what I saw, that the large asylums for New York and Philadelphia are disgraceful to the municipal authorities of those cities. But this is not the fault of the medical superintendents, further than it may be said to be their fault to hold office and discharge duties under circumstances which give them no fair play. I pity the patients in these asylums from my heart, but I have some pity also for conscientious and laborious medical men, who painfully endeavour to discharge their duties to the best of their ability under the vulgar rule of a municipality moved only by motives of party politics and unintelligent economy.

I remain, Sir, your obedient servant,

JOHN CHARLES BUCKNILL.

Hillmorton Hall, Rugby, Jan. 28th, 1876.

On the Use of Analogy in the Study and Treatment of Mental Disease. By J. R. GASQUET, M.B., Lond., Physician to St. George's Retreat.

The disheartening aphorism, in which Hippocrates summed up the experience of his life—"Art is long and life is short, the occasion is fleeting, experiment is dangerous, and judgment is difficult"—is more true of the study of insanity than of any other department of medicine. Were any proof needed of this, it would be sufficient to point to the classification of mental diseases, the symptomatological plan adopted until recently corresponding to the earliest nosology of ordinary medicine, while the schemes which task the ingenuity of a Skae or a Bucknill have a great likeness to the "Phthisiologia" of Morton, or to the nosologies of Sauvages and Cullen.

But, if it be granted that our specialty is much behind the other branches of medicine, it follows that one of our principal means of advancing it will be to argue from the analogy of the better known phenomena of other diseases to the more obscure symptoms with which we have to deal. As Mill remarked, the great value of analogy in science, even when faint, is to suggest observations and experiments with a view to establishing positive scientific truths. We are all of us continually doing this; but it appears to me that much of its advantage is lost, from our having no systematic plan on which to work; and I have, therefore, ventured to note down, somewhat roughly and disconnectedly, such ideas as have occurred to me on the subject, hoping rather to lead some more competent person to undertake it, than to bring forward

anything very valuable myself. I shall deal, in this paper, only with ordinary insanity, excluding all mental disturbances produced by general paralysis, syphilis, and all other forms of ascertainable brain-disease. I do so, not because analogy is here inapplicable, but because it requires to be applied in a different manner, and should, therefore, be dealt with separately. Having said so much, it will be evident that we shall have to search for analogies chiefly among the "neuroses" which are most akin to insanity. Indeed, this is a truism, so long as we use the term to include all those affections of the nervous system which can be connected as yet with no special anatomical lesions.

To begin with *Melancholia:* Leidesdorf has remarked that "the most superficial observer cannot miss seeing the analogy between this painful uneasiness of the mind, and hyperæsthesia of a sensory nerve. In both there is an exaggerated sensibility, due to the condition of the nervous tissue itself; in both every kind of excitement is followed by a feeling of pain, and even sensations, which would naturally be pleasureable, are changed into the reverse." In spite of this close similarity, the analogy between melancholia and neuralgia is perhaps less suggestive than others I shall have to refer to. The conditions under which they arise are very similar; Romberg's often-quoted remark—"pain is the prayer of the nerve for pure blood"—being as true of the one as of the other. They also occur under much the same circumstances at different periods of life; the melancholia as well as the neuralgia of the young being frequently due to disturbance of the genital organs, and being far more curable than the same affections in later life, which, no doubt, point to some permanent alteration of the nervous centres. I am afraid that little is to be gained towards a better knowledge of the intimate nature of the state of the nervous centres in melancholia by a comparison with neuralgia, for the latest authorities on the subject, as Erb and Eulenburg, confess that we have not sufficient materials to come to any conclusion upon it. But some interesting points may be noticed; for instance, the absorption in self, and utter indifference to the ordinary duties and pleasures of life, so characteristic of melancholia, find their parallel in the anæsthesia frequently observed in neuralgia. Nothnagel, who has carefully examined for this, finds that in the early stages of neuralgia, there is generally hyperæsthesia, loss of sensibility being a later symptom. I am inclined to think that the same holds good of melan-

cholia, but it would be interesting to have the point further investigated. Again, without being too fanciful, I think one can compare the restlessness of melancholia with the spasms, tremors, and other motor troubles which may affect a nerve under the influence of pain. We shall gain more practical information by placing the results of treatment in both diseases side by side—thus, although the use of opium is as well known in one as in the other, it is worth considering whether we might not more speedily and decidedly relieve melancholia as well as neuralgia by its hypodermic administration. The nervine tonics and stimulants, which are so frequently useful in neuralgia, are less employed in melancholia, and yet probably as much benefit would follow their use. I would particularly refer to phosphorus, which Dr. S. W. D. Williams found curative in certain cases of melancholia, and which I have also seen to produce an undoubted and speedy recovery; and to arsenic, the analogue of phosphorus, which is slower in its action, but sometimes succeeds when phosphorus fails. Cod-liver-oil is useful (as Anstie has already noted, for neuralgia) in patients who have long rejected all fatty articles of food—a circumstance as frequent in the one disease as in the other. As to the preparations of iron, it is worth remembering that Anstie found the sesquichloride the most useful in neuralgia, and believed it to have a specifically beneficial effect on the nerve-centres, often combining it with strychnia. Bromide of potassium he recommends, particularly in cases where there is a good deal of restlessness, and where the neuralgia is of uterine origin; precisely the circumstances in which we find it so beneficial for climacteric melancholia.

As the resemblance between melancholia and neuralgia has long been obvious, so a similar likeness has been recognized between states of mental exaltation and the motor disturbances of the nervous system. But it seems to me very unfortunate that epilepsy, from its intimate connection with mental imbecility, and with sudden explosions of violence, should have obscured the clinical kinship which exists between mania and the other motor neuroses. Among these, *chorea* appears to have the greatest likeness to mania, and, indeed, has been called "an insanity of the muscles," "folie musculaire," by many writers, and by Dr. Broadbent more recently, "a delirium of the sensori-motor ganglia."* It is impossible, in the present apparent conflict of evidence, to determine the

* I refer, in what I am going to say, exclusively to the chorea of childhood; that of pregnancy being distinguished from it by several important characters.

seat of this neurosis, the clinical phenomena hemichorea, choreic hemiplegia, and the like, pointing to an intra-cranial origin of the disease, while experiments* and many autopsies seem to imply that the spinal cord rather is in fault. We may probably conclude that any cause which increases the excitability of the motor centres in the spinal portion of the nervous *system* (viz., from the corpora quadrigemina downwards)† may produce chorea, which would be further greatly assisted by the removal of the inhibitory power of the cerebral hemispheres. What this change is, we cannot yet know; but may plausibly conjecture that the vasomotor ganglion which regulates the supply of blood to the nervous centres, under some direct or reflex stimulus, causes the vessels of the part to *dilate*, and the blood to flow through it more rapidly than usual. This would account for the increased activity of one or more divisions of the nerve-centres, which (as Jacoud has shown, in his masterly exposition of chorea) would be sufficient to disturb the harmony and co-ordination of the whole spinal system, and so to produce that functional motor ataxia which we call chorea. A similar condition in the cerebral hemispheres would break in upon the still more complicated and highly co-ordinated system of the convolutions, and would produce the symptoms of mania. This would, then, be a *functional* ataxia of the cerebral hemispheres, corresponding, in point of symptoms, to the *organic* ataxia produced by extensive disease of the convolutions in general paralysis and other diseases, just as sclerosis of the posterior columns of the spinal cord is related to chorea.

I can only dwell upon some of the points of resemblance between chorea and ordinary mania, which lead to the conclusion that they depend upon the same process affecting different parts of the nerve-centres. It will be remarked that the usual age for the occurrence of chorea is about the time of the second dentition, while acute mania is most common between 20 and 30—in both cases that is, when the portion of the nervous system affected has begun to be in full work, but before its complete co-ordination has had time to be established. The exciting causes of both affections are the same, and both are arrested by the intercurrence of any pyrexial disease. They also correspond in their varying in-

* Chauveau found that in choreic dogs division of the spinal cord at the level of the atlas did not check the twitchings as long as life lasted.

† Even Dr. Broadbent and Dr. Hughlings Jackson do not localize chorea any higher than the corpora striata and optic thalami.

tensity; for, just as chorea in its earlier stages, and even in slight cases throughout, is only manifested during some voluntary movement, but gradually becomes continuous; so mania may only show itself by violence and excitement, which will subside when all external stimulus is withdrawn.

I cannot lay much stress on the fact that maniacal symptoms sometimes break out in the course of chorea, for the commoner mental condition seems to be one of depression and of weakness, probably because the inhibitory action of the convolutions is usually weakened before the disease can occur.

If I am correct in this view, it will evidently have an important bearing on treatment. In the first place, chorea runs usually a favourable and tolerably definite course, and, without at all denying the usefulness of treatment, it is notoriously one of those affections in which remedies have obtained a reputation for recoveries which are due to the natural progress of the disease. I believe the same to be true also of acute mania, where all violent attempts to cut short the excitement do much more harm than good. And, in particular, if the intimate cause of the disease be a hyperæmia of the nervous centres, we can understand how, by the use of chloral (which when taken habitually, we know, renders the arterioles more easily dilatable) a brief repose is too often purchased at the price of making the disease incurable. However, there are some remedies which appear to have an undoubted effect in shortening the duration, and lessening the severity of an attack of chorea. Some of these (for instance bromide of potassium) are as well recognised in the treatment of acute mania, but others are not employed in the latter disease. The most decidedly beneficial results of treatment in chorea that I have seen, have been obtained by the use of ether-spray to the spine: this method is often so rapidly beneficial in chorea* that a similar application to the head seems to deserve a more extensive trial than it has yet had in maniacal patients. The wet pack, which, according to the latest experiments, produces first dilatation, and then contraction of the cerebral arterioles, probably acts in the same way, but less decidedly.

* Lubelski and Jaccoud, who suggest this mode of treatment, state that cure is effected in some ten days. I have had the advantage of seeing it tested by my friend Dr. Withers Moore, in the Sussex County Hospital, who finds their statements correct if the chorea be purely spinal, but if the cranial nerves also are affected, it seems to be less useful. The spray is applied to the whole of the vertebral column for three or four minutes, once a day.

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Arsenic has been long recommended in the treatment of chorea, and possibly the disfavour into which it has at different times fallen may be explained by Von Ziemssen's remark, that it should be given in very much larger doses than usual. In the account which he has just published of chorea, he states that he has for many years ordered 8 to 12 drops of Fowler's solution three times a day for adults, without ever observing any serious results. Those who have observed the very different effects of phosphorus in large and in small doses will be quite prepared to believe that the same may be true of arsenic; and the tastelessness of this remedy makes it easy for any one to try it in cases of mania.

The salts of zinc and copper have enjoyed a more uncertain reputation in chorea. At the present day we seldom or never hear of their employment in mania, though they were recommended by a physician of no less eminence than Van der Kolk.

I must now pass from the comparatively well-defined types of ordinary mania and melancholia to the more confused forms of chronic insanity. It might be supposed that these are too imperfectly understood to afford any foundation for analogies which must, at any rate, be of no practical utility, as chronic insanity is, on the whole, incurable. And, although I fear this is only too true, yet it should be the very reason to lead us to search the more earnestly for fresh clues to new and more successful treatment. I need hardly remind my readers that there are good reasons for believing that many cases of chronic insanity, which now are hopeless, might be temporarily improved, or permanently cured, if we only knew how. The recoveries from insanity of long standing, which now and again surprise us, and the temporary improvement which will sometimes take place in the most apparently desperate cases under the influence of pyrexia, of a mental shock, and of other causes unknown to us, and at the approach of death, practically testify to us that the highest praise of the physician, as of the Roman general of old, is that he should never despair.

And, although I can produce nothing promising much immediate utility, I cannot but hope I may be able to suggest the cases which we should select for treatment, and the direction in which we should look for our remedies.

I think it will be admitted by everyone that such cases of chronic insanity as are still curable at all, must be due to some local change which stops short of destruction of nerve-

tissue. The only change of this kind with which, in the present state of our knowledge, we are acquainted, is perverted vaso-motor action; and we have, therefore, to look for analogues among the vaso-motor neuroses. The pathology of these is unfortunately very imperfectly understood, owing to the crude and provisional state of our acquaintance with vaso-motor action in general; but far more is known about them than about most of the chronic forms of insanity. One of the most instructive vaso-motor neuroses for my purpose is *exophthalmic gôitre* (Graves' or Basedow's disease). It will be remembered that, however diversely the details may be explained, the symptoms of this affection are admittedly due to vaso-motor dilatation in the various parts concerned. Its non-intermittent and chronic character separates it from most of the other neuroses, and, so far, resemble chronic mania with incoherence, to which it has another feature of similarity in the persistent quickening of the pulse, which is such a prominent symptom. Brück and Geigel have seen maniacal symptoms break out in the course of this disease, which Jaccoud attributes to an extension of the original disturbance from the cilio-spinal centre to the neighbouring vaso-motor centre which governs the intra-cranial circulation.

There is, at any rate, sufficient *primâ facie* evidence of a likeness between the two diseases to make it worth while to try, in chronic mania, the remedies which have been found successful in Graves' disease. Quinine, in the dose of some five grains a day, has cured, or greatly benefitted, Friedreich's and Traube's patients; the latter combined it with the alternative use of iron. Digitalis seems to have little or no effect, but the bromide of potassium has benefitted many cases, and some cures are ascribed to belladonna. But the use of the continuous galvanic current has, so far, been attended with the most striking results. This treatment, first employed by Von Dresch, has been carried out more systematically by Eulenburg, who applies the cathode of a very weak current (six or eight elements) to the sympathetic in the neck, which produces a gradual falling of the pulse, almost to its normal rate, and a great relief to the mental symptoms which previously existed.

Another vaso-motor neurosis, which is worth considering from our point of view, is *hemicrania,* which, since du Bois-Reymond's observations in his own case, is recognised as dependent on a tonic contraction of the unstriped muscular

fibres in the part. The latest writer on the subject, Eulenburg, considers that there is an entirely opposite form of hemicrania, due to abnormal dilatation of the vessels. He would distinguish these two forms by the amount of blood noticeable in the skin of the face, and by the state of the pupil, which would be dilated in the tonic, contracted in the paretic, variety. He regulates his treatment according to these two varieties, giving particularly ergot, quinine and caffein where the sympathetic seems to be paralysed, but employing inhalation of amyl nitrite where the vessels are in a state of tonic contraction. Ergot is already known to us in the treatment of insanity, through Dr. Crichton Browne's recommendation, although it has somewhat disappointed in practice the expectations which were justly entertained of its usefulness; but I do not know that quinine in rather large doses, or caffein, have ever been tried in cases of chronic mania where there is reason to believe the cerebral vessels are dilated. Indian hemp, which is undoubtedly one of the most useful remedies in such circumstances, is also frequently beneficial (it will be remembered) in hemicrania. In one case of extremely violent chronic mania, with rapid pulse and dilated pupils, I have seen more marked relief from the use of physostigma than from any other remedy.

The nitrite of amyl, which relieves the opposite pathological condition, should be tried in those cases of acute dementia which seem to depend upon tonic spasm of the cerebral arterioles; probably belladonna, or the subcutaneous injection of atropia would be less speedily, but more permanently useful.

The auditory hallucinations, which are so common and unfavourable a symptom in insanity, are probably analogous to the convulsive spasm of the face, neck, and tongue, produced by centric irritation of the facial, spinal accessory and hypoglossal nerves. Like these they are chronic, intermittent, and very rarely recovered from, either spontaneously or as the result of treatment, and probably they are usually produced under the direct influence of affection of the hemispheres, which seems occasionally to be the cause of convulsive tic, and of spasm of the spinal accessory.* But, unfortunately, there is little to be gathered from the treatment of these affections, for they are most relieved by the use of

* Erb records a case in which spasm of the tongue occurred in a person who had become insane, and apparently he considered them to stand in the relation of cause and effect.

galvanism, and the auditory nerves seem to be too deeply seated for a weak current to have much effect.

There is one form of insanity which seems to find its affinities not with the neuroses, but with a very different class of diseases. I mean the affection called "typhomania," or Bell's disease, the "délire aigu" of the French, which, as its name implies, has been repeatedly recognised as resembling the typhoid condition of the continued fevers. As far as I know, there are only two explanations of this state: Liebermeister considers it to be produced by a high temperature acting upon the nerve-centres; while Dr. Murchison gives conclusive reasons for rejecting this view, and for supposing that the non-elimination of the products of tissue-change poisons the blood, and brings about a condition of the nervous system much akin to that caused by uræmia or acute atrophy of the liver. It is probable, then, that typhomania is due to some such state of blood-poisoning, and, at any rate, it is worth while to try, in such a very critical and difficult disease, the remedies which have been found most useful in the typhoid states of the continued fevers. Of these, digitalis has seemed to me more beneficial than any others my limited experience has enabled me to try; it might also be well to see whether belladonna was as great a specific as Dr. J. Harley's study of it would lead us to believe.

I fear I have more than fulfilled my promise that my remarks would be very unsystematic and fragmentary, but my purpose will be amply served if anything I have said should relieve any one else (as it does myself) from the feeling of helplessness which our specialty, above all others, produces.

A Visit to an Insane Colony. By P. Maury Deas, M.B. Lond., Medical Superintendent, Cheshire County Asylum, Macclesfield.

(Read at a Meeting of the East Cheshire Medical Association, Oct 1st, 1875.)

In thinking over a subject on which to write a short paper for this meeting, it seemed to me that it would be better to select one connected with my own specialty, as more likely to possess elements of interest and novelty to the members, than if I chose one out of the ordinary domain of Medicine or Surgery, in which they have a much wider field of observation than I can have.

With that view, it occurred to me that some account, derived from personal observation, of a curious and unique

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