

quires modification. So does the statement that when there is pain or tenderness this generally arises from inflammation of the peritoneal surfaces; the reverse is oftener the case. Tenderness or pain, if long continued, is almost always a certain sign that irritation is going on in the tumour somewhere. Simple surface tenderness, causing surface adhesion, rarely lasts long; and the worst cases of adhesion met with have often no history, either of pain or tenderness.

Though the diagnosis of the advanced stage of a suppurating cyst is generally easy, yet the early symptoms may be most obscure. Two years ago, Dr William Murray of Newcastle sent me for operation, a patient with a large single non-adherent cyst, of not very rapid growth. She was in the full vigour of perfect womanhood, and I advised delay till her health or comfort were more interfered with. She was extremely urgent to have the tumour taken away, and somewhat reluctantly her request was agreed to. She was then visiting friends, and had been sight-seeing, and had got a little cold. It was finally arranged that she should return for operation after the period, which was due in a fortnight. Next morning she felt weak, and the temperature was above 100°. There was some cough and bronchial râles, but as she seemed to be suffering merely from a feverish cold, she was allowed to return next day to her home in Sunderland. There was then not the slightest complaint of uneasiness in the abdomen, no tension, no tenderness. She was not again seen by Dr Murray, and no circumstantial account was obtained of her subsequent illness; but she never left her bed after getting home, and died in a few weeks, almost immediately after a large amount of pus had been removed from the cyst.

The extreme feebleness of pulse, and depression of the vital powers, which all cases of acute suppurating cyst present, must not deter one from operating. Hopeless without interference, they are not the unfavourable cases for operation that they seem, or, judging from the small number of reported successful results, have hitherto been regarded.

ARTICLE II.—*The Morisonian Lectures, delivered before the Royal College of Physicians of Edinburgh: Session 1874.* By J. BATTY TUKE, F.R.C.P.E., F.R.S.E.

LECTURE IV. (*delivered 27th March 1874.*)

MR PRESIDENT,—I find that so much time has been occupied in the consideration of the anatomical and physiological part of my subject, and of the idio-encephalic conditions, as to necessitate a somewhat cursory review of the evolutionary causes of insanity, that is to say, those which are concurrent with the changes in the

development and decay of the body; and also of those conditions which are concurrent with diseases of organs remote from the brain. Were I to enter in detail upon those subjects, it would be impossible to lay before you fully that department to which I have directed special attention—the morbid histology of the brain—and which I am naturally desirous to illustrate. This will be done in the last two lectures.

As has been already said, the evolutional conditions of the body which concurrently affect the brain, require to be studied in close association with the last-named idio-encephalic condition—instability of the nervous system,—and for this reason, that the exciting cause of the insanity occurring at the climacterics (to use the term of the ancients) is so comparatively slight, so common to all mankind, that it almost presupposes an hereditary or congenital defect in the organs implicated.

It may be said that this is true of all forms of insanity—that a man who becomes insane must have been predisposed to the disease; but with this I cannot agree, any more than I could with the statement that the subject of, let us say, chronic catarrhal pneumonia, must have been predisposed to diseases of the respiratory system; or, to take a better instance, that all cases of Bright's disease are dependent on some instability of the constituents of the kidneys. We may grant this to be true of the gouty or contracting, but not of the acute inflammatory, form of these diseases: and in like manner, we have a right to refer insanity connected with the pubescent or climacteric period to nervous instability; whereas we should not be justified in assuming the same of a case of mania incident upon bodily disease or toxic influences. That weakness of constitution may be a factor in the production of all forms of degeneration, whether of the lungs, the kidneys, or the brain, is no doubt true; still, in certain of them, it is by no means an essential one, for they may result from causes non-inherent in the individual. I would not have given expression to this truism, were it not that so many mistakes, implicating the comfort and happiness of individuals and families, are made, in attaching the stigma of a tendency to so-called mental disease.

To the public, madness is madness—no attempt is made to differentiate between madnesses and madnesses: to have had an insane member in a family is to cause the world to regard with suspicion the general psychological health of every member, without regard to the cause or to the kind of the insanity in the afflicted individual. The manifest injustice of this is palpable to the medical profession, as its members know to what various causes and influences insanity is ascribable, apart from hereditary predisposition. Thus we may have, and constantly do have, insanities arising concurrently with morbid conditions of the body as mere accidents in the course of the case, in very much the same manner as delirium or convulsions, and probably due to a similar cause or causes, from which the

patient recovers without any permanent influence on his psychical health. The utmost care should be taken, in forming and expressing an opinion, as we are so frequently asked to do, as to the heredity of insanity in a family, to obtain the fullest evidence as to the general pathology of the case or cases of the individuals who have been its subjects.

But, after all, why should we speak of insanity as a stigma on a family, any more than we should of cancer or tuberculosis? Doubtless it is a terrible disease, but in what is it a more terrible disease than consumption? Only in this, that it is a more inconvenient disease. Is it in itself more loathsome than cancer or a dozen other maladies to which flesh is heir? Is it less curable than the majority of the graver forms of disease? Here it certainly has the advantage; for, given two persons, the one with the preliminary symptoms of tubercular phthisis, and the other with the preliminary symptoms of acute mania, *cæteris paribus*, of which would we predicate the greater probability of recovery? I am sure there is not a physician here present who would not prognose in favour of the latter. Society has surrounded insanity with a false metaphysical glamour, with which is compounded a savour of the ludicrous that does not enter into its estimate of what it considers purely bodily disease.

The observation of ages has caused us to accept as an ætiological fact, that numerous and various degenerations commence contemporaneously with modification of nutrition at the evolutionary periods of existence; and it might be fairly asked, Why should mental alienations be classed in accordance with their period of incidence any more than other morbid conditions? To this question it may be answered, that the morbid conditions occurring at these phases of which I now speak are of such a definite nature as almost, if not completely, to warrant their assumption as pathological entities; that, were the type of other morbid conditions modified in any great degree by age, it would be competent to classify them accordingly, and that the terminology of certain forms of degeneration is influenced by such circumstances. The periods of pubescence and adolescence, the first and second climacterics, and the degenerations of old age, must be regarded as immediate causes of insanity in those constitutionally prone to nervous instability, and also in those who may be placed under such accidental circumstances as may have a depressing effect on nervous energy. The changes in the nutrition of the system which take place at these periods concomitantly influence the psychical condition of the most stable, and in the unstable produce an increase or decrease of functional activity of the brain-cells, which, overstepping the limit of health, leads to the evolution of abnormal emotion, and consequent abnormal actuation, the latter in certain instances tending to aggravate the condition.

Dr Anstie lays great stress on the occurrence of convulsions

during teething without apparent adequate cause, as a strong indication of the insane neurosis, which, as the child merges into boyhood, is further evidenced by a tendency to steal, lie, commit acts of cruelty, and manifest cowardice and meanness of disposition. This is one train of symptoms; but there is another, of which a precocious æstheticism is the leading characteristic. It is open to question how far the latter is associated with the tubercular diathesis; in my opinion, the association is close and intimate. Under either of these circumstances, self-pollution comes in as an adjuvant to render the boy nervously unstable. There are high authorities who hold very strong views as to the evil influence exercised on the organism by the dietetic system of the present day: they maintain that in districts where the diet of the child and boy is simple, where the influence of strong food is withheld, the psychological health is better and stronger than in cities where over-nutrition demands of the youth some outcome of over-excited function. The extreme athleticism of the present day is regarded as a vicarious emunctory of over-excited function, actually called for by a too nutritious diet. Although we may not be all at one with these authorities, it cannot be denied that views, founded as these are on comparative observation, are well worthy of the attention of the profession.

Trying as pubescence is to the predisposed boy, he has yet a harder trial to undergo at the period of adolescence. As the virile function asserts itself on the organism, heredity frequently asserts itself. The evil habit of pubescence may have been continued uninfluenced by the self-respect which ought in the man to have overcome it; over-exertion of the brain by study may have deteriorated the vesicular elements beyond their power of recuperation; or the altered and altering nutrition may specially excite to action the function of the cells of the hemispherical ganglia; each condition producing a peculiar train of symptoms. Thus, the masturbator becomes peculiar, suspicious, reserved, full of faint fears, and self-accusing; the student melancholic, suicidal, and misanthropical; and the sthenic subject evinces maniacal excitement, irritability, a desire for action—he walks, talks, drinks, smokes, must ever be doing something. But whatever may be the general symptoms of these three sets of patients, they have one common symptom—a perversion or increase of the sexual instinct—the masturbator thinks women are looking at him, that he influences women unconsciously to themselves; the melancholic believes himself impotent; and the sthenic would run amuck amongst women. It is the last class which so often develop dipsomania. Insanity at this period is said to be influenced by sex; it is stated to be of more frequent occurrence amongst young women, and that the symptoms generally partake in a great degree of the character of hysteria. This is certainly not my experience, which may be exceptional—nay, is, if compared with that of most writers on the subject. I grant the

hysteria, but not the insanity. It is contended that the evolutionary change is more physically marked in the girl than in the boy. I fail to see this as a reason. I view it conversely; that the *absence* of an emunctory in the boy is more likely to make him prone to nervous disturbance than the girl, who has a physical vent. I can only instance my experience that absolute insanity is more frequent in lads, whilst the modified insanity of hysteria is more common amongst girls.

Between the adolescent and the climacteric periods the constitution of the nervous, like the other systems, becomes established, and disturbance is not liable to occur, except from some accidental circumstance apart from evolution. But when the great climacteric is reached, we find a singularly well-marked form of insanity manifesting itself *without any adequate cause* apart from the change of life. In those who have abided by the laws which regulate health, in those who have met with the success and comfort which as a rule accrue from a well-spent youth and middle age, in those whose constitutional proclivities are not towards nervous degeneration, this period is overcome with but slight constitutional disturbance, the middle-aged man or woman simply lapsing into the man or woman of advanced years. But in converse cases, the trophesial influence which grays the head, bows the back, flattens the foot, and modifies the general nutrition, concurrently reduces the vigour of the cerebral constituents. No more definite reason can be assigned for the one than can be for the other series of conditions. It is simply a law of nature that degeneration takes place at certain periods of existence; and as no degenerative change acts equally on all the systems, so each is liable to a predominance of decay, according to circumstances in the individual.

The influence of sex over the frequency of incidence of insanity at the climacteric period is slight. The following is the result of the analysis of 210 recent cases admitted into the Fife and Kinross Asylum:—Of these, 48 presented the well-marked train of symptoms of climacteric insanity—19 out of 86 men, or 22 per cent., and 29 out of 124 women, or 23 per cent. Before commenting further on this point, it may be well to state what these symptoms are. With slight modifications their leading characteristics are a vague fear of impending but undefined evil, a belief that the soul is for ever lost, that the patient has done some wrong to his family, that he is accused of some crime the nature of which he cannot determine, that he or his family is ruined, a strong tendency to suicide for the direct purpose of evading his misery, and, in a large majority of cases, an acknowledgment and recognition on the part of the patient of his own insanity. These are the leading symptoms, modified by idiosyncrasy. The general tone of melancholy pervading the condition may be influenced in the individuals by temperament, as every disease is. Melancholy may be characterized by excitement verging on mania, but still it is a melancholy

mania. But what explanation can be offered of the fact that the incidence of these trains of mental symptoms at the climacteric period is equal, or nearly equal, in men and women? In women we have the cessation of a physiological emunctory, the catamenia, to assert as a cause. [But is there not, in man, a cessation, or at least a considerable modification, about this period, of an emunctory? Time will not serve to discuss this point—it is merely thrown out as a suggestion.]

It is unnecessary to do more than allude to senile insanity, as its general pathology is universally admitted. I see that Bucknill and Tuke include it in the idio-encephalic conditions, and I believe I did so myself in a paper written some years ago; but, on the whole, it seems to me now more pathologically correct to refer it to an evolutional condition, which is by no means limited to the nervous system; in fact, that to the morbid condition of the bloodvessels must be ascribed the degeneration of cellular activity and of brain tissue.

Nor will I dwell longer on those other evolutional conditions—the pregnant and the puerperal—interesting and important though they are, than will suffice to discuss the question of their genesis. It has been, and even now is, the custom to speak of the insanities which occur concurrently with pregnancy, follow parturition, and supervene on lactation, under the common designation of puerperal insanity. How erroneous this is must be evident, when we consider how different are the efficient causes and the mental manifestations of these three forms of insanity. The various and profound changes of the whole system which attend pregnancy do not leave the nervous centres unaffected. The most frequent indication of insanity in the fecund woman, is a mere exacerbation of the morbid longings or appetites, and the change of disposition and temper almost invariably accompanying pregnancy. These in the nervously stable subject do not pass beyond a slight and temporary alteration in the morale, which, slight and temporary though it be, would under other circumstances be regarded as morbid; but here we accept it as a part of the physiological process. It is not, however, to be wondered at, that the great modifications of blood supply, of which we have such constant evidence in child-bearing women, should, in those who are strongly predisposed to nervous disease, be productive of actual insanity. How much these changes structurally affect the encephalon may be deduced from the presence of osteophytes or bony plates on the surface of the dura mater and the inner table of the skull; and how much, so to speak, functionally, from congestion and flushings. Nor is it only the quantity, but the quality of the blood which may be a factor. The increase of fibrine and water, and the decrease of albumen, must exercise an influence over the nutrition of cells, and it is possible that the predominance in the individual of one or other of these conditions may determine or condition the nature of the insanity. The most frequent symptoms

of the insanity of pregnancy are melancholy and moral perversion : the latter taking the form of dipsomania, the former being accompanied by a suicidal impulse, much less commonly mania of an asthenic type. It is worthy of remark, that psychical disturbance manifests itself most frequently during what are generally considered the critical months of utero-gestation, and that its incidence as to frequency is in inverse ratio to the number of the confinement.

Passing over the mania occasionally occurring during childbed as the head passes the vulva, which is most probably due to temporary congestion consequent on muscular effort, we find a well-marked sequence of mental symptoms following on delivery. This is the true puerperal mania, a name which, when applied to the insanities of pregnancy and lactation, is a direct contradiction in terms. In the large majority of cases of puerperal insanity, the symptoms are those of violent mania—a mania with delirium.

The puerperal maniac has symptoms which, as a rule, cannot be mistaken for any other form of insanity, with perhaps one exception,—mania *a potu* ; but even here there are points of diagnosis which are very prominent. The bodily symptoms are at direct variance with the mental. She is pale, cold, often clammy, with a quick, small, irritable pulse, features pinched, generally weak in the extreme, at times almost collapsed-looking. But withal she is blatantly noisy, incoherent in word and gesture ; she seems to have hallucinations of vision, staring wildly at imaginary objects, seizes on any word spoken by those near her which suggests for a moment a new volume of words, catches at anything or any one about her, picks at the bed-clothes, curses and swears, will not lie in bed, starts up constantly as if vaguely anxious to wander away, and over all there is a characteristic obscenity and lasciviousness. Suicide is often attempted, but in a manner which shows that it is not the result of any direct cerebration ; she may wildly throw herself on the floor, attempt to jump from the window, or draw her cap-strings round her throat, but there is no method about it, it is an impulse, the incentive of which is purely abstract.

This description of course applies to the severest class of cases, but it is taken from the recollection of not a few. Even where the symptoms are not so acute the same tone exists ; and the shorter the time of its supervention after delivery, the more acute and marked the mania, and more rapid the recovery.

A careful analysis of a large number of cases of puerperal insanity which had been admitted into the Royal Edinburgh Asylum and the Fife District Asylum showed that, although mania was the most frequent symptom, melancholia was occasionally the indication : but what is of great importance from a pathological point of view, melancholia never appeared within sixteen days after labour, generally manifesting itself in about a month. It further eliminated the fact, that complicated are much more fre-

quently followed by mental symptoms than natural labours; for out of 73 cases of true puerperal mania, 23 (or 30 per cent.) had supervened on abnormal parturition. These two facts taken together lead to the conclusion, that melancholy after labour is not due to the same exciting cause as mania; in a word, that it is not puerperal insanity in the true sense of the word. The various depressing influences of childbed, its various accidents reducing vitality, the sudden return to ordinary physiological conditions, the cessation of normally abnormal physiological conditions, the rapid call for a new focus of nutrition, the translation as it were of the blood to the mammæ, may all be instanced as physical influences liable to act on the brain tissues. The late Sir James Simpson advanced a most seductive theory, that puerperal mania depended on an albuminuric condition, in like manner as puerperal convulsions. As far as my own observations go, and they have been fairly extensive, I have not been able to substantiate this theory; for although I have found albumen in three cases in very slight clouds, still in upwards of 26 no evidence of its presence was obtained. It may be fairly confessed, that the pathology of puerperal insanity is not so definite, or referrible to absolute conditions, as the insanity of pregnancy; but it asserts itself in so strong a manner that we are compelled as physicians to accept it as a special form, although as pathologists we are not able to give such strong reasons for our belief. It is mere hypothesis, still an hypothesis not altogether inadmissible, to suggest that the decadence of those conditions, which had produced such physiological adventitious structures as osteophyte, may be factorial in the induction of insanity. Great difficulties stand in the way of the elucidation of the morbid anatomy of these two forms of derangement. On the other hand, we have in the case of the insanity of pregnancy so many suggestive facts as to actual structural changes, as to lead us to believe that by the study of the causes of the slighter forms of mental disease, we may hope to arrive at a knowledge of those evidenced by more persistent symptoms.

The insanity, when it follows on prolonged lactation, being of a truly anæmic character, falls to be considered under that general condition.

Under evolutions conditions may be fairly comprehended the manifold disturbances of the catamenia—but in a very general manner, inasmuch as they are induced and produced by each and all of the conditions which may be inductive of insanity. It is far too complex a question to enter upon at present, how far the increase, decrease, or absence of the menstrual discharge is influential in the induction of insanity, or how far they are the results of the trophesial influences exercised by the conditions which induce the insanity. This must be relegated to the future, of which I have so often spoken. That the modifications of the discharge are occasional immediate causes of insanity is proved by the fact, that on its

regaining its normal amount and quality, the mental symptoms disappear.

A very cursory consideration of the morbid conditions of the system which concurrently affect the brain must suffice at present. But before proceeding to this cursory consideration of individual conditions, I must remark on the absence of abnormal mental manifestations as sequences on certain forms of disease, which, *a priori*, might be supposed to be the most probable immediate causes, but to which in fact they can seldom be referred. I allude in the first place to those chronic diseases which affect the rectum, bladder, uterus, and contiguous parts, such as stone, fistula, cancer of uterus and rectum, stricture with its miserable consequences, and many others which must suggest themselves to you as exercising a most distressing and depressing influence on the nervous system. Of course, we can all remember individual cases in which insanity appeared as a remote consequence on such maladies; but at the first glance, it would be matter of wonder that the instances at our command are so few, were we believers in peripheral irritation as an immediate cause of insanity; and in the second place, I refer to diseases of individual organs, such as the heart, liver, spleen, and kidneys. It might be expected that heart disease would be more frequently inductive of insanity than it is—in fact, it is a question whether it is ever the efficient factor. We are told, to be sure, in certain works on mental disease, that obstructive valvular disease is connected with simple and hypochondriacal melancholy, and that dilatation of the heart is frequent in chronic mania; but these very vague statements carry really no weight with them, as they are unsupported by clinical statistics. Judging from my own experience, I do not think that disease of the heart has any real connexion with insanity as a cause, however much it may have as a result—its early presence in association is a mere coincidence. In like manner, diseases of the liver are, as a whole, innocuous to brain health. We certainly find abnormal livers in insane subjects, but we are almost invariably able to refer the insanity and the liver disease to one common cause. Diseases of the kidneys are decidedly rare amongst the insane, although we have temporary mania or delirium in Bright's disease, probably due to uræmic poisoning.

Much stress has been laid on diseases of the uterus and ovaries, and more especially on tumours of these organs, being the primary factors in the production of insanity. Skae laid down as a special form ovario- or utero-mania; and Dr Wergt of Illnau has described the various morbid conditions of the female organs of generation found on post-mortem examination, and connects with them mental symptoms. Not having met with any case which on mature deliberation could be ascribed to such diseases with absolute certainty, and only with one or two in which a strong presumption was warrantable, I began to doubt that uterine disorders ever exercised a sympathetic influence, or acted on the nervous centres by

peripheral irritation to a degree productive of insanity. On consulting some of our leading gynecologists, I found that their observation tended in the same direction; that although cases occasionally but rarely presented indications of melancholy, this symptom was more a secondary than a primary one, and was caused by loss of sleep consequent on depressed emotions, anxiety, and pain. The fallacy of advancing uteromania or ovarioomania as a special form arises, I believe, out of the clinical observation that, in certain cases, tumours and other deviations from health in the organs of generation, condition to some extent the nature of the mental symptoms in such a form as climacteric insanity. Women who for years have been carrying tumours, when they arrive at the change of life develop aberration of intellect, and not unfrequently the character of their delusion is marked by sexuality and erotomania; they think they are pregnant, or that they are visited at night by men. It is to this extent only, I believe, that such morbid growths are connected with the insanity; they may condition, but there is no actual clinical proof of their primary influence on causation by peripheral irritation. There is too much of the element of coincidence—of the *post hoc, propter hoc*—involved to allow us to accept utero- or ovario-mania as a pathological entity, for I have known of several chronic cases of insanity with uterine tumours without any sexual symptom. In like manner, we have a few scattered cases of insanity coexistent with disease of the kidneys, bladder, and spleen, but they all want what an art critic would call breadth of colour conjoined with definiteness of outline, which is so characteristic of the great forms of insanity.

From an ætiological point of view it is of great interest, and I believe of great importance, to note that insanity is seldom, if ever, the immediate *result of diseases of individual organs*, or of peripheral irritation, but that it is most intimately associated with those forms of disease which are the manifestations of a general constitutional instability, such as tuberculosis, rheumatism, gout, or syphilis. This fact, if fact it be, points to the implication of the nervous system and of its central organ in the general impairment of nutrition which produces these morbid conditions, and that as each and all of them may manifest itself in various ways and in various regions, insanity and the brain may be the way and the region in which a section of them do manifest themselves. Thus, without overstepping the limit of health, we have the feebleness or the æstheticism of the tubercular, the irritability of the gouty, and the paralysis of energy of the syphilitic. There is, I believe firmly, an hereditary phthisical brain, and an hereditary gouty brain, and an hereditary syphilitic brain; and further, that through such brains the constitutional instability may be evidenced by insanity without any actual outbreak in other parts of the system.

Passing from the general question, we find that in these three great morbid constitutional conditions, insanity is an occasional

concomitant, and the psychical symptoms in each case are well marked and defined. We have to thank Dr Clouston for the first description of what he calls the insanity of tuberculosis. His conclusions have very severely been called in question, but I, for one, maintain a belief in their accuracy and value. The symptoms of their form in no way partake of the character of the *spes phthisicorum* or euphoria, although in some respects there is a resemblance between the want of fixity of purpose of the un insane tubercular subject and that of the mentally afflicted one. To quote Dr Clouston's own words, the symptoms may be described as "a mixture of sub-acute mania and dementia, with a great disinclination to exert the intellect; occasional unaccountable little attacks of excitement, and a disinclination for work or even amusement; pervading all is a strong tendency to be suspicious." As to the pathological anatomy of this form of insanity, little can be said. Tubercular deposits on the surface of the brain or in the tissues are as rare in the insane as in the sane adult, and as yet the microscope has contributed no fact bearing upon the immediate question, although it presents a hopeful field of research. There are many very interesting points in connexion with tuberculosis associated with insanity which will be fully discussed when we take up the question of the corporeal symptoms of insanity and the influence it exercises in modifying other forms of disease.

In the insanities which are concurrent with rheumatism and gout, we have as perfect pathological entities as are presented in the whole extent of mental disease. If we were now classifying insanity a difficulty would arise as to where these two forms should be placed; whether they should be held to be diathetic or metastatic. This is especially true in regard to rheumatic insanity, for the mental and bodily phenomena are distinctly vicarious one of the other. The metastasis from the general to the nervous system is symptomatized by choreic movements of the limbs, which disappear contemporaneously with the return of inflammatory swellings of the joints or other indications of the disease in the muscular tissues. But if we accept the general principle laid down in the opening remarks on this section, the metastasis must be regarded as a peculiarity of the general condition, and the brain, and more especially its connective tissues, being predisposed like other structures to the morbid influence of rheumatism, is liable to be, in common with them, the seat of translation.

The general characteristics of gouty insanity are very analogous to those of the rheumatic form. The metastasis and vicariousness of the symptoms are the really important pathological indications. Dr Berthier has given us an excellent paper on this subject. He has, however, omitted, I think, one physical symptom of gout, which is an obfuscation of intellect, or rather a semi-paralysis of the thinking powers in those to whom gout clings, without breaking out into acute inflammation. I refer you to Dr Berthier's careful paper,

published in the *Annales Medico-Psychologiques*, in the year 1869. With regard to syphilis, we may accept the changes in the blood-vessels themselves as the cause of insanity amongst its subjects. This interference with the nutrition of the brain appears to act in two ways: 1st, by producing circumscribed tracts of degeneration and softenings which implicate the health of the whole encephalon; and, 2dly, by a general impairment of its nutrition. I lay before you specimens taken from two syphilitic cases who died insane, in which the remarkable changes in the vessels are very well marked. I am not sufficiently versed in the literature of the disease to know whether the appearances you will see have as yet been described, and I shall feel obliged by an expression of opinion on the subject.¹ With the lately published exhaustive lectures of Dr Broadbent on Syphilis before us, it is unnecessary for me to say more on this subject.

It would likewise be a work of supererogation for me to discuss in full the toxic causes of insanity, for all here present are well acquainted with the various theories of the actions of the poison of alcohol, tobacco, and other, so to speak, articles of diet, and of the toxic influence of the various mineral and vegetable poisons on the system. In the instance of alcohol, the poison which is the prime factor of a special form of brain disease, alcoholism, acute and chronic, a simple physiological experiment at once demonstrates that its application to an exposed nerve results in immediate cessation or paralysis of its energy; and as it is fully proved that it is readily absorbed into the circulation, and thus is applied to the central nervous organ, we have little difficulty in accounting for its physiological and pathological actions. In the same way the results of the abuse of many medicinal agents can be explained up to a certain point. But the whole question of brain-poisoning presents far too wide and too often traversed a field for present consideration. It is only introduced here *pro formâ*; it merely enters its appearance to assert its right to be considered as a cause of insanity. Its pathological histology will be taken into consideration further on in this and the next course.

Turning to anæmia as a cause of insanity, we have a somewhat more complex subject to deal with. The defective nourishment of the brain-cells in the state of anæmia must be accepted as the cause of impairment of their functional activity, for they must suffer concomitantly with other structures, and relatively in proportion to their great vital activity, rendering the regions over which they exercise control all the more liable to the morbid processes which are the known results of the modification of blood constitution. The term anæmia is not used here to imply a condition antithetical to hyperæmia; it does not indicate any mechanical deprivation of blood supply; on the contrary, the amount of blood,

¹ See "A Case of Syphilitic Insanity"—*Journal of Mental Science*, Oct. 1874, with plate.

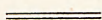
such as it is, is not reduced in quantity, possibly it is increased. The temporary mechanical anæmia which results from extreme cold, for instance, produces its effects rapidly—short delirium and profound sleep, recovery from which is accompanied by intense pain. But the anæmia which qualitatively implicates the constitution of the blood is the anæmia which produces more or less permanent results on cerebral health.

In a region of which the recuperative nervous energy is depressed, the phenomena presented by the corpuscular elements of the blood under abnormal qualitative conditions are all the more likely to manifest themselves. Taking a healthy brain, we might expect to see the corpuscles flowing as quietly and orderly as in the perfectly healthy frog's foot or bat's wing, a demonstration which few of us have seen. Taken, on the other hand, a brain whose activity is depressed in a subject whose blood constituents are under the morbid conditions attendant on anæmia, we might expect with almost perfect certainty that the transit of the corpuscles would present the appearance we have all so frequently seen in an unhealthy frog's foot, the aggregation and rolling motion of the red, and the lagging and wandering of the white corpuscles. It is well known that in anæmia, however it is produced, the red corpuscles have a tendency to coalesce, in consequence of the acquirement of an adhesive viscid quality, causing them to hang together, and so preventing the intercurrence of the white corpuscles. When we take all this into consideration, it is not difficult to see how, even more rapidly than in hyperæmia, a condition of stasis can be established in the cerebral vessels.

The psychical symptoms which are manifested in anæmic insanities are, as a rule, characterized by delirious mania—of not long continuance, but intense while it lasts.

Having thus slightly sketched the leading causing influences of insanity, although by no means having exhausted the category (many of minor importance being of necessity omitted), I will conclude this section of my subject by indicating the great chasm which yawns between the pathogenesis and the morbid anatomy of nervous disease, especially of that portion in which abnormal psychical phenomena are the predominant symptoms, *i.e.*, insanity. Clinical observation shows that we have trains of symptoms, more or less defined, associated with certain efficient causes of psychical disturbance; but in the best defined train of symptoms, let me instance general paresis, we have a wide area of divergence. If there is a pathological entity in connexion with what we call insanity, general paresis is that entity; but mark how very widely divergent are its psychical symptoms. True, in nine cases out of ten of this disease, we have a thorough sequence of psychical symptoms, *but there the odd tenth stands* demanding explanation. Take a more common insanity, drunkenness—ordinary ebriety; why is it that one man differs from another in the manifestation of artificial madness? Take, again,

the insanity more rapidly induced by anæsthetic agents, why does one patient quietly subside into dementia, whilst another runs rapidly the course of symptoms which we often note in more permanent insanities,—depression or melancholia, violent mania, and terminative dementia? At this point the pathologist must hold his hand; he falls back on the *interrogatio questionis*, idiosyncrasy, or diathesis. But in thus narrowing himself in his imperfect science he is only relatively narrow to his brother worker in the more accurate science of physics. The physicist is compelled to speak of force, but what is idiosyncrasy but a modification of force in the individual? The physicist stands erect when he shows a change in condition of a bar of iron—a comparatively simple body—under the influence of heat, regarding with condescension, with reserve, and with self-complacent criticism, the work of the man who directs his attention to that somewhat more complicated substance, the human frame. It is not probable that the mechanism of psychical action will ever be projected on a chart, or the molecular and chemical changes which accompany it will ever be submitted to demonstration. Helmholtz tells us that there is a limit to the magnifying powers of the microscope—a limit which has already nearly been reached. But another Helmholtz may arise to whom the most abstruse work of his father in science will be but a mere primer.



ARTICLE III.—*On a new form of "Boot" for the Treatment of Talipes Equinus.* By THOMAS ANNANDALE, F.R.S.E., Surgeon to the Royal Infirmary, and Lecturer on Clinical Surgery.

THE boot figured was made, at my suggestion, by Mr Hilliard in September 1870, in connexion with the treatment of a case of talipes equinus. Since then the appliance has proved so successful in treating cases of this deformity in my own practice and also in the practice of others, that I recommend it with much confidence to the consideration of my professional brethren.

I have used it under three conditions:—(1st), Without any division of the tendo Achillis. If the distortion is not very severe, the application of the boot without any operation is perfectly successful. One interesting case, treated under this head, was that of a little girl, both of whose feet were affected with the deformity. The apparatus was applied to both feet, and resulted in a complete cure.

(2d), With division of the tendo Achillis, and, if necessary, the plantar fascia. In aggravated cases the division of one or both of these structures is usually required, and when the wounds are healed the application of the boot gradually stretches the contracted ligaments and other textures, and so completes the cure.

(3d), With removal of the head of the astragalus in addition