical example :

A gentleman, aged 55, who had always suffered, in one way or another, from "nerves," though with perfectly healthy organs, became very much upset on the outbreak of this war with all sorts of fears and fancies. He was convinced the cause of the Allies would not prove victorious, and he magnified every adverse rumour or temporary reverse into certain evidence of the rapid fulfilment of his pessimistic prophecies. In the Zeppelin raids he saw further evidence of the approaching failure of Britain's cause. He lived in constant dread that sooner or later he would be burned out of house and home, or killed by a bomb. Though in a less degree, the financial possibilities of the war possessed his mind, drove him to all sorts of petty and ineffective economies, and at times made him dread the default of all his dividends. Despite this mental state, his general health remained steadfast. His appetite was excellent, his digestion good, and his bowels regular. Though at times very restless, he lost no weight. Two important physical facts, however, became established: he was unable to sleep at night without the help of bromides or medinal, and he developed a most surprising irritability of the respiratory nerve centres. Immediately after any excitement, whether mental or physical, and sometimes without any ascertainable exciting cause, his breathing became laboured and accelerated. Every accessory muscle was brought into play, and, though each respiratory act was short and a great fuss was made over its accomplishment, there was no cyanosis and no cough. He kept restlessly moving about all the time it continued and the pulse did not vary from its normal rate of 68-72. Each attack subsided as speedily as it began, and in the intervals the respiration was quiet and at the normal (18). It seldom troubled him while at meals and entirely disappeared during sleep.

Passing now to the abdominal cavity we come to a region in which the highly strung nervous system plays more frequent and obscure pranks than in any other. The whole length of the gastro-intestinal tract constitutes an immense field, every inch of which is influenced and controlled by the nerve supplies of the great sympathetic as well as of the cerebro-spinal systems. It is from this region more than any other that toxæmic conditions mostly emanate, and when we consider the important functions of digestion, assimilation, and elimination with which it is concerned, the marvel is that, apart from disease, the wonderful adaptability of its intricate nervous mechanism provides for such a beneficent maintenance of balance that, in perfect health, its physiological problems are solved for us every hour of the day without any subjective knowledge of the ceaseless chemical, biological, and physical processes by which we are kept alive and well. There is no local departure from the normal that does not involve the nervous supply by which the whole is regulated, and, in many instances, it is open to question whether some of the more common disturbances which we recognize by name—constipation, diarrhoea, indigestion, gastric catarrh, colitis, for example—should not be, with greater accuracy, grouped under the heading of diseases of the nervous system. Admittedly the fault, whatever it be, originates somewhere in the alimentary tract, but it only obtrudes itself on our attention by symptoms that ensue in consequence of sequential disturbance of its innervation. What, for instance, does constipation or diarrhoea convey to the minds of most of us? Not a disease entity at all, but a mere disturbance, in one direction or the other, of a normal function, brought about in large measure by a faulty supply of the driving power. Closely allied to both of these conditions, and sometimes associated with one or other, is vomiting. This occurs as an accompaniment of many disorders both of the stomach and of the general health. But there is a well-recognized form of active and sustained vomiting which has no apparent dependence upon any departure from health, local or general, and which by common consent we recognize as hysterical, functional, or neurotic, according as we choose the qualifying adjective that most correctly expresses our view of its etiology. There is no organic fault to account for it, and it often disappears suddenly and completely, even after long duration.

Then, again, how much of every variety of dyspepsia is dependent upon interference with the normal rhythmic current of nerve supply! In one variety of dyspepsia to which I have recently referred in this JOURNAL the primary cause is undoubtedly fatigue of the nervous centres with a consequent dyspepsia of which the leading characteristics so closely resemble the symptoms we associate with duodenal ulcer as to make the differential diagnosis, at least in the early stages, a matter of no small difficulty. It may in this connexion be surmised that the ileal and duodenal kinks, the sagging transverse colon, and all the other physical evidences of atony that go to make up the general picture of intestinal stasis, of which we hear so much at the present time, are dependent, in their earlier beginnings, on imperfections in the nerve supply. It is at any rate a significant fact that, in the majority of such cases, the patient presents other symptoms that unmistakably declare the existence of neurasthenic tendencies.

Mucous colitis is yet another intestinal derangement which seems to be more truly symptomatic of a leakage of nerve energy than of any established change in the colon itself. The pallor of the stools frequently associated with mucous colitis is probably neither more nor less than a neurosis manifesting itself incidentally through the bile ducts. No organ in the body is so universally blamed for health upset of one kind and another as the liver, and apart from the lesions caused by organic disease, by various blood dyscrasias, or by the toxæmic consequences of over-indulgence in food and drink, there remains a group of cases in which the exciting cause is best explained by faulty nerve supply. We gain some corroboration of such a theory from the fact that sudden shock may have as one of its immediate consequences an attack of jaundice, and every now and again we meet with cases in which recurrent attacks of mild icterus are obviously the expression of a hepatic nerve storm.

Our knowledge of pancreatic disorders is still limited, and the exact part which the pancreas plays in diabetes—the disease with which it is most commonly associated—is still a question round which there surges a wide variety of opinion. One of the latest theories suggests a depraved nervous spleen as the starting point from which, in the majority of cases, the changes in the inter-relationship of its secretions pave the way for an ultimate failure in carbohydrate metabolism. We cannot forget that glycosuria has been produced in animals by puncture of the floor of the fourth ventricle, nor can we lightly set aside the fact that it occurs in its greatest incidence after middle life, not only in those who are gouty or who have lived too well, but also with conspicuous frequency in men of intellectual type who have been brain-workers and have borne the burden of the day under conditions of more than average demand on their nervous energies. Experience, moreover, is declaring with more and more certainty that alimentary restrictions on the old lines of severity are no longer desirable or necessary, and that most cases do best when the diet is allowed to include as large an amount of carbohydrate as the toleration of the individual will permit. Further, it is clearly proved that the capacity for assimilating carbohydrates without seriously increasing the glycosuria is almost mathematically commensurate with the amount of leisure in life that can be enjoyed. The mere existence of a moderate amount of sugar in the urine after middle life is of little consequence if the nutrition otherwise is maintained. It is not in itself a disease, any more than the presence of urates; both are evidences of a disturbed metabolism, and nothing more; but the former is more indicative of a neurosal ancestry whose influence tends to accentuate and perpetuate an established hyperglycaemia unless care as to food is combined with a decisive curtailment of wear and tear.

The kidneys, and the urinary tract generally, offer endless opportunities for manifestations of the highly strung nervous system. The polyuria of mental anticipation, the incontinence of fear, the precipitancy of anxiety, are all everyday instances of disturbed nerve control. Is not the condition we recognize as diabetes insipidus merely an accentuated phase of simple polyuria? It almost seems to form a link between it and glycosuria, a link with very special etiological significance for those who perceive in all degrees of glycosuric disturbance a nervous element of weighty importance. Many cases presenting all the

symptoms of calculus either in the kidney or ureter surprise us by the negative results obtained from an *x*-ray examination. The disturbance of innervation may cause what is most easily explained on the theory of ureteric spasm, but whatever the mechanism be, it is pretty certain that the symptoms produced by a renal calculus can be very faithfully mimicked by a disturbance of nerve function.

In people who are neurasthenic and thin, and particularly in women who are of this type, the right kidney is apt to become more or less loose. Whenever such a woman has the misfortune to fall into the hands of some one who, having discovered it, solemnly pronounces a verdict of floating kidney, she is at once launched on a sea of countless troubles, and frequently, having sought relief from one form of treatment after another, at last ends in a nursing home, where she is promised a permanent cure by having her wandering kidney firmly stitched to her side. Though such operations are in some instances desirable and successful, in the majority the subsequent relief is small, and in not a few the net result, so far as the nervous system is concerned, is to make bad decidedly worse. The one event in such cases which ought to remove all opposition to operative treatment is the occurrence or threatening of a hydro-nephrosis.

The evidences of a highly strung nervous system furnished by the uterus and ovaries are too numerous to admit of discussion here. They are responsible for much personal misery and domestic discord. The frequency with which elaborate local treatment of one kind and another has become fashionable raises doubts in the minds of many as to its wisdom—even as to its justification. The removal of an ovary, often for a problematical reason; uterine douchings and curettings; vaginal packings; and all the rest of it, may succeed in relieving the local "congestion" which is supposed to be responsible for the dragging pains, the excessive menstruation, and the failure to conceive. But what about the effect upon the nervous steadiness and general tone of the patient? The question in this wider aspect is probably not always seriously enough considered, but if greater attention were given sufficiently early to the maintenance of the central nervous system in a condition of robust and self-reliant integrity, and to the regulation of daily habits of life on lines of greater simplicity and homely regularity, the need for most of such treatment would vanish, and it would be found again, as in the days of our grandmothers, that the pelvic organs, in the absence of actual organic disease, might with advantage be left in most cases to look after themselves.

PRACTICAL HINTS ON FUNCTIONAL DISORDERS.

BY

M. CULPIN, M.B., F.R.C.S., CAPTAIN (TEMP.) R.A.M.C.,
SURGICAL SPECIALIST, ALEXANDRA HOSPITAL, COSHAM.

EIGHTEEN months' service has convinced me that much harm is done by failure to recognize psychical disabilities which, though sometimes so extraordinary as to deceive the most wary, should generally be diagnosed by any one who is awake to their possibilities.

Tests of sensation should be applied where there are not enough signs fully to account for all disability present. I have formed the habit of testing every case I see and have thereby often arrived at an unsuspected diagnosis.

Such a test is that for hysterical anaesthesia: every man with a weak or paralysed limb should be tested with light pin-prick. If there is numbness or the prick is not felt as a painful sensation, the area of anaesthesia should, if organic lesion be present, follow the anatomical distribution of a nerve or nerves; if the anaesthesia ends at one level, like a sleeve or stocking, it is almost certainly hysterical. To confirm this, the upper limit should be marked with a pen; then the observer starts again at the periphery of the limb and works upwards in a zigzag; this time the limit will probably have shifted downwards for an inch or two and repeated tests will bring it still lower. Moreover, tests with pin, cotton-wool, and pressure will, especially if the patient is allowed to watch them, all show anaesthesia ending at the same level; this never occurs in nerve lesions, and with the zigzag test should serve to

eliminate those rare cases in which—so neurologists tell me—a root lesion of the brachial plexus gives an anaesthesia of the sleeve type. The patchy alterations in spinal cord disease should not cause doubt, though one meets hysterical anaesthesia of a proximal part of a limb—for example, from the elbow to the shoulder.

The principle of the zigzag test should be understood; localization of a peripheral stimulus is not perfect, and by the zigzag approach the patient is led to feel that a greater distance in a straight line has been covered, hence he thinks the original spot has been reached when the pin is perhaps two inches or more distal to it.

If the altered sensation depends upon a genuine lesion, the sense of localization is not called into use and therefore cannot be deceived; but one must remember that with a true slight alteration of sensibility the answers of a patient may not always be consistent. With a complete loss of sensation in a peripheral nerve the boundary, if the patient is intelligent, is constant.

If a total loss of sensation is claimed the Yes-No test is available. The patient is made to look at the ceiling and answer quickly, saying "Yes" when he feels a touch, and "No" when he does not. When touched on the anaesthetic area he may say "No," thus demonstrating that he really does feel; a smart man will say "No" once or twice only, or may shape his lips for the word and then arrest it when he realizes the trap, but one of duller understanding will answer "No" at repeated examinations without seeing his foolishness.

Hemianaesthesia of the body and limbs is frequent; a patient treated for rheumatism of the left arm and leg, with a trip to Droitwich thrown in, had hemianaesthesia involving the tongue and palate, with concentric diminution of the visual fields. For eight months the treatment had been carried on, whereas a pin would have settled the diagnosis in so many seconds. Similarly a patient with chorea of two months' standing, and regarded as seriously ill, with one side paralysed, fell to the Yes-No trap, and after a strong suggestion was able to get up and make his own bed.

Unless there is some special reason to the contrary, pain produced by pressure is not accompanied by hyperaesthesia of the skin over the same area. Thus a gonorrhoeal knee, a tuberculous elbow, or a joint inflamed by rheumatic fever may be exquisitely tender to pressure with the finger, but to light pin-prick it may be even slightly anaesthetic owing to subcutaneous effusion. Exceptions to this occur in appendicitis and other abdominal conditions, where areas of referred pain coincide with those of deep tenderness; in basal pneumonia with referred pain in the abdomen; in dental conditions, where the jaw is tender and superficial hyperaesthesia is felt along the fifth nerve; in scars involving a nerve; and probably in many conditions which I know not, but which should always be capable of explanation in anatomical terms. Therefore a sprain of the back, where pressure with the thumb and light pin-prick cause pain over the same area, may be regarded as psychical. A "rheumatism" in the calf with pin-prick pain needs explanation, and a sprained ankle which reacts similarly should be exercised at once.

The zigzag test may be applied to these conditions, especially "sprained backs," where the limit may be shifted by as much as six inches.

A fallacy must be guarded against; the man with a painful joint will expect a pin-prick to be painful, and his apprehension must not mislead. The existence of deep pain and superficial pain over different areas may be diagnostic of true disease.

A man who claimed to have hurt his neck was suspected of malingering. His neck was rigid, and he declared that movement was difficult and painful; there was pain to pressure in the side of the neck, with no superficial tenderness; the distribution of the great occipital nerve was mapped out by pin-prick hyperaesthesia, though pressure on that area was painless. Such a combination would never be imagined by the lay mind; in fact, the man was surprised when his symptoms were demonstrated: a diagnosis of a fractured articular process was made.

To differentiate between conscious and unconscious simulation is necessary but often difficult; sometimes the hysteric is a good fellow who deserves more sympathy than is consistent with cure; sometimes he resists all treatment and may openly say that he has no wish to be well, but, as