

The objections offered to the application of Kraepelin's method to the insane did not, to his mind, at all alter the very great value of the results already obtained, the light thrown on problems such as the influence of work on normal and abnormal minds in normal and abnormal conditions. The objection to an electrical battery in an asylum was surely not insuperable, nor was the expense very great. The initial cost, especially in the absence of a supply of electricity, would be considerable, but a very great deal could be done by simple methods. He believed that the necessary expenditure of time would be the chief obstacle to the introduction of this method into England. Over a hundred observations could be made on an ordinary patient in about twenty minutes with the apparatus he had shown, and facility comes with practice.

Rest and Exercise in the Treatment of Nervous and Mental Diseases. A discussion opened by T. S. CLOUSTON, M.D., and J. BATTY TUKE, M.D., at the Annual Meeting of the Medico-Psychological Association, July, 1895.

DR. CLOUSTON.

I believe it is an absolute matter of fact that at the present time different physicians, both in private practice and in asylum practice, use different methods in regard to their newly-admitted patients, as far as in their treatment rest and exercise are concerned. I do not recollect that we have discussed this important question, nor do I recollect any definite paper on the subject by any competent authority. It therefore seems clear that the subject is one which demands our consideration.

Of late there has been a tendency to carry out what might be called rest in a much larger degree than formerly. I understand that it is the routine practice in many institutions to put a newly-admitted patient to bed for two or three days, or for a week or a fortnight, and in some cases even for as long as a month. Now this is so contrary to the practice of other men, and has arisen in so comparatively late years that it seems clear we ought to give some reason for the faith that is in us, whatever our practice be. There has also, I think, been a tendency of late to regard rest and exercise as if they were antagonistic modes of treatment; and the question as to how far they are antagonistic and how far merely complementary to each other is one for our discussion.

We have firstly to define the terms; secondly, to get at the symptoms, mental and bodily, present in the cases where those two respective modes of treatment can be ap-

plied; thirdly, to ascertain the etiology of the cases; and, lastly, to get at the pathological conditions existing in the brain cortex, the general condition of the patients, and the possibility of applying either mode of treatment in a definite and scientific way.

Now, what is *rest*? Rest, as used medically, might fairly be defined as the complete or partial cessation of certain functions in an organism or in a single organ which has been overworked or irritable, or is in a weak or morbid condition. The very idea of "rest" implies previous overwork or weakness. Cessation of working in a strong organ is not therapeutic rest. More than that, used medically, "rest" conveys the idea of having a definite aim and purpose, its object being to restore. Any rest, in fact, that is not restorative is not medical rest. And what is *exercise*? Exercise, I conceive, is the purposive activity of any organism or organ with the view of benefit or restoration to health. All the forms of massage, friction, etc., are undoubtedly forms of exercise in this medical sense. Both words, however, used medically, must refer to their purpose and object. Mere arrest of function is not rest, mere activity is not exercise, in the medical sense. There is no doubt that Nature provides physiologically for both conditions in all normal organisms, and both are absolutely needed for health. They occur usually in alternation or sequence, except in the case of some of the constantly working organs, such as the heart or lungs. In normal individuals the craving for rest or the craving for exercise is usually the test and measure of their physiological necessity. In insanity, as we shall see, this conscious craving is lost, and we have therefore to substitute for the patient's sensations our own medical deductions with regard to the case. As therapeutic agents, rest and exercise have been used from the very earliest times, but their scientific application and explanation are, I think, better understood nowadays. They are capable of being used in many diseases, not merely in nervous or mental diseases, and are also, I think we will all admit, capable of being used to do both much harm and much good in both these classes. I am not aware, however, of any one certain test by which you can say that their use is demanded in any one disease whatsoever. Their advantages and disadvantages are being at present ascertained in such diseases as they are used in. Hilton had to discover where rest was curative,

and Weir Mitchell had to discover where massage was beneficial by experiment.

There are some things to be kept in mind in discussing brain and muscle rest and exercise. Muscle may be exercised by direct stimulation, or through the mental and motor centres of the brain cortex. Mind can only be exercised through the activity of its own centres. In treating a case of insanity the muscles may be exercised alone, or through the brain; and we may excite mental activity on many lines, intellectual, affective or volitional. It is particularly to be kept in mind that the exercise of one brain centre may bring rest to another, and that our direct power to give rest to mental centres is often very limited. In a healthy man the way to produce the highest mental activity is commonly to suspend voluntary muscular action, special sense action, and digestive activity.

Now what are the recent uses and reasons of both forms of treatment in insanity? In old times, undoubtedly, the prevalent idea in treating the insane was against exercise. Insanity in many of its forms implied an undue exercise of nervous and muscular energy, and all sorts of expedients were resorted to in order to keep the patients quiet. Chains, restraints of all kinds, strong rooms, opium, antimony—all sorts of measures, mechanical and chemical, were used. These had their day, and they had a fair trial as attempts to still morbid muscular exercise and give rest, nervous and muscular; but they were not found curative. The idea of using normal muscular exercise in walking, working, dancing, massage, etc., as a direct means of producing subsequent brain rest and quiet and "distraction" of the mind from morbid ideas, is really of modern growth. It is undoubtedly to a large extent the foundation of the modern asylum routine system; it has been the system which the various visiting medical Commissioners in Lunacy have urged on us in the treatment of our patients for many years. A man was generally blamed if he kept his patients too much in the house or at rest; he was never blamed, so far as I know, if he over-walked them, overworked them, or kept them in the open air all the time. Speaking for myself, I have preached exercise in season and possibly a little out of season. One is apt to become prejudiced as to its almost universal applicability, but I have seen exercise of body, combined with that sensory mental exercise "distraction" of the mind, obtained by new

scenes, pleasant surroundings, new work, new amusements, do immense good in early and later stages of insanity. Its effects on the cases where it has seemed to do good—and these were in my judgment by far the majority—were, firstly, to produce sleep, which is the *sine qua non*; secondly, to calm maniacal and melancholic excitement; and, thirdly, to improve the working of the secretory and excretory glandular system, setting them in action in a degree otherwise unobtainable—kidneys, skin, liver, all the organs of excretion. Further, it had the effect of promoting healthy metabolism and nutrition, and of stimulating the blood-forming glands and apparatus by the circulation of an increased amount of oxygen in the blood. And, lastly, it made the patient forget for the time being his depression and even his delusions, by breaking into his morbid train of thought and dispelling ideas tending to become fixed; and generally made the inmates of a large asylum more contented, more quiet, more manageable, and more human. As an illustration I may quote a case of chronic mania where at one time there had been much exhaustion, but who through the ordinary routine of exercise had got into a static condition of moderate quiet. She happened, however, to have a strangulated hernia, for which she was operated on and had to be kept in bed. She did very well for ten days, but then the old symptoms of acute mania returned, and for nearly a week she remained in that state. It was impossible to allow her to get up for exercise. It was manifest to me that she was suffering from the want of a physiological outlet for her muscular and nervous morbid energy, so that the excitement was, as it were, bottled up in the brain cortex. That, I think, was an illustration of the good effects following exercise—only in a very striking degree. That being so, we will all, I fancy, practically admit that in a vast number of cases these effects are to be got.

But does not exercise do harm in some cases? I have no doubt that it does in a few. I do not doubt that I, and probably most of us, have over-exercised some of our patients and produced muscular and nervous exhaustion. I can recall some cases of my own in which this took place. Probably, however, I have under-exercised still more. Still it is no excuse from a scientific point of view for having killed one patient by an overdose of medicine, that that medicine is extremely beneficial to many others when properly applied. We have no right to do harm to any individual patient by

over-straining a system. The important point to ascertain is: What class of cases does exercise benefit, and what are the indications which would enable us to say it does harm? Can we get any reliable indication as to the application of such rules as we lay down theoretically so as to do good always and never do harm? In fact, can we answer the clinical therapeutic question, What are the symptoms that call for a certain remedy?

The obvious and first consideration to the physician is that we have very different conditions of brain and body in different classes of insanity and individual patients, and that in the same case we have "different stages in which at one stage exercise might be demanded, and at another stage rest might be requisite. Then there is one question which we ought to discuss to-day: In the early stages of mental attack, before the symptoms have become much developed, how are we to apply these powerful remedies? I feel quite certain that I have arrested many attacks of insanity by prescribing hard walking in the fresh air day by day up to the point of conscious exhaustion. No doubt those patients had rest at night, but the real treatment was almost excessive undue physiological exertion. I believe, however, as I have said, that I have done harm in a case or two by the same measures in the early stage. Now, why the difference? Perhaps the difference has resulted from the first class of case where benefit resulted being that of young patients. They were fairly nourished and moderately muscular; they were in no extreme condition of thinness and nervous exhaustion, such as we speak of under the name of "neurasthenia;" they had no weak point in any one of their organs—heart, lungs, etc. Their bodies were sound. The mere cortical condition of the brain was, I believe, very much the same both in the cases which derived benefit and those which were harmed. It was the condition of organs other than the brain that was different.

With regard to *rest*, I am quite certain, as I shall mention, that I have seen it do harm. And it is therefore a serious and responsible matter for anyone to advocate such a course. Rest, in the sense of staying in bed during the whole twenty-four hours, is applicable as a therapeutic agent to cases where we have extreme neurasthenia, where we have such exhausted conditions as the puerperal state, those suffering from bodily diseases, those who have been manifestly and clearly exhausted by over-exertion. But about this question

of over-exertion I shall have a word or two to say presently. As a general rule a commencing attack of insanity is not well treated by rest in bed. With regard to puerperal cases, I may quote one lately admitted where the disease came on about the fifth week. The patient was so thin and exhausted that she was at once put to bed. After three days, however, the cortical excitement was too much for the general exhaustion, so that the woman could not be kept in bed. I found her out in the garden, and asked the head nurse if she had not strict orders to keep the woman in bed. "Well," she said, "that is so; but we could not keep her in bed without a struggle. She was restless, stripping herself, getting into dirty habits, and knocking about the room, so I thought it better she should be in the garden taking a quiet walk or sitting about on the seats under the care of a special nurse." Needless to say I quite agreed she was right with regard to that case.

I had a very severe case of melancholia in a young woman who had been treated in bed with narcotics. (I do not know that she could have been treated in any other way at home.) On admission, being young and fairly strong, she was walked about practically all day, with a little rest in the middle of the day. At first I found that the effect was undoubtedly to diminish excitement, but at the end of ten days she was rapidly losing bodily weight. She had lost five pounds—half a pound each day. That to me was an indication that the exercise was being overdone and that another plan of treatment ought to be tried. I therefore attempted to obtain complete rest. For the first two days it was successful; after that the cortical excitement was such that we could not keep her in bed without a struggle—an illustration of a very common case of resistive active melancholia.

In what way can we induce muscular activity, blood circulation, and glandular action except by natural exercise or massage? I maintain that massage is an extremely artificial mode of exercise, and that, in a large number of cases, it is in accordance with my experience that the plan of putting a melancholic and weak patient to bed for massage at the beginning of the depression is an extremely hurtful proceeding. Over and over again I have known cases develop, and develop rapidly, into acute melancholia under such treatment, when immediately after being taken out into the fresh air and exercised in a change of scene,

the symptoms abated and the patients improved. This is one of the instances where our professional brethren have been led astray by the use of massage. They have sent a great many depressed patients into acute melancholia by the use of massage in the early stages of that condition. I am quite certain on that point, so far as I can be certain of anything.

Can we not get brain rest by muscular exercise? That is one of the most important questions. And is it not the most efficient way of getting brain rest? By putting the muscles into exercise do we not act by way of derivative from the excited cortex and thereby secure brain rest in a physiological fashion? I think that undoubtedly this is so, that it is absolutely physiological, and that we can apportion the amount of exercise to the needs of the individual case. What will cure certain cases of insomnia like a walking tour? I appeal to your own personal experience. Does not the improved oxygenation of the blood manifestly restore the normal working of the brain cortex in such cases? Do we not thereby correct the skin habit by the constant perspiration during the walking? and do we not find that in spite of the vigorous walking the patients will put on a certain amount of flesh—not perhaps a great deal, but still an appreciable amount? Their muscles, too, manifestly become harder and more natural. Does not, in short, the activity of the motor centres give rest to their neighbouring mental centres in the brain cortex? I maintain it does, and this is really the reason of the enormous benefit we get by the routine asylum treatment of keeping our patients steadily walking day by day, and twice or thrice a day, both in the majority of recent and certainly in the majority of old cases. I have no doubt we shall have vigorous defenders of the plan of putting patients to bed; but I most strongly object to the proceeding as a routine measure in any asylum, and maintain that it is a backward, unscientific, and in many cases a hurtful measure. By putting patients to bed you do not thereby get the full benefit of that change of scene and surroundings, of that new set of ideas that patients get when transferred from their homes to new circumstances. It strengthens their morbid notions; they are not taken out of themselves; it tends in certain maniacal cases to foster the bad habits we want to eradicate. We desire to make the coming of the patient to the asylum the occasion of a tremendous turnover in his mode of life, and way of looking at things. I do not think you get that when you put the

patient in bed instead of placing him in favourable circumstances in the admission ward, where he has plenty of attention from nurses. You must exercise on him from the very moment he comes into the asylum that influence of healthy mind on morbid mind which we are all anxious to obtain, and that, I aver, you do not get by the plan of putting all your patients in bed at once. While looking at our patients from medical and physiological standpoints, we must not forget that great principle of the mental treatment of the patients by the influence we can bring to bear upon them ourselves and by nurses, and by the general effect of the change of scene, which was perhaps over-estimated twenty or twenty-five years ago, now in some cases rather neglected, a neglect which, I think, will lead to a going backward in regard to many principles of treatment, so that in our asylums our patients will be less satisfactory and recover in fewer numbers.

I would summarize as follows the classes of cases in which confinement to bed for a short time might be allowed:—(1) The puerperal; (2) the muscularly feeble and the very neurasthenic; (3) the very old; (4) the paralyzed; (5) the obviously exhausted, until that exhaustion is diminished; (6) the cases of certain patients whose brains have got into an excessively sensitive and receptive condition, so that almost any impression from without produces a certain state of excitement. These are, perhaps, the most typical cases of all where you practically require to put your patients into a feather bed, and keep them there, excluding impressions, so far as possible, from all the senses. There are a few such cases certainly; I do not admit that there is a great number.

Lastly, let me say one word with regard to what, I imagine, my friend Dr. Tuke knows more about than most of us, but with regard to which I have taken a slightly different view from him. There are a few cases of insanity from over-exertion; there are far more from over-worry. Dr. Tuke maintains, and has published the fact, that he thinks in many of these cases of over-exertion there is a congestion of the brain cortex, and that that congestion is properly and rightly treated by rest; and he adduces certain recent histological facts as to the manifest changes which can now be demonstrated in the brain cells of an exhausted subject and of a subject that is not exhausted (in lower animals). He holds, therefore, that what is wanted

is to give rest so that the congestion may be diminished and that the cell may renourish itself and recover its old condition. I doubt, however, if this theory of the cause of insomnia and insanity is a correct explanation of the symptoms. The blood-vessels are the servants and not the masters of the cells. Get the cells in good working order and the blood-vessels will take care of themselves, is my rule in most cases. I am not prepared for a moment to deny that there are such cases as Dr. Tuke describes, but I do assert that the effects of that over-exertion would be better combatted by such derivative treatment as you get by vigorous walking and sitting in the sunshine. In many cases one of the difficulties of the treatment by rest is that you exclude the sun, the patient becomes etiolated; he is not subjected to healthy influences. Therefore I am not at all sure—although I speak in great deference to Dr. Tuke's opinion in this matter—that the over-exertion does not result simply from a certain amount of brain excitement, the cells in the cortex calling for more blood, and that the best plan of treating that excitement is to put the muscles to work, so taking the blood into the limbs instead of leaving it in the brain cortex. I do not think that the demonstration by Hodge, Mann, and others of the manifest difference between an exhausted brain cell and a brain cell that is not exhausted is anything to the point. I believe that you can get the brain cell better nourished by exertion than by rest in many cases.

DR. BATTY TUKE.

Mr. President, I am placed in somewhat of a difficulty, as I can hardly have been expected to anticipate fully the line Dr. Clouston would take up in defending exercise as a method of treatment; still, in the remarks I have prepared, I think I have anticipated a considerable number of his arguments, and these I now submit to you.

The statement of an opinion based on clinical observation is doubtless of value; but if it can be supported by deductions drawn from scientific data its value must be enhanced. As a matter of fact the conviction I presume to express that rest is of the utmost consequence as a method of treatment in certain forms of insanity grew out of the study of the sciences which form the institutes of medicine in their relation to morbid mental phenomena, and out of the

correlation of that class of symptoms with other forms of nervous disease. When the convictions which arose out of such study were applied to treatment they found support. In order to make my position clear, therefore, I must first state as succinctly as possible the scientific reasons for belief; and, secondly, the results which have been obtained when these convictions were applied to practice.

On the face of it the first section opens up the widest field of inquiry, but it shall be dealt with as concisely as possible, for it is unnecessary on the present occasion to consider in detail the results of recent anatomical and physiological observations which are patent to all. For my present purpose, however, it is necessary to summarize certain of the facts which have special bearing on the matter in hand.

The main fact we have to keep in view is that the cortical cell is the unit of psychical activity; and as it is affected by malign influences abnormal mental phenomena may be the result. Our knowledge of the cerebral nervous mechanism has been widely extended during the last few years. Although not complete, it is more than sufficient to warrant definite deductions.

I think every physiologist accepts as a postulate that mental action is a function of connections. This meeting need hardly be reminded of the results of the work of Golgi and Ramon y Cajal, which has done so much to corroborate, to extend, and, in certain instances, to correct the observations of previous observers. Suffice it to say that it brings into view the arrangement of these connections. Take for instance the course of sensory impressions. We know that they are conveyed by the fillet-fibres to the pyramids of the kinæsthetic area, and primarily to the molecular and sub-molecular plexuses, the loci of new impressions; and moreover, there is strong reason for believing that other sensory impressions are also conveyed upwards by thick terminal fibres unconnected directly with any cortical cell. We know of the anatomical differences between the axis cylinder process and the protoplasmic processes, the latter being constructed for the purpose of conduction towards the cell, the former for the purpose of conduction and of diffusion of stimuli away from the cell; and, further, that cell is placed in relation to cell by simple contact of branches. We can trace the descending path by the pyramidal track. Again, we know that systems of collaterals exist, by one of which

impressions are conveyed to neighbouring or remote areas in the same hemisphere; by another to the opposite hemisphere. And we know that as we ascend in the animal series the cells increase in number and character, and that increase of complexity of connection is demonstrable.

I have left out of consideration certain cells whose function is as yet obscure; but it is essential to add that in the olfactory bulb, retina, and cochlea the same plan or type of sensory structure obtains, and the afferent sensory fibre ends in the central nervous system in a free arborization in the cortex. Keeping thus before us the existence of systems of connections, we have surely a right to draw deductions as to the consequences of solutions of their continuity, in the same manner as we do in connection with those of the constituents of other organs.

The physiological position is best stated by Obersteiner, who says: "The grey matter is a field for the association of different sensory impulses. In it they are placed in communication with efferent paths along which they travel, either immediately or at some subsequent time; or, to speak more correctly, the efferent impulse is not the unchanged afferent impulse directed into a descending path, but the product of afferent impulses just received, combined with impulses liberated from their resting places in the tissue of the brain." The complex and highly specialized apparatus which subserves these functions is liable to the action of disease in like manner as all other bodily mechanisms; it is liable to the action of over-strain, traumatism, toxic agents, premature involution, and to the results of defective rudiments and growth. Each of these great groups of pathological agents may act independently, or they may act in combination. That they act in different manners on the brain structure is known to all of us. But there is one point of importance for my present purpose to keep in view, *i.e.*, that the action of certain malign influences on the cell is rapid. We know that changes in the cell due to physiological action are produced with great celerity, that a distinct difference in its constituents following on physiological and experimental stimulation has been demonstrated, and that exhaustion of constituents proportionate to the amount of stimulation has been rendered evident. On the table you will find specimens taken from the brain of a woman who died fourteen days after the first symptoms of insanity appeared in a condition of mania produced by an obscure toxic agent, non-alcoholic.

You will observe that a very large number of the cells have undergone granular and pigmentary degeneration. Other cases are on record in which, as a result of traumatism, the cells were found affected within twenty-five hours to such an extent as to interfere with their functional activity. Many other instances might be adduced, but these are sufficient to prove that the cell can be morbidly affected in a very short space of time. Let us consider for a moment what the consequences must be if even a proportion of the cells of an extensive area becomes so affected as to reduce or destroy their action. In the case of the cells of the kinæsthetic area the power of directing and transmitting stimuli becomes defective, and their nutritional function suffers—the protoplasmic processes, apical and lateral, undergo Wallerian degeneration, and the power of transmission must be in abeyance. The connection of cell with cell through the instrumentality of the great plexuses is impaired or destroyed, and thus the mechanism of association of afferent sensory impulses is thrown out of gear; the product of afferent impulses liberated from their resting place cannot be directed into a descending path, and the storage power of the cell is modified or abolished. One great result must be perversion of mental function.

Nor is morbid action confined to the nervous elements. All tissues are affected—vascular, lymphatic, and connective—implication of which reacts on the cell. But so far as insanity is concerned, disease of the cell is the primary condition. By its action the nervous arc is broken, and the “adjustment of inner to outer relations” is rendered impossible.

Setting aside for the moment the classes of cases whose mental symptoms may depend on degeneration of nervous elements, we turn to those whose insanity is the result of active morbid conditions produced by over-exercise of the cortex, brought about by constant stimulus. The first of these consists of those insane persons whose condition depends primarily on a morbid degree of hyperæmia of the cortex and of the pia. In a course of Morison Lectures, lately published, I endeavoured to demonstrate the *modus operandi* of hyperæmia, and to trace its rapidly produced consequences on the cell and the lymphatic system. Time will not permit of reiteration of the arguments produced. It may be said, however, that the views expressed have been criticized with great consideration

in your Journal, in which the opinion was given that they afford a fair working hypothesis. To my mind they go beyond this, for the results of a pathological and clinical observation of a considerable number of cases, and the evidence afforded by correlation of my own work with that of others goes to show that, whether the case is marked by mania, excited melancholia, or excited dementia, the symptoms are dependent on continuous hyperæmia, followed by the consequences which have been observed in every organ of the body similarly affected, which in their turn have produced rapid degradation of cell integrity. Every constituent of the brain becomes involved, and, besides abnormal mental action, trains of bodily symptoms ensue as a direct consequence. As I have said elsewhere, the patient is a sick man or woman suffering under severe cerebral disease, and his condition cannot be relieved till the original morbid influence (hyperæmia) is removed. The patient is a hospital case, and must be treated on hospital principles.

For the immediate purpose of the case we have to consider the effect of the brain condition on the general system. Its tone is lowered; the patient falls off in condition by reason of impairment of the brain function, which regulates general trophesis. These bodily symptoms are concurrent with the earliest indications of impending insanity. If we exercise a patient under these circumstances we are asking his system to undertake recuperative work which it is not in a condition to perform. We are working tissues whose powers of reintegration are weakened by reason of the disability of the nervous system to supply repair. Such a patient requires conservation of all the nervous energy of which he is still possessed, and the reduction of stimulus so far as it is possible to obtain it, in order to procure arrest of the progress of morbid conditions, each and all of which must tend to produce reduction of cell integrity and activity.

Keeping these main considerations before me, and especially the fact of the rapid disintegration of brain constituents under pathological conditions, I have for several years past put the principles which I hold are involved into practice as regards the treatment of incipient and early cases of idiopathic insanity, *i.e.*, the insanity produced by over-exertion of the brain through the action of what are usually termed moral causes. I give you the general results of the action of treatment under rest in the last forty cases in which it has been employed during the last two years. I could cite

previous cases, but prefer to found on those who have been submitted to the system in its completest form.

Of the forty, twenty-four were women and sixteen men, all under thirty years of age.

They may be divided into two clinical classes: first, those in whom only incipient symptoms had appeared—restlessness, irritability, changed *morale*, lowered bodily condition, etc., sufficient to be noticeable and alarming to relatives and friends, and to call for the intervention of the physician, but whose symptoms were not so advanced as to warrant certification. Twenty-eight belonged to this class, of whom twenty-five were treated at home. In four the symptoms had existed for one week; in seven for two weeks; in seven for three weeks; and in ten for four weeks. Twenty-five recovered, or were so distinctly convalescent as to be able to dispense with special nursing and care; five in three weeks, eleven in four weeks, and nine within six weeks. In three the symptoms were not arrested, running on, in one case, to acute mania, and in two to excited melancholia; but of these two eventually recovered and one is still under treatment, the prognosis not being hopeful. Of the twelve in whom definite insanity was present when they came under observation, four were maniacal, seven excitedly melancholic, and one excitedly demented. The insanity had existed in three for two weeks, in four for four weeks, and in five for six weeks. Three were treated at home, nine in hospital. Three recovered, or were distinctly convalescent in four weeks, two in five weeks, two in six weeks, one in ten weeks, two in fifteen weeks, one did not recover, and one died.

All these cases were treated in bed for at least three-fourths of the period during which each individual was under special treatment. Mild counter-irritation was maintained, chiefly by sinapisms applied to the nape of the neck and upper part of the thorax. A warm bath was given at night. Mild and carefully-graduated massage was employed in order to maintain muscular and cutaneous hyperæmia.

Exercise has been advocated on the ground that it is a (so to speak) derivative of blood from the encephalon. Such derivation can be obtained by careful shampooing without any call on the recuperative powers of the system. The action of digitalis was first tried in all cases; in those in which it failed antipyrin was administered in xv. gr. doses five or six times daily. In a few cases it gave no results, and in them paraldehyde or sulphonal was employed. Diet

was simple, of the ordinary kind and amount, and spread over five or six daily meals.

I submit that the general results are satisfactory, showing a percentage of over 90 per cent. over all.

I fully admit that all these cases were hopeful ones by reason of the short period during which disease had existed, and that in all probability a large proportion would have eventually recovered under conditions advocated last year at Dublin. But I think stress ought to be laid on the rapidity of cure effected. Every one will admit that it is of the utmost importance that morbid processes going on in such a delicate organ as the cortex should be arrested early, as their effects are rapidly accumulative, and, to say the least, must retard recovery, and render recurrence more probable. Sufficient time has not elapsed to test the liability to recurrence in the cases adduced; but it may be stated that in no instance has there been any indication of recurrence of symptoms, and that a large proportion of these patients are following their usual avocations, the small balance being convalescent.

Dr. BAYNER—We are much indebted to Dr. Clouston and Dr. Batty Tuke for having brought up a subject of treatment for our consideration. In questions of treatment, it seems to me, this Association should rank before all other Medical Societies, for we have the fullest control over our patients and the fullest opportunities for observation; and I believe that if we use these to the greatest possible extent we ought to be able to teach our medical brethren. In the question of rest I have always been very much interested, and it is undoubtedly of utmost and primary importance in regard to treatment. I understood Dr. Clouston to say, as I myself believe, rest is always relative so long as the waking state continues, so long as we are conscious, so long as the brain is in action, so long as we live and the muscles are in action. And with regard to mental action, of course, what is hard work to one man is rest to another. A man engaged in public affairs turns to classical translation as a positive rest and refreshment. With regard to individuals, again, what is at one time great exertion is at another time no exertion at all. So it does not appear to me that we can lay down any rule as to what constitutes rest. Mental rest, therefore, we must always try to obtain by diverting the mental action from the highest to the lowest functional part. It is rather by the direction of the attention that we get rest. If we secure sensory attention, the other areas of the brain are more or less at rest, and, so far, have a chance of recuperating. In muscular exertion, we have the best means of diverting the attention of the brain at the lowest expenditure of functional vigour. Of course, there can be no doubt that by over-exertion you may do harm, and everyone can cite cases in which over-rest has done harm. The question before us is when to employ rest, what is the reason for the good in the one case and the harm in the other, and what rule guides us in using the one or the other. I say that we can take no class of cases and say that it is to be treated by rest or by exercise. Every patient must be treated individually at the particular time. We should not adopt any routine course of treatment. I do not think that Dr. Batty Tuke

would adopt the routine of rest in every state and in every condition of nerve disorder. I have spoken of mental rest, but when muscular exertion is considered the question is when is a man to be kept in bed and when is he to be allowed to go about. The involuntary muscles of circulation and respiration are rested by placing the patient in bed, and it is especially the circulatory condition that indicates the necessity of rest. I believe that the effects of exertion on the circulation will guide us to the right conclusion. I have no doubt that we might get indications from the nervous area by the methods demonstrated by Dr. Rivers, but a more ready means of inquiry is at hand in the instrument for measuring the calibre of arteries. Again, it is not necessary that the patient should be always indoors, and that he should be in consequence blanched, even if bed is indicated; and, besides the rest in bed which may be of importance, there are the questions of the accompanying diet, and the employment of massage. A case lately came under my observation and was a striking instance of the effects of rest. It was that of a neurasthenic. He was put to bed and treated with massage, narcotics, and overfeeding. He had a pulse of very high tension and was as exalted as any case of general paralysis. By omitting the narcotics, and by reducing his food to milk, the patient became quiet and comfortable. I allude to this as showing the importance of the conditions associated with rest in bed. Dr. Batty Tuke takes up the pathological side of the question, and has spoken of the condition of the brain. If we were to accept his views we should have to conclude that every case should be treated with absolute rest in bed. But I think that he does not sufficiently take into consideration the reaction of the body on the brain, and that these pathological conditions are very much exaggerated, and their effects on function are very much controlled by that reaction. No doubt, as he himself points out in his "Morrison Lectures," the condition of the brain in both melancholia and mania is very similar, and the difference, I believe, is simply the result of this reaction. In melancholia you have not only depression of the nutrition, but you have also very little arterial reaction on the brain. In mania, on the other hand, there is increased circulatory activity, and, as a secondary consequence, increased hyperæmia even to exaltation of function. Then I do not think that he sufficiently allows for the fact that in diverting function, motor or sensory, you are probably promoting activity in one area of the brain and allowing the other parts (which have previously been in action) to rest; and that not only is the part which is comparatively at rest benefited by having less to do, but probably also in a reflex manner. With regard to indications for treatment, I may say that I have been guided by the condition of the circulation, especially in cases of epilepsy. In epileptic conditions I observed that patients who became maniacal after their attacks always manifested great irritability and excitability of circulation. They had also manifested, of course, great irritability and excitability of reflex action. The excitability of their pupils was always a good guide as to the danger of their developing an attack of excitement if they were allowed to get about, and as a rule, as the result of that observation, I always arranged that epileptics should be kept at rest after their attacks, and in that way avoided a very great deal of epileptic excitement.

Dr. BLANDFORD—It is a very great advantage in a discussion of this kind to have two papers read by two eminent observers. We have had the *audi alteram partem* put clearly before us. There is a great deal of truth in both of these papers, but I am inclined from my own experience to side rather with Dr. Clouston than with Dr. Batty Tuke. When called to a case of incipient insanity we find the person overwhelmed with ideas, most frequently melancholic ideas. No doubt there is a morbid condition of brain and brain cells; that I admit to the fullest. But how are we to get these morbid ideas out of the patient's head? Are we to do so by putting him in bed in an isolated position, and by having him nursed in solitude? I think that *distraction* is

what the patient wants. You have to get the morbid ideas out of his head by putting others in their place. I do not think that will be achieved by putting him in bed in an isolated room. I have seen this tried again and again; I have not tried it so much myself, but many of my friends are trying it and have tried it frequently. Dr. Playfair has largely introduced the Weir Mitchell treatment into London. He has, no doubt, benefited many patients who were fit subjects for that treatment, but I have again and again heard him state that he will not now undertake the Weir Mitchell treatment for mental cases because he has found it so often unsuccessful. I have seen several cases where it has been a most conspicuous failure. I recollect the case of a gentleman whom you might call a hypochondriacal or hysterical patient, who was put to bed, massaged, rubbed, fed on milk, and so on. In the course of three or four days he got into a state of high excitement, and, taking a poker, assaulted the lady of the house where he was. He was taken to a house in the country, exercised in the fresh air, and the acute symptoms were immediately removed. He went back to his old state. Distraction being the requisite, you want distraction from morbid to healthy ideas. When we are harassed by some worrying thought, and are perhaps unable to sleep, what do we do? We try to wrench our thoughts away from the troublesome subject and to fix them upon something else. If we are fortunate enough to be able to do that, we get sleep, and comparative freedom from our troubles; if not, our troubles pursue us; and it seems to me that walking in the fresh air (I do not lay stress upon violent or prolonged exercise), surrounded by objects of interest, even asylum objects, is more likely to distract the patient from his morbid thoughts than being shut up in a room in bed. I lately saw a young lady in a state of acute mania. She had been kept in bed, as far as that was possible, for some time. It was necessary to remove her to an asylum, where I saw her the next day. She was already in a much better condition. She was walking in the garden among the other patients, and remarked to me, "What an extraordinary amount of people there are here." Her mind was diverted and distracted from herself even by the sight of other patients. In that way we relieve the hyperæmia of the part of the brain giving rise to these thoughts and induce other thoughts. For that reason I condemn the plan of putting patients to bed who can be up and about. I fully admit that there is a certain number of patients incapable of extended exercise who require rest in bed and the hospital nursing; but I think the majority are better out of bed than in it.

Dr. ELVERS—I think that this is one of the questions in which Kraepelin's method may be of some value. As a matter of fact Kraepelin and his school have investigated this condition to a certain extent. In the beginning of the present year a paper appeared which recorded the influence of bodily work and mental work respectively, as tested by Kraepelin's methods. The bodily work consisted of two hours' hard walking; the mental work was, I think, one hour's addition of figures. It was found that the two hours' physical work impaired mental capacity more than the one hour's mental work. That was one individual investigation the special aim of which was to throw light on the practice in German schools of sandwiching half an hour's gymnastics between two hours' mental work. The conclusion reached from these observations was that the German practice was a bad one. I think it is possible that the same kind of method might also give us some clue, some physiological knowledge, which might be of use in clinical practice, and thus add to the deductions which Dr. Tuke has drawn from anatomical observations.

Dr. COOKE—I am most fully in accord with the remarks which fell from Dr. Blandford to the effect that the real practical usefulness of exercise in the treatment of the majority of cases of insanity arises from the distraction that results; and I think the practical point that we have to bear in mind and try to work out is how we can, as asylum physicians, introduce the greatest amount of change into the exercise we give our patients. The mere monotonous walk-

ing round the airing courts is, I think, to be very much deprecated. In our institution we use exercise very largely. I am glad to say we have a farm of nearly 480 acres, and I have been very much struck with the greater advantage the male patients derive from their exercise, in which they have occupation and interest, over that of the female patients. For a long time I have been endeavouring to find means of infusing interest into the exercise of female patients. It is, however, a most difficult question, and I am sorry to say that the results hitherto obtained are not satisfactory. The members of our Association might with very great advantage bestow their attention on this point.

Dr. DRAPES—I think, sir, that the two views adopted by Dr. Clouston and Dr. Batty Tuke are not to be considered as opposing, but complementary, the one speaking from the clinical, and the other mainly from the pathological side. Most melancholiacs have undergone treatment by rest before coming under observation. How many melancholiacs stay in bed in the morning when they begin to suffer from depression, and end by staying in bed the entire day—even for weeks and months—perhaps in isolation before we see them? And the result is a miserable failure. The treatment of patients by rest, before coming under asylum care, has in nine cases out of ten been absolutely useless. It is therefore futile to continue treatment that has been inefficacious. Another point is that where the patient is in an exhausted condition Dr. Tuke also thinks it inadvisable to order exercise. Well, where can we find patients in a more exhausted condition than after a protracted fever? Yet we try as soon as the fever is gone to give him gentle exercise, gradually increasing it so as to draw upon his powers as he can undertake more protracted exercise. Therefore, if a patient comes to us exhausted, treatment by well-considered exercise is, I think, beneficial. Dr. Tuke seems to consider that hyperæmia obtains in most cases of insanity. Well, hyperæmia certainly exists in the case of an overworked student. He suffers from sleeplessness, which plainly indicates that his brain is hyperæmic and exhausted. Now we do not advise that patient to go to bed. We say to him, "You must change the sphere of activity in your brain, give your higher centres rest, and use your motor centres, give up your more refined occupation of mental work and go in for the more barbarous occupations of fishing and shooting." The discussion of this subject will, I hope, tend to clarify our ideas and to induce us to differentiate our cases more, so as to discover in what particular cases either remedy is applicable to the exclusion of the other.

Dr. YELLOWLEES—I heartily agree, sir, with what has been said as to the value of the important papers to which we have listened. I think that we are all agreed as to the value of rest and exercise in the treatment of abnormal mental conditions, and, further, that we will all agree that these means of treatment are to be used with reference to the individual patient. That is the first and supreme thing to say about these remedies or any other remedies. It is impossible to theorize apart from the individual case. We have all been using these remedies, I suppose, for many a year. There is no new discovery announced and no revolution proposed. The question is whether we are to test the necessity for rest or exercise by theoretical views as to the condition of the brain cells, or by the general physical condition of the patient under our care. Emphatically and unquestionably I prefer the latter course. Results have proved its wisdom beyond any doubt. I endorse every word that Dr. Blandford said. I have again and again had the same experience of seeing great mischief done to insane patients in the early stages by their being submitted to massage and seclusion, and I invariably protest against the procedure when opportunity offers. I agree that there are certain brain conditions which, in themselves, demand rest. There is a certain irritable, hypersensitive condition of brain which ought to be excluded from outward stimuli of any kind, a condition which closely resembles post-epileptic irritability; but, unquestionably, in the

great majority of cases I think that the distraction which even an asylum ward supplies is of the greatest value for a mind oppressed and haunted by its own morbid ideas. I must be allowed, sir, to say a word about Dr. Tuke's statistics, which were to me very remarkable. He took pains to tell us that his patients were "sick" people, were "hospital cases." I do not know that it was necessary to tell us that. All our patients are sick people; they are all hospital cases. I must say I did not understand that differentiation; I do not think it was needful. There was a fine scientific air about it, as if you must know all about a man's brain cells before you can treat him—an assumption with which I do not at all agree, for we often know very little about them. Now, sir, as to the statistics themselves. Dr. Tuke gave us the statistics of 40 cases of incipient insanity, half of whom recovered within three weeks and the rest within six weeks. Now I have the profoundest confidence in Dr. Tuke's diagnosis, but were these all really and unquestionably cases of insanity, and such cases as it is fair to tabulate and argue from? I cannot but think that many of those cases which recovered within three weeks were such as did not rank with insane patients. I do not know of any insane folk recovering so rapidly and so universally in consequence of the application of sinapisms and the administration of antipyrin. I should like to know more about these cases.

Dr. ANDRIEZEN—It is worth while asking whether some of the opinions put forward in the course of this discussion are reconcilable. But before doing so I should like to make some remarks founded on the study of nervous disease. In such nervous diseases as are met with in general hospitals—in cases of chorea, for instance, in which there is a certain exaggeration of bodily movement and certain mental phenomena, what is done? They are generally put to bed, well fed, chloral and other sedatives are given to procure sleep, and massage is ordered. In that way Dr. Bastian and others have obtained very good results. Again, in certain forms of hysteria similar modes of treatment have shown that very good effects can be obtained. Treatment by exercise not having been tried in these cases so far as I know, there are no statistics to quote on the other side. When we pass from them to the insane we are liable, I think, to draw an artificial and false distinction between the two classes, because, in the last-named, the pathological conditions of certain areas of the brain which we call psychical give rise to external manifestations, which are, therefore, psychical manifestations—manifestations in conduct; but the classes gradually shade into one another, and the difference between them is not great. Treatment ought to be founded upon our knowledge of the causation and other circumstances in the particular case, not on merely speculative supposition. In many cases of insanity the hereditary factor is marked, and under the slightest stress of circumstances the individual becomes maniacal or melancholic. Where the hereditary factor thus predominates, the central nervous system is so disorganized that neither sleep nor exercise nor anything else will do much good; but, on the other hand, where there is no hereditary factor, where the individual is a practically healthy person, but reduced to a condition of mania or melancholia by stress of circumstances, in such a case appropriate treatment will do much. It seems to me that the discussion should be limited to the comparative merits of rest and exercise in this particular class of cases; and, taking such a case, let us compare his condition with some other affection which might occur in the same organism. Let us suppose that his leg is broken; he is unable to walk, the functions of the leg are paralyzed, and he suffers pain. One would presume *a priori* rest would be obtained in the first instance, and that, when the acute stage had passed, massage, etc., would be gradually used to restore the limb to its original condition. That, I think, puts the apparent antagonism between Dr. Clouston and Dr. Tuke in a nutshell. They are dealing with a case at different stages. In the acute stage, where there is absolute breakdown, with painful ideas, intolerance of light, and desire for isolation, neither of the speakers would advocate vigorous measures. On the other hand, when the acute stage had

passed, then exercise would be advised in order to restore the normal physiological condition. What is the condition of the insane individual on which we can base treatment? There is insomnia and want of recuperation in sleep; he is in a more or less exhausted condition. The perversion of mental action and the predominance of painful ideas show that parts of the brain are exhausted, and that due proportion is not maintained. An individual in this exhausted condition requires rest in the first instance; and when the conditions of rest and careful dieting have brought the patient back to his normal state, the normal physiological condition of exercise should be resumed. One word with regard to the remarks which fell from the last speaker, who stated that pathological and physiological observations have practically nothing to do with treatment. It is astonishing that such a statement should have been made in a scientific society. If we cannot localize lesions, what are we treating? The whole nervous system is an unknown territory, and, if we cannot ascertain the lesion, we are not trying to treat, but are merely making stray shots in the dark in the hope of hitting the bull's-eye. What are the actual conditions revealed by the few post-mortems that have been made in this condition? Very often a great amount of hyperæmia has been found, but of much greater importance are the indications of physiological over-exertion which microscopical examination has shown. When the brain of a bee has been examined after a hard day's work, certain changes are found in the protoplasm of the cells. This is quite in accordance with what we have learnt regarding muscles and other organs. Physiologists have shown that the nerve cell can be built up, can break down, vacuolate, degenerate in a similar manner to many other structures of the body. In the minds of those who are paying special attention to the subject, there cannot be the slightest doubt that there are marked and distinct changes even within healthy limits, much more within pathological limits; and that these observations furnish some basis for the treatment that has been advocated—rest in acute stages of insanity and exercise after the acute stage has somewhat subsided.

Dr. URQUHART—I think, sir, that we ought to be very much gratified by having had such a display from two honoured veterans of the Association, who have embroidered their banners so skilfully and flourished them so manfully. At the same time I rejoice to think that the Association is not yet at the parting of the ways. I believe that the greater number of us will continue the middle course, which, in my opinion, is the safest. It seems to me that we have a good deal to thank the Commissioners for. Some years ago nobody could possibly be right unless he had a farm, and now, although we still retain our farms for purposes of exercise, nobody can possibly be right who has not a hospital for purposes of rest. Perhaps a good deal of the debate to-day has turned upon the hospital idea. I am one of those thankful to have a hospital, and I hope I treat my cases *secundum artem*; at any rate, I do claim to treat each case according to the symptoms as they arise, in view of all the other conditions which make for the disease, and without a thought of the statistical return of those "confined to bed for the day." As we progress we individualize. That is the hopeful tendency of modern asylum treatment. I think that we should record a very hearty vote of thanks to the gentlemen who have to-day given us abundant food for reflection.

Dr. SAVAGE—Although I did not hear the first paper, I cannot let this discussion pass without saying a few words. I, too, feel most strongly that the middle way is the best, not that one wishes to trim by any means. There are some cases in which you should be as dogmatic in enforcing rest as there are others in which exercise should be ordered. The first thing that strikes me as a fundamental error is the proposition that every case of mental disorder begins with hyperæmia of the brain. It is a statement that has no foundation, to the best of my belief. There is something before the hyperæmia. I am sure that the skilled histologist, like Dr. Andriezen, would not be content with saying

that there is hyperæmia at the beginning and end of the pathology of brain disorder. I am quite sure that the question of treatment by keeping patients in bed has been affected by what I used to experience at Bethlem, in common with many others. One of the drawbacks to properly treating patients in bed arose from the action of the Commissioners, who would declare that they had been through the whole hospital and had not found one patient in bed. Now, if praise is to be given for that, certain superintendents will seek for that praise. On the other hand, I quite agree with those who have said that confinement to bed is harmful in certain cases. One has seen massage do an enormous amount of harm. Many cases of mental unsoundness have been put to bed and massaged. An erotic young man or woman put to bed, over-fed, and over-stimulated will develop delusional ideas of the sexual type under what is to them this worst of all methods. The question of distraction is very important. I am quite sure that Dr. Blandford looks upon this as a sort of counter-irritant, so that, instead of the higher centres remaining active, they may have rest; while the lower are employed by such means as golf or shooting or fishing. But an enormous amount of harm is done by this word "distraction," in that some physicians think that every melancholiac will be benefited by being sent off for a course of picture galleries, theatres, and the like. Now I would rather see many a melancholiac kept unduly in bed than despatched unduly to picture galleries, to theatres, or even to church. My feeling most strongly is that there is no such thing as insanity, but there are insane people; and I am inclined to think that we may go very far back and learn something. I believe that the dream of Nebuchadnezzar was right, and to that belief I shall stick.

Dr. CONOLLY NORMAN—The tone of this debate, sir, is certainly a sign that philosophic thinking has not altogether gone out of fashion in this Association. Dr. Clouston has pointed out, in the course of his philosophic remarks, that mere arrest of function is not rest, and that mere activity is not exercise. I could not gain any distinct idea of what Dr. Batty Tuke meant by "rest"; but Dr. Clouston contends that muscular exercise is often the means of securing rest, and in that I fully concur. Though I have the most profound respect for pathology and the most enthusiastic hopes of what it will do for us in the future, I do not think that it has already thrown much light on this question. One speaker has referred to observations on animals. Well, my optics may be clouded by ignorance or prejudice, but I fail to see how the treatment of insane patients is affected by the fact that when a honey-bee goes out in the morning his nerve-cells are in one condition, and in another when he returns in the evening. The human brain is unquestionably endowed with an enormous range of functions which are altogether unrepresented in that of the honey-bee. Most of our treatment is directed to affections of these higher functions. We may say that we only treat diseases of the nerve-cells. That is all very well; but if we cannot find out, for instance, how it is that mental trouble produces the change in the nerve-cells, it is not for us to deny the fact. We are not even in a position to say what the change is; some time we may know. Meanwhile we have cases in which profound alterations of the function of certain nerve-cells have been produced not by exertions like those of the honey-bee, but by causes which we can only call moral. It has been suggested that hyperæmia is a constant pathological find in cases of insanity. But how is the hyperæmia produced? A man becomes insane; he dies; and his brain is found to be hyperæmic. Can we discover any connection whatever between his mental trouble and that lesion? We want the link; and just here, I fear, pathology is very weak, and will be so for a long time to come. But if hyperæmia is constantly present in cases of insanity, we must believe that it is in some way or other produced by so-called "moral causes," and, if so, are we to depend solely on physical means for its cure? I see no analogy, or only a very imperfect analogy, between the rest enjoined for a broken bone and that employed in the treatment of insanity. For the patient with the broken bone, "rest" means distinctly rest in bed, in which case you

certainly rest the injured part; but, in the case of an insane person, I fail to see that you necessarily rest the injured part by putting him in bed. I have listened in vain for any proof of that to-day. Again, with reference to mental activity, we have to consider intensity as well as extension. I am not quite sure that I use the words in their strictest sense, but I shall endeavour to explain what I mean. Like Dr. Drapes, most of the cases I see are melancholiacs. In these, from the physical side at least, we see very little sign of cerebral activity; nevertheless, there must be profound changes taking place in the patient's brain. He is very willing to lie in bed, sometimes too willing; yet, in spite of this, he wastes, and we must believe, if we revive his memories, after recovery, of the intense suffering he endured day after day and week after week, that intense activity is predominant. Now, would you attempt to cure him by keeping him in bed? It is a case of great extension of mental trouble; and surely there is also great intensity. The same question occurred to me from another point of view when Dr. Rivers was speaking. I desire to be very hopeful of the results of experimental psychology; but I do not know that we shall be able to say much about the changes going on in these cases of melancholia until we can test on our patients the effect of two hours, not of adding sums or of walking up and downstairs, but two hours of mental anguish. When that can be done we shall be in a position to talk more dogmatically on this matter.

Dr. G. M. ROBERTSON—We all agree that a certain amount of exertion is a right and proper thing in the majority of cases of insanity. In a few cases, however, we carry out the treatment of rest in bed. I intend to follow Dr. Conolly Norman's example and speak from the physiological and pathological point of view. I quite agree with him that the changes in the nerve-cells of the honey-bee after exertion have nothing whatever to do with treatment of insanity. From the theoretical point of view and from the analogy of other organs such changes were to be expected. I may remark, however, that Dr. Clouston showed in his graduation thesis that he had discovered a granular appearance of the nerve-cells in some cases, and a clear appearance in others. He asked the question whether this had not something to do with the functions they had been performing, so that he cannot be said to have neglected this aspect of the question. Apparently rest has been the aim of both Dr. Clouston and Dr. Tuke in the treatment of mental disease. Dr. Tuke maintains that by putting the patient to bed he is resting the mental areas, while Dr. Clouston contends that he secures the same object by exercising the patient. I think that a very important point has been overlooked. We have been speaking of the brain as if it were a homogeneous structure, whereas it is really a series of organs containing within itself a representation of every organ in the body. It is therefore perfect nonsense to speak of *resting* the brain; that could only be done by killing the person. Inside the brain, functions are going on corresponding to every function in every organ in every part of the body. You can only, therefore, rest a part of the brain. Dr. Tuke, by putting his patient to bed, is resting part of the brain—he is resting, perhaps, the motor areas; but that is not the part we want to rest, namely, the mental areas. By putting the patient to bed you give him the very best chance of exercising these areas. Two very intellectual men tell me that, whenever they have a very difficult subject on hand, they go to bed. They are then away from all distractions, and are able to give undivided attention to their mental work. To put to bed a patient who has morbid ideas does not remove these ideas, or give them a chance of removal. It rather favours their persistence. Our duty is to put the patients in the way of fresh and wholesome thought, so as to distract them from their morbid notions. We can go some way, at least, towards proving this from the physiological and psychological point of view. Dr. Rivers has related some very interesting experiments showing that after a great muscular exertion intellectual work was impaired. Now that apparently seems to militate against Dr. Clouston's

theory and method; but I maintain that it does not. It demonstrated this fact, that if you exercise the muscular areas the mental areas cannot do their work so efficiently. It proves what Dr. Clouston wishes to prove. We know that the nervous system can well perform only one function at a time. During muscular exercise mental exercise is at a minimum—a fact well known in daily life. The Japanese have deified one of their heroes because he was able to compose a stanza of poetry while holding out a brazier a thousand pounds in weight. They regarded it as a superhuman feat. I maintain, therefore, that Dr. Clouston is really attaining rest for his patient, while Dr. Tuke is actually giving the mental areas too much work. We all acknowledge that we cannot maintain a healthy body and a healthy mind unless we take a certain amount of physical exercise. If a patient suffers from mental disease, and we wish to induce healthy cerebral action, we must induce him to take exercise. But some patients are too weak. Well, that is so much to their disadvantage; they would be a great deal better if they could take exercise. Physical weakness prevents one method of curing the condition. Another note of great importance is that a patient suffering from acute mania is discharging his energy in an irregular and pathological manner. It is a great advantage for him if you can regulate his motor discharges and render them useful and purposive. From this pathological point of view all the evidence seems to support Dr. Clouston's mode of treatment.

Dr. NICOLSON—I wish to express my gratitude to Dr. Clouston and Dr. Tuke for having so kindly undertaken to introduce this discussion and for having so ably fulfilled that undertaking. One may feel disappointed to think that we have not, during all these years of work and experience, been able to set forth more definitely what would be generally accepted as the best line of treatment for general adoption. As regards the success, as well as the basis on which has been grounded the success, of their respective modes of treatment, one feels as if it would be best to blend both methods and to believe that a solution of the problem had been reached; but if that is impossible the differences, and the grounds for the differences, that lie between them must be thrashed out. During Dr. Clouston's remarks a case of my own occurred to me—that of a man whose maniacal condition manifested itself in the delusion that the asylum buildings were kept standing by his manual labour. For a number of weeks he laboured incessantly lest by the cessation of his work the whole place should fall to the ground. In that case exercise was the immediate result of delusion. Now, would that be a desirable case in which to insist on still more exercise, or would Dr. Clouston regard those labours as Nature's efforts towards a cure? With regard to the melancholic, on the other hand, there is this difficulty in my mind, that by insisting on a certain amount of exercise you inflict a certain amount of positive pain, and that mental pain is not without brain activity which, I think, is not of the nature of rest, and which, to some extent, must do damage if you insist on carrying it to any great length. The question of isolation has been made too much of in regard to the treatment of melancholia. Rest in bed under proper conditions is a very pleasant means of treatment. Dr. Tuke having had to leave, I may be allowed to act as his sponsor with regard to the use of the word "hospital." I was unable to see any necessity for the warmth thereby generated, and may therefore be allowed to give my definition of a hospital case in order to relieve anyone of any distress in the matter. I take a hospital case to be one of a more aggravated kind than is manifested in the early stages while the individual is able to remain at home. In that sense I do not see that the use of the word is to be at all reprehended. Dr. Tuke's "Morrison Lectures" were deeply interesting, and worked out in a clear, suggestive, and practically beneficial manner. Their lucidity in these intricate questions was most valuable to those who have not had the experience which is only to be gained by working at the subject from that side. We have had a brilliant coruscation of "the northern lights," and I conclude by expressing,

on behalf of the Association, our most grateful thanks for their excellent, suggestive, and practical discussion of the question.

Dr. CLOUSTON—I shall not venture to say anything more than that I am sure Dr. Tuke and myself are well satisfied with the results of the debate; and I would only add this one remark. I am very much disappointed that the officers of asylums who adopt a routine treatment of putting their patients to bed for a few days or weeks have not defended their practice during this discussion. I think that the practice goes by default, and probably will not be longer continued. With regard to the various scientific questions involved, I am certain that they have been thoroughly thrashed out, and that almost everything I was to have said in answer to Dr. Tuke has been better set forth by other speakers. It only remains for me to thank you, gentlemen, for your kind attention.

*The Pathology of Milkiness, Thickening, and Opacity of the Pia-arachnoid in the Insane.** By W. F. ROBERTSON, M.D., Pathologist, Royal Asylum, Edinburgh.

There is at the present time great need of more complete and definite knowledge as to the pathology of the very marked structural changes that so commonly affect the pia-arachnoid in the insane. The subject is one of much importance to all of us as medical psychologists, for not only is the condition in question one of the most conspicuous lesions associated with mental disease, but it implicates a structure of primary importance in the economy of the central nervous system. It is by way of vessels that course through this membrane that nutriment is conveyed to the brain cortex, and the waste products resulting from metabolism in the cerebral tissues are mainly conveyed away in the fluid that circulates in its lymph spaces. Therefore it is evident that these morbid changes may very seriously interfere with the functions both of nutrition and excretion in the brain.

The subject has quite recently been fully gone into in two papers of a series published in conjunction with Dr. James Middlemass in the "Edinburgh Medical Journal" (1), but I am now able to add a number of new points to the statements there made.

I shall not describe the various naked-eye appearances that the condition presents. With these you are all already perfectly familiar, as well as with the different forms of mental disease with which they are specially associated. As you also know, the change is not confined to the insane. It usually occurs in some degree in people dying after middle

* Read at the Annual Meeting of the Association, 1895, and illustrated by a microscopic demonstration.