

cases were dealt with in the asylum with which he was connected. There was agreement in principle, with variations in the methods of applying it. The purpose in view was to secure the safety of the patient, and to assist the attendants—as definite instructions did assist them—in the discharge of their duty. He (Dr. Soutar) said that he divided suicidal cases into three classes:—First, those patients who had not developed, but from the type of their mental disorder might possibly develop, suicidal tendencies. The names of those patients were written in red ink on the charge attendant's list. These were cases for observation on the part of attendants, who, constantly associating with the patients, would from close observation be able to assist the medical officer in arriving at a decision as to whether the patient should or should not remain on the suicidal list. He valued highly the assistance of observant attendants in this class of case. Second, those patients who were definitely suicidal—perhaps had made an attempt at suicide, and would under favouring circumstances attempt it again. These patients must never be away from observation by day or night, and must be specially guarded from temptations which suggest, or opportunities which facilitate, the suicidal act. For these patients there is issued a red card, which is signed by all attendants on day and night duty who have anything to do with the case. Third, this class is fortunately a small one. It consisted of those patients whose insanity showed itself in a determination to die. They generally showed very little emotional disturbance, they revealed no delusions, and they were generally intelligent and often seemingly interested in all the ordinary pursuits of life; yet their purpose was suicide. They were ever seeking opportunity to effect this purpose, and their ingenuity in discovering the opportunity could be believed only by those who had charge of them. A patient of this type required to have a special attendant close to her at all times by day and night. These patients were generally women. In these cases he issued a blue card warning the attendant of the condition of the patient. The attendant while in charge of the patient had this card in her possession; she had no other duty, and until the card was handed over to another attendant her responsibility continued. As a general rule the obtrusive watching of patients should be avoided, and the tactful attendant would do his duty without aggressiveness; but in the last class of cases there should be no hesitation in telling the patient what the restrictions were and why they were imposed. The frequent revision of the suicidal list was most important, but when to withdraw a blue card was one of the most difficult and responsible of duties.

Dr. AVELINE asked if the caution cards might not be defended on the ground that written instructions were very much better in evidence than verbal instructions. It would have been interesting if Dr. Marnan could have given them any statistics with regard to the value of the caution cards.

Dr. BENHAM said he was practically in entire agreement with the paper read by Dr. Marnan, and also with the remarks of Dr. Soutar. The method he had sketched out was, in his opinion, admirable. It had been suggested that to segregate patients in particular wards very much retarded recovery and inflicted pain upon them, but that had not been his experience. He had no hesitation in telling the patients they were under suspicion. In his asylum they had one ward in which there were twelve suicidal patients under caution cards, and he did not think they suffered because they were thus segregated, or that the nurses suffered from the strain.

Dr. MARNAN briefly replied to the discussion.

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*On the Experimental Use of Antiserums in Acute Insanity.* By LEWIS C. BRUCE, M.D. Edin.

DURING the past year we have frequently used antiserums experimentally in cases of acute insanity because we have been led to believe from our observations that many of these cases,

either primarily or secondarily, are suffering from bacterial infection. The grounds upon which we base this belief are that we frequently find hyperleucocytosis, and in forty-eight out of seventy-six cases examined we have found bacterial agglutinines in the blood which do not exist in the blood of healthy people.

The serums which we have used are antistreptococcus serum, antistaphylococcus serum, antibacillus-coli serum, made at the Wellcome Laboratory. We have also used serum made in the Murthly Laboratory from goats—one being immunised to an organism obtained from the blood of a case of acute katatonia, and one being immunised with the organism isolated from cases of general paralysis by Ford Robertson, McRae, and Jeffries. The latter serum has only been used in the treatment of cases of general paralysis, and we do not intend to make any further mention of it in this communication.

In a paper published by one of us in the *Journal of Mental Science* for July, 1903, it was noted that in four cases of acute mania treated with antistreptococcus serum no results were obtained by subcutaneous injection, but that by oral administration three out of the four cases benefited by the treatment. Further observations made on thirteen cases have confirmed the opinion that subcutaneous injection of antibodies in acute mental disease are, so far, of no value even in cases where a definite agglutinine was discovered in the blood of the patient and the appropriate antibody injected.

A further experience of oral administration, however, has also confirmed the earlier observations as to the effect of these antibodies on the pulse and temperature.

In five fully developed cases of acute mania antistreptococcus serum was given in doses ranging from 10 to 20 c.c. without benefit, and we are of the opinion that in any case of acute mental disease where the symptoms are severe serum treatment is of no value. In two cases, however, which threatened to relapse 10-c.c. doses of antistreptococcus serum reduced the pulse ten to twelve beats per minute, lowered the temperature a degree, and apparently cut short the attack. Two further cases of mania which had recovered to a certain point, but showed every evening a tendency to loss of self-control with a quick pulse and slight rise of temperature, were treated with 10-c.c. doses of antistreptococcus serum, given at 4.30 p.m., to

anticipate the rise of pulse and temperature. Both patients undoubtedly benefited by the treatment: their pulses did not show the evening rise, there was less restlessness, and both made rapid and excellent recoveries. That the action of the serum in these cases was not specific is shown by the fact that some evenings antibacillus-coli and antistaphylococcus serums were administered instead of antistreptococcus serum, and yet the effect upon the temperature and pulse was marked. Three cases of katatonia were treated with large doses of a serum made in the Murthly Laboratory, obtained from a goat immunised to a coccus isolated from the blood of a case of katatonia. In all three patients the serum produced a very marked fall in temperature, but there was no mental improvement. A further point which we have noted is that these antibodies, when exhibited by the mouth, have a distinct hypnotic action; at least 50 *per cent.* of our cases have shown this action, not once, but repeatedly after the administration of the serum. This hypnotic action of antiserums has been previously recorded in medical literature, but I have not been able to find the reference.

#### DISCUSSION

At the Meeting of the Scottish Division at Edinburgh, November 27th, 1903.

Dr. FORD ROBERTSON remarked that Dr. Bruce had only described his observations, and had not endeavoured to give any interpretation of their results in the light of the modern knowledge of immunity. It was therefore hardly possible to discuss the paper, though many debatable questions were raised in it. For example, it might be contended that as there were many varieties of streptococci, a negative result on treating a patient with a simple antistreptococcic serum could not be regarded as excluding the occurrence of a toxæmia of streptococcal origin. The most potent antistreptococcic serum was now found to be one in the preparation of which several varieties of streptococci had been used, such as that prepared at the Pasteur Institute in Paris. It might also be objected that it was still rather doubtful if it was possible to obtain a specific antistaphylococcic serum. He did not mean, however, by these remarks to endeavour in any way to minimise the importance of Dr. Bruce's researches. He was sure that the observations were of great importance, and though results such as those obtained might as yet be incapable of full interpretation, their significance would probably become apparent as our knowledge of immunity advanced.

Dr. BRUCE.—I am much obliged to you for your criticism. The record of the uses of serum was merely a record stating that it had been used, and that the results were so and so. That apparently injected subcutaneously, even in appropriate cases the serum produced no result. Dr. Ford Robertson's criticism is quite correct as to antistreptococcic serum—there are so many varieties of streptococci. What I used was the serum, which we may call the commercial serum, prepared by Messrs. Burroughs and Wellcome, and sold now by all the big firms. I fancy they do make it from several varieties of streptococci. The curious thing to me was this, that you got the same results from various serums when given by the mouth. Now, what is the explanation of that fact?

Dr. FORD ROBERTSON.—You produce a leucocytosis.

Dr. BRUCE.—No, you produce no leucocytosis. It reduces the pulse and temperature. What is it you are introducing into the body? Is it the immune body? Is the patient deficient in the complement and unable to prepare his own antitoxin? It was merely with the idea of getting some suggestions as to this that I brought the question forward.

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*The Trypanosoma of Sleeping Sickness.* By ROBERT JONES, M.D.

BY the courtesy of Sir Patrick Manson, K.C.M.G., I am permitted to show you specimens of (1) the trypanosoma from the human subject, an European, which is the first instance of such a discovery; (2) in monkey got by injecting human trypanosomes, the specimen being one, I believe, of Dr. Castellani's own preparation; and (3) the Tryp. Lewisi from the sewer rat. I make no apology for drawing attention to the possible cause of a disease—sleeping sickness—which is so nearly allied in its clinical symptoms to the condition of katatonia or hebephrenia, two of the varieties of dementia præcox which, in increasing numbers, many of us are called upon to treat. Recently my colleagues and myself have made an unsuccessful attempt at lumbar puncture in order to have examined the cerebro-spinal fluid of a case of katatonia. Let us briefly contrast the trypanosoma with the malaria parasite.

Less than ten years ago nothing really was definitely known of malarial parasites outside the human body. Now the extra-corporeal life is fully ascertained, and the co-existence of malaria with the anopheles mosquito has been fully investigated.

Briefly, the malaria parasite or the *Plasmodium malariae* has two phases, or a dual cycle, an intra-corporeal and an extra-corporeal life.

To take the varieties of malaria, *viz.*, *tertian*, in which the *plasmodium* matures and discharges itself from a red blood corpuscle in forty-eight hours; the *quartan*, in which the same takes seventy-two hours, and the *Æstivo-autumnal*, also a forty-eight hours' maturity. In all these (1) after a chill, the red blood-cells contain highly refractile and actively amœboid small bodies, which are the early forms of the plasmodium and are