made about himself personally—for which he expressed his thanks to the speakers—he would remind those present that this was the Royal Medico-Psychological Association and that that body must have a President. He thanked the guests who had given the Association the great privilege and pleasure of entertaining them.

He knew it had sometimes been the custom for the President on such occasions to give a short history of the Association, but he assured the company that he had no intention of doing so at this late hour. Still, he would like to say—though it would be no news to the members—that the Association was a very old one, yet it still remained young in mind and spirit, and its endeavour was to progress with the times. He thought it must be admitted that at any rate the specialty of which they were members had endeavoured, during many years, to advance the care of the insane, and to promote the good treatment of those unfortunate individuals. The Association had been in existence ninety-one years. It was started in a very small way, by a few medical men who were interested in the specialty, meeting to discuss matters of interest with regard to the insane and the management of institutions for them, and in process of years this small society grew and developed. A few years ago, His Gracious Majesty, by Royal Warrant, authorized the Association to enjoy the prefix " Royal," and it was in that form the Association met to-night. (Applause.)

Between the toasts musical items were rendered by Miss May M. Morrison and Messrs. Adam R. Lennox and M. R. MacLaren, accompanied by Miss Ishbel C. Phillips.

Friday, July 15.—Morning Session.

At the Municipal Buildings, Stirling.

19. Paper.—" The Place of Psychiatry in Medical Education," by Ralph A. Noble, M.B., Ch.M.Syd., D.P.M.Camb. (*vide* p. 793).

The President said he was sure all present felt extremely obliged to Dr. Noble for his most interesting paper. It covered a great deal of very important ground, and there must be many who would wish to join in the discussion on it which the reader had invited.

Dr. Rice remarked that as he had represented the Association on the Committee of the British Medical Association to whose report Dr. Noble had referred, it was perhaps incumbent upon him to speak on Dr. Noble's paper. Until Dr. Noble said he had read that report, he, the speaker, wondered whether he had done so. On inquiring among medical men generally, among members of this Association and elsewhere, he had found that singularly few had read it. Dr. Noble would agree, he thought, that the attempt had been made to work very much on the lines suggested in the paper. He would like members of this Association particularly to read that report, and to send in, either to himself or to Dr. Menzies, any remarks which they thought ought to be made when the report came up before the Annual Representative Meeting. If any member of the Association wished anything said on the subject at that meeting he, Dr. Rice, would be happy to say it, because it would be possible to bring up amendments which might be suggested by individuals, or by the Association.

Speaking by and large, he thought practitioners in this branch were in a happier position in America than were similar workers here as to the relationship between the psychiatrists and their colleagues on the medical and surgical sides. They were somewhat more advanced in America. Dr. Noble was referring chiefly to the teaching of the universities on this subject, and the work of the universities generally. He, Dr. Rice, was approaching the subject on the British Medical Association Committee more from the point of view of the provincial medical superintendent who was trying to run an out-patient clinic at the general

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hospital. There were considerable difficulties to be overcome in the relationship of this worker with his colleagues, and it would be agreed that in this report one of the most important items, and one of the most helpful remarks made by that Committee, was with regard to the establishment and the staffing of out-patient clinics; under Section 48, sub-section 4, there was a strong recommendation that the physician in charge of the out-patient clinic, whether he be a whole-time officer or not, should be a member of the general hospital staff with, possibly, a seat on the Medical Committee, and not a mere tenant for such time as he was occupying a portion of the premises hired by his authority.

As to the question of the demonstration of the psychoneuroses, on the suggestion of Dr. Rees, of the Tavistock Square Clinic, the Committee took the view that it should be strongly emphasized that the teaching of psychoneuroses could not be done to the same degree as could that of medical and surgical cases, nor could they be demonstrated to large classes of students, owing to the necessarily confidential nature of the interviews. Dr. Noble, in his present paper, had said he thought much might be done by demonstration to a small class in the wards. That seemed to him, Dr. Rice, to depend on the psychiatrist having his own beds in the hospital, or access to the medical and surgical units. In America the psychiatrist was called in by his medical and surgical colleagues, but that kind of consultation was not common in England, though it had happened to him. He was asked by one of the surgeons to see a case. The lady had had contraction of a leg; nothing could be done for it, and it was accordingly amputated, and she returned home. Some months afterwards her medical attendant sent her in with a similar contraction of the other leg, and, in due course, that also was amputated. They were about to deal with one arm in the same way, when he, Dr. Rice, was called in and was able to stop that.

He would like to emphasize the importance he attached to experience in general practice for men who took up psychiatry as their life's work. What he regarded as his misfortune at the time, but what proved to be his good fortune, was that, owing to poverty, it was necessary for him to interrupt his curriculum twice before he became qualified, and to take unqualified assistantships in private practice. Since then he had become more and more conscious of the tremendous benefit it was to him to have been associated with and to have seen people in all classes of life in their own homes, especially the poorer classes, from which stratum of society most of the patients in public mental hospitals came. It gave a man a capacity for insight, he hoped, and certainly for sympathy in dealing with the individual, which could hardly be obtained otherwise. Names given were merely labels, and that was generally the attitude of the man whose experience was confined to hospital work. He had found this in his own case, and since he had been a superintendent he had had many assistants, of both sexes and both married and unmarried; there were men and women who had had hospital experience only, and who might be full of theories, but who, when they came to deal with the Sally Joneses and the Charlie Browns, were of no more use than a sick headache. He was thankful to say he was now blessed with two married assistants (for the fact of their marriage helped them in many of their difficulties) who had had experience in general practice. He would like to see it made a condition that no man or woman should be allowed to take up permanent work in a mental hospital until he or she had served at least two years in general practice. And the reverse also applied, namely, that no one should take up general practice permanently without having had at least a year's experience in a mental hospital; because in psychological work one found it difficult to get the general practitioner to take an interest in a case when once it had been declared to be "mental"; as soon as that happened, the general practitioner wanted to be rid of the patient from his care.

He wished also to direct attention to another point, namely, that dealt with in Section 40 of the report, on the relationship of the private practitioner to the mental hospital or special department. The report stated that it was desirable for private practitioners to follow up their cases after they had been admitted, as it was only in this way that an intimate knowledge of the progress and development of mental states, as well as familiarity with the different forms of treatment, could be acquired. He was himself responsible for that last sentence in the document, and he believed that such a practice would be welcomed. Medical superintendents of public mental hospitals would be only too glad if practitioners

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whose patients were with them would come and see from time to time what progress their patients were making in the hospital, and would discuss the cases with the superintendent.

There was also another point to which he wished to direct attention, and he thought it was on all fours with what Dr. Noble had found in America. In Section 30, under the heading of " Post-Graduate Instruction," mention was made of how little had been done, and it was stated that there should be continuous post-graduate education, and that facilities for teaching should be available. The idea was that there might be clinical assistantships, residential posts for six months or a year, like the post of house-surgeon or house-physician in a provincial hospital. Again, in some places there might be men entering practice, or men who had been in practice, who might like to have some quasi-official connection with the mental hospital—to visit there regularly, seeing the patients, and getting more experience ; and this might be done on a part-time basis. This would be helpful to the medical superintendents, and probably would be helpful also to the practitioners.

Finally, he wished to draw the attention of the meeting to the way in which the British Medical Association Committee tackled this problem which they were set. They divided their subject, and dealt with it under three or four headings. The first of these related to the training of the medical student in mental medicine. He believed he was right in stating that practically everything that Dr. Noble had said about the arrangements for this education had been said at one time or another at meetings of this Committee. It was necessary for the Committee to condense its report very greatly, otherwise a great deal more of the deliberations would have appeared in print. A point that was not mentioned by Dr. Noble was brought forward by a member of the Committee who was in the public service, and to it attention was drawn by the Committee in Section 26 : " It has been observed that questions in psychiatry are very seldom set in Final examinations ; a more frequent inclusion of such questions would stimulate the students to pay more attention to the subject." It was evident from what was said by those in a position to know, that the curriculum was too much overcrowded for much more teaching in psychiatry to be added, but it was felt that time might be made by a re-arrangement of the curriculum, dropping lectures on abstruse subjects and on diseases rarely or never met with in this country. If some time were taken off other subjects, and a consequent re-adjustment were made, much more time could advantageously be devoted to the teaching of psychiatry.

Mr. L. G. Brock, *C.B.* (Chairman, Board of Control, England and Wales), said it might perhaps be regarded as a rash thing for a layman to intervene in medical discussions, and to address a meeting of doctors on a problem in medical education, but this really was an educational problem, and he thought the principles underlying it were principles applicable to all education.

He had been listening with very great interest to what Dr. Noble had been putting before the meeting, and it was not his purpose or wish to criticize anything that gentleman had said ; he wanted rather, if he might, to suggest that there might well be a widening of the discussion, because he thought that if one was considering the problem of education, the first thing it was important to look at was, what was its ultimate object? What was one seeking to produce ? Were those who were discussing it looking for some way of providing more highly skilled, more widely trained, more competent and better teachers ? Or were they looking to the general training of all practitioners of medicine ? All must recognize the importance of getting better teachers; it was important to a degree which it was difficult to over-state ; also it was important to have more consultants. But looking at the matter from the point of view with which he was more immediately concerned at the Board, he was impressed by the tremendous importance of better teaching for the general practitioner, and especially was he looking for some way of helping the general practitioner to detect the earliest signs of mental disorder, seeing that it was on the general practitioner that dependence was placed to get cases of such disorders under treatment at an early stage. The hope was that general practitioners would be so taught that they could recognize signs as early as specialists could wish ; that practitioners would be taught not merely to see the earliest signs, but taught to look for possible mental reaction in connection with physical disorder. There must be—it was known that there were—many cases in which

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mental disorders were associated with trouble which commenced and showed itself as physical disorder, and he feared that at present general practitioners were very slow in their recognition of these cases.

He quite saw that the kind of teaching which Dr. Noble had outlined, the association of psychiatry with general medicine in the hospital ward, the kind of association which that gentleman had spoken of that morning, would be of very great value to the student. But he, Mr. Brock, believed that the biggest problem that had to be solved was that of providing the student with opportunities of studying mental disorder in its very earliest manifestations. At present, so far as he had had an opportunity of judging of the way in which the student was trained, the difficulty seemed to be that the cases seen were so often in advanced or very acute stages, not the stage with which the student when in general practice would be called upon to deal. That seemed to him to be the real practical problem of undergraduate training: how the practitioner was to be provided with the clinical material which would give him the opportunity of seeing the very earliest developments of mental disorder. He had not himself any solution of that problem to offer; it was not for the layman to attempt to solve it; he was doing no more now than trying to state one aspect. He hoped that when members of this Association were considering that problem, they would not do so exclusively in relation to mental disorder, but also in its relation to mental defect. He did not believe that at present the relations between mental defect and mental disorder were sufficiently studied. If he might be allowed to say so without presumption, he thought there was sometimes a tendency to treat psychiatry as though it was concerned primarily—almost entirely—with mental disorder, and as though mental defect was something secondary and relatively unimportant. From the point of view of the general practitioner he did not think that was the case. Every practitioner must, in the course of his practice, have to examine—very often must have to certify—cases of mental defect. At present that work was not well done. It was not fair to blame the general practitioner for that state of things, but he thought it was of very great importance that the student should receive more training in mental defect than he was receiving at the present day. The speaker did not think it would be possible to administer the Mental Deficiency Acts effectively until there existed a much wider and more general appreciation of the characteristics of mental defect than the average medical student acquired at the present time. He was convinced, too, that, apart from improvement in the administration of the Mental Deficiency Acts, psychiatry had a great deal to gain from paying more attention to mental defect than it had paid hitherto. He could not help feeling that a more intensive study of the relations between mental disorder and mental defect might perhaps help more than anything else in elucidating some of the causes of mental disorder itself.

It was because he felt that so strongly, that he had ventured to suggest to the meeting those considerations as worth bearing in mind in the discussion which was to follow Dr. Noble's extremely interesting and stimulating paper.

Dr. R. Mary Barclay referred to the undergraduate curriculum and post-graduate course in psychiatry in Edinburgh. It was important to find out whether students were being given a genuine understanding of psychiatry. It was through the study of life and actual cases that this was acquired. Psychology had a close connection with ordinary life. She was very sorry that the arts course had been abandoned, for mental philosophy could conveniently be included in it.

Dr. Fox agreed with Mr. Brock that it was important for the general practitioner to be concerned only with incipient mental disorder.

He did not agree with Dr. Noble that the general practitioner needed to be taught a lot about psychiatry. It was only important that he should be able to recognize incipient mental disorder when confronted with it. He was speaking as one who had himself done some general practice, and he could say that the general practitioner had not the time available to become a close student of psychiatry and carry out the appropriate treatment for it. What was important was that he should send to the mental hospital at an early stage the cases of mental disorder he saw in his practice, so that the officers of those institutions, too, could get some insight into the early stages of those disorders. Most of the cases that were sent were not incipient, and officers of asylums saw but little of the beginnings of things.

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With regard to the D.P.M., it required a year's hard work to obtain it, but much more work had to be done; the work did not finish with that year. In studying for the D.P.M. one became acquainted with the theories on the subject, but it took years to become an efficient psychiatrist. Therefore it was unreasonable to expect a general practitioner to do what it took those who specialized several years to accomplish. It was a good point to ask the general practitioner to visit the mental hospital, as it was in that way that the practitioner and the medical superintendent could come into contact with each other, and the former was likely to say what his difficulties were.

Another point was that psychiatrists got no contact with young people from the age of puberty to that of leaving school. He thought that in the course of years some psychiatrists might be able to get the opportunity of studying these cases. In cases of primary dementia one often heard from the parents that the child was all right at school, but that on leaving he was unable to accustom himself or herself to the changed surroundings, and gave up the reality of life and sought refuge in phantasy. There ought to be a chance of studying such patients in the later years of their school life, and ascertain what it was that had brought about the mental disorder.

Dr. Vernon Briggs (U.S.A.) reminded the meeting of what had been done in Massachusetts. The incidence of mental disease there was the lowest in the United States. The reason was that the problem was being attacked from every direction. No physician could be licensed in Massachusetts until he had passed an examination in psychiatry.

As a previous speaker had said, the general practitioner could not be properly educated in psychiatry in that way, but he could be taught to recognize early cases. Out-patient departments were established in the general hospitals and other places in the State of Massachusetts, so that the general practitioner could bring early cases for treatment and for commitment; and the hospitals themselves discharged much earlier the cases they had, on the understanding that the patients afterwards reported to the out-patient department. In 1922 a Division for Mental Deficiency was established and attached to the State Board, and that Division had charge of fifteen travelling psychiatric clinics, which visited the public schools of the State to examine the children who were reported to be retarded or backward in their studies. And the subject of mental hygiene was recognized by Act in the same year, 1922.

By means of this preventive work the incidence of mental disease in the State had been materially reduced. A card was sent to the physician asking him to be present at the conference which was held on the patient the first time he was seen, and he was urged to go over the case, not only for his own benefit, but because of the important items of the history which he, as the family physician, was able to supply.

Dr. W. F. Menzies asked what was Dr. Noble's opinion on the subject of class demonstrations of cases of psycho-neurosis: was there any particular stage in which it was desirable to avoid class demonstrations? He quoted a case in which he thought class demonstration was likely to make the patient worse.

Dr. J. H. MacDonald remarked that the schemes formulated that day were ideal, and he envied Dr. Noble his energy in trying to carry them out. The teaching of the subject in Scotland was not inefficient; the great fault was that the students did not take due advantage of the material which was there. But this was not altogether the fault of the students; rather was it due to the absence of an examination on the subject. The position was that the study of psychiatry was obligatory, but there was no compulsory examination on the subject. The student knew that there was a chance that he would be set a question on it in the Final examination; but that was nothing more than an off-chance. If a student did not feel certain that he would be examined in a particular subject, he did not bother very much about that subject in his reading and in the work of preparation generally.

That, therefore, was the first step to take, to make the Final examination include the subject of psychiatry, so that it was part of the equipment of the general practitioner. In his own outdoor work in connection with the Royal Infirmary, and in consultations in the wards, he found that physicians in general knew a

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good deal about the subject. When he was called to the ward a diagnosis had often already been made by the physician, and the speaker's function was to confirm that. It was thus evident that the knowledge of the subject on the part of many physicians who had charge of the ordinary hospital wards was not inefficient.

Another point concerned the great number of younger patients who had passed through the hands of the school medical officers, and he thought medical superintendents ought to take a little more active interest in the work of the school medical officers. Many of the school medical officers who were responsible for the examination of the children and put them through tests, had not the knowledge of psychology they ought to have. He was surprised at the young folks who came to the clinic who had passed their school examinations without a clear defect having been detected. Medical superintendents were somewhat to blame for not taking a more active interest in the work.

Sir HUBERT BOND (Board of Control) said that this subject had been so dear to his heart, and for so many years, that he would not like to miss this opportunity of saying a word on it.

He had been glad of the opportunity of hearing Dr. Noble's paper. Backwards and forwards went the theme, but always it wound up with the central idea—getting work on this specialty done in general hospitals. That, after all, was really the point. Not much advance could be expected until that was done, either by psychologists, or by other and equally efficient people. And whether it was done under the ægis of the men who were in control there or by the staffs of the mental hospitals, at any rate the members of the staffs of mental hospitals must be associated with that work. Otherwise there would be failure.

It was now eighteen years since he made it the topic of an introductory address he gave at Middlesex Hospital at the commencement of a session; and the method of doing it formed part of his Presidential Address to this Association in 1921. What was aimed at was to make the work of the psychiatrist part of the daily life of the general hospital. That could only be done by there being a unit for mental disorders there. Dr. MacDonald had said that the need was to get an examination recognized. He, Sir Hubert, agreed as to the value of an examination, but that would not solve the problem. It had been for many years in the curriculum for the Durham degree (largley owing to the inspiration and suggestion of Dr. T. W. McDowall), and also, he thought, in one of the Irish universities. But that was insufficient if the teaching was confined to the public mental hospital, and the examination was solely on the nature of that work. The men turned out from those centres did not claim to be better than those from other universities, and the position never would be rectified effectively until the treatment of early cases of mental disorder, as emphasized by Dr. Noble, was made a part of the curriculum in general teaching hospitals.

Dr. NOBLE, replying to the discussion, said he first wished cordially to thank members who had spoken for their criticisms of his paper. He valued criticism very much, and he hoped to have the opportunity later of talking to some members individually on the subject.

Dr. Vernon Briggs had drawn attention to the very important system which existed in Massachusetts, where the students at Tuft's University spent at least a month during their summer vacation in residence at a mental hospital. It was a routine practice. Students looked forward to that with real interest, and they certainly gained much by this contact with mental disorder in a place where it was efficiently treated.

He greatly appreciated the remarks of Mr. Brock, who had drawn attention to the importance of securing cases of mental disorder early; the great problem was how to detect them early. At Yale University he had been trying to do it in the way he had outlined in the paper. The earliest signs of mental disorder would be found in patients who were in the general hospitals, in the wards and in the outpatient departments; and not only cases of mental disease would be found there, but also instances of mental defect. That was why it was so important that the medical psychologist should strengthen his association with the wards, out-patient departments and hospital clinics. And those working in the out-patient departments should take every advantage of consultation work in the wards. Dr. MacDonald was right when he said that many

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leading physicians and surgeons knew a great deal about the personality of their patients. The resident medical officers and the students would flock round the psychiatrist when he was dealing adequately with a case in the general wards. The importance of the manner of demonstration of cases in the general wards was great. In a university which he had visited recently a case was demonstrated by the full-time professor of medicine, and there were members of the consulting staff and a total of twenty people round the bed. The professor of medicine invited the dermatologist to demonstrate a case of bullous erythema, as it was a rare condition. The patient was quite rational and understood all that was said about her. The professor asked the dermatologist, across the bed, what was the prognosis, and the reply was, "This condition is invariably fatal." Apparently it did not matter about the old lady; she was going to die. But twenty students were being taught in that way!

The question asked by Dr. Menzies was very important, namely, did class demonstration of patients do harm to those patients, particularly if they were early psychiatric cases? His reply was that much depended on how it was done. Nothing could be worse than the example he had just related. But there was no need in a hospital to use that method of going round from bed to bed, having the history read out, and asking the students questions about the case. He believed in discussing the whole history in a room adjoining the ward. The patient need not be present except for part of the time. Any confidential matters revealed by the relatives or by the patient could be discussed with discretion. The discussion should never take place in the presence of the patient. He, the speaker, felt that there was no difficulty in demonstrating to students the psychoneuroses in the general wards of the hospital when ordinary common-sense methods were applied.

20. PAPER.—"**Katatonia and Its Relation to Dementia Præcox,**" by LEWIS C. BRUCE, *M.C.*, M.D., F.R.C.P.E., Medical Superintendent, Perth District Mental Hospital, Murthly.

Many times on reading the Journal I have been impressed with the fact that the condition dealt with in papers is often not the disease condition itself, but the result of the disease. Those who write do not describe the beginnings of an illness, but they take the condition of disease, the broken-down mind and body, which follows on the disease, and they describe it as such. Take the instance of encephalitis lethargica. Described at the onset, and then again after the patient has drifted into an asylum, you cannot compare the two descriptions as referring to the same patient or the same disease.

It fell to my lot last autumn to admit three cases of katatonia. If you read Kraepelin's description you will see that it is a result of disease, not a disease in itself, not a disease process. These three cases came into my hospital within three weeks of each other, and I was able to compare the symptoms.

The first thing that strikes you about katatonia is that it is not a disease of adolescence. I have had a man 50 years of age who had katatonia, and I have had a girl aged 16 with it. It is rare in Scotland, and so we have no pathology of it. I have never seen a case of katatonia die in the acute stage, though I may be wrong in thinking it does not occur. It is chiefly women who are affected by it, though I have had several men patients with it. One of the women patients was aged 36, another 31, another 25. In all three there was heredity to mental disease. Two of the women were people of great capacity. One was a clerk who was able to run a large department in a store, and another was supervisor in a cleansing office in Pullars' works. The third was below the average capacity, and worked as a laundress.

The first thing which struck me about those cases was the sudden onset of the condition. One of the patients was at her work on a Friday, and came to me at the Royal Infirmary on the Sunday following. The second feature about them all was that they had a raised temperature. The fever lasted three weeks, and gradually resolved by lysis. Even at that stage, however, the sterno-mastoid muscles were firm, and on examining the abdomen there was found to be some increased tension in the anterior abdominal muscles. The tendon reflexes were all increased. The cerebro-spinal fluid, some of which I

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withdrew and examined as soon as I got the cases, was of high tension; I obtained 50 c.c. of it in two minutes. Those of you who have punctured the spinal canal know how difficult it is in a normal case to get even 10 c.c. in that time. As soon as the stupor came on, the tension of the cerebro-spinal fluid fell, and it only flowed during respiration. In every case the fluid was clear. Centrifuging produced practically no cells, but as the fluid cooled, crystals of calcium carbonate appeared, which caused the fluid to appear turbid. I am sorry to say that my investigations of katatonia in the early days did not extend to the cerebro-spinal fluid. I was so impressed by this turbidity that I took a specimen of the patient's cerebro-spinal fluid to Dr. Turck, in Dundee, who told me what was the composition of the crystals. I shall be glad if some of my hearers who have had experience of the condition give me some explanation of that feature. Is it a causal fact, or have I struck a fallacy, and is it possible that there was something in my technique which caused this crystallization? I am not aware of its having been mentioned before. There were no bacteria in the fluid, neither on microscopical examination nor on culture. I took a small quantity of the cerebro-spinal fluid and injected it into the subdermal tissues, but there was no reaction, showing that there was no toxin in the cerebro-spinal fluid. The urine of the patients was extracted by catheter, and it was in each case acid and was full of pus-cells: there was bacilluria, diplococci in all three cases, and in two cases with other organisms intermixed. We managed to get a pure culture, and we used it in the making of a vaccine. This was tested on the skin, but there was no reaction. I also examined the proteoses of the urine, the products of increased metabolic activity, and these proteoses were found to be greatly increased, even to some five times the amount found in health; and the proteoses were much the same as seen in association with acute febrile conditions. I tested all these cases intradermally with the toxin from the proteoses of the urine, and there was no reaction. I took 30 c.c. of blood from the median basilic vein, and put it into ordinary broth and into ordinary distilled water; only one gave a culture, and it was a coccus, very much like the coccus in the urine. I concluded that the coccus was an accidental contamination. The degree of leucocytosis of the three cases was taken day after day for months. These cases have a high leucocytosis; in these three cases it varied from 15,000 to 23,000. The neutrophiles were increased to 90%. As soon as stupor came on, up went the leucocytosis; in one case it was 40,000, and the neutrophile percentage was 95.

The mental symptoms were, first of all, very acute confusion, *i.e.*, much more acute than one would expect from mere observation of the patient. There were also vivid hallucinations of sight and hearing. The only thing which caused the patient to become excited was fear.

As the patient got better the leucocytosis came down either to the normal or to 10,000, and the neutrophiles fell to 16% or 17%, and when the patients were discharged that was the condition of their blood. The eosinophiles increased enormously, especially in the cases which recovered. This is usual after bacterial invasions. For instance, I have injected into my arm a good still culture of *Staphylococcus aureus*, my blood having been examined two or three days before, and my blood was again examined as the antibodies were formed in my serum. It is found that marked eosinophilia appears immediately antibodies to the serum injected can be demonstrated.

As to the treatment of these three cases, I could find nothing that I could fix upon. I thought that the best plan was to treat the bacilluria, and I made a vaccine from these organisms, and with this I injected the patients every four days for two weeks. All of them showed a clearing up of the bacilluria, and when that happened two of them recovered.

These facts seem to me to indicate that katatonia is not the complex business which we call dementia præcox because we do not know what causes it. We know there is a large class of cases which we bring together under this term; and that katatonia, as described by Kraepelin, was a branch of dementia præcox. But I think that katatonia is an acute infective condition, as shown by the temperature and the leucocytosis; it looks as if it were more akin to bacterial infection, yet it cannot be such, otherwise there would have been found to be toxins in the proteoses, and probably also in the blood and cerebro-spinal fluid. If it is an infection, it is something more subtle than the usual bacterial infection; possibly

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it is a virus which opens the way for attack by bacteria, as shown by the urine, because that temperature chart is extraordinarily suggestive of kidney disease. When you find a patient with fever for which you cannot find any cause, always think of the possibility of the kidney being involved, for I think that in 90% of the cases the cause of the fever is there. Two of these cases, as I have said, recovered when the urinary condition cleared up.

The PRESIDENT said he thought Dr. Bruce was to be congratulated on his discourse ; it could not be called a paper, as he had not even notes to speak from. Dr. Bruce must have a very retentive memory, for he had brought out all that he wanted to say in proper sequence and in a most interesting and attractive way.

Dr. W. FORD ROBERTSON said that he had listened with tremendous interest to Dr. Bruce's account, and what he had told the meeting was most informative and helpful towards a better understanding of cases which might be somewhat less dramatic.

As Dr. Bruce had shown on only moderate laboratory data, one was dealing, in such cases, with a toxic condition, which Dr. Bruce considered was possibly due to coccal infection. Further investigation would yield, he hoped, even more definite criteria as to what were the other factors involved in the production of these interesting symptomatic cases. It would have been instructive to have followed, from the point of view of his, Dr. Robertson's experience, the condition of the intestine of these patients. He had himself had one case of pure katatonia which had similar bacilluria, but it was not due to coccal infection. The organisms present in that case were exclusively anaërobic and were diphtheroidal in character, and the same organism was present in very large numbers in the intestine.

During the last twelve months he had been making a careful study of the hæmopoietic reactions in mental patients, in the hope of providing a chain of evidence which could be linked up with the infective or toxic theory in the case of many types of mental disorder. He was able to endorse Dr. Bruce's statements as to the interesting reactions which could be found with regard to hyper-leucocytosis, in the acute confusional cases, which were, in some respects, allied to the premonitory acute confusion occurring in the katatonic cases with high leucocytosis. What he had found, after the acute condition subsided, was the development in the quiescent stage of an intense lymphocytosis. He thought that this question of lymphocytosis would require very careful study.

Part of his work had relation to immunization, especially against anaërobic infections, and he had had the opportunity of making observations from the standpoint of eosinophilia. He was able to say that it did occur. Furthermore, in parallel with the study of eosinophile reaction, the capacity of the monocytes to afford an index of repair was also worth studying. The work of Victor Schilling, in Germany, if studied more intensively and taken in relation to chronic infective conditions among the insane, might yield, in the future, a much better understanding of the very subtle toxic effects which occurred in many cases of mental disorder. The toxic after-effect was due to hyper-selectivity, due partly to the fact that the organisms which were invading were essentially anaërobic in character. He hoped that some of his own researches in the future would be towards investigating that important field.

Dr. A. S. PATERSON remarked that this question of katatonic reaction was one which had only recently received anything like the attention which was its due. Dr. Bernard Hart, in his recent address at the Section of Psychiatry of the Royal Society of Medicine, discussed the various approaches to psychiatry, and mentioned Dr. Bruce's book which appeared twenty years ago. He, Dr. Paterson, thought that this question of katatonia was one of those which had not been solved very well, either by the psychological approach or the approach of the neuro-pathologist. It had been found, in cases of dementia which started with katatonic excitement, that after a number of years neuro-pathological examination showed some change, but in cases which had recovered, or which had died in the acute stage, no very clear findings were revealed. That rather pointed to a temporary intoxication which, if it continued long enough, led to nerve changes which could be detected pathologically. He thought, however, that the new method of approach, by studying experimental katatonia in animals, had been more successful. The method consisted in the use of various drugs, the chief

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of which was bulbocapnine. The most recent article on the subject had appeared in the *Medizinische Wochenschrift* of Munich; it was entitled "Katatonia as a Common Reaction-Type that can be Produced in Animals." The author found that adrenaline in certain doses would cause katatonia, and he went on to investigate certain extracts of choline and other fæcal products, also extracts from the urine. It was believed by those workers that these bodies were commoner in the urine and fæces of katatonics than in normal people's excreta. The katatonia in animals differed in some respects from that in man.

This type of investigation was producing excellent results, such as had not been arrived at, so far, by any other type of research in psychiatry.

Dr. W. F. MENZIES said he wished that psychiatrists would think more anatomically. Because headache was met with in catarrhal jaundice and also in tumour of the brain, it did not mean more than that headache was a symptom in both those conditions. And because one found katatonia in dementia præcox and also in the acute phase of mental disorder, it did not necessarily mean that they were the same disease, or that they were different diseases; it merely meant that the symptom called katatonia appeared in all. If one thought anatomically one recognized that katatonia was merely a failure to release cortical and subcortical mechanisms, and in acute katatonia one saw merely a passing phase. One saw it in the katatonic stages of dementia præcox, and one also saw it in encephalitis lethargica, and in the laboratory in such a condition as that known as decerebrate rigidity. It was merely a question of the locality of the release. There were many release-junctions, and if in any of these there occurred a dislocation, there was a want of release, and that want was katatonia. It might be of functional or of organic origin.

Dr. DONELAN said he was one of those whose complexes had been released by Dr. Bruce's address. For many years he had been endeavouring to understand what relationship existed between dementia præcox and katatonia. At one time, in the institution with which he was connected, there were a number of cases of katatonia, but latterly there had been very few. But none of the cases of katatonia seemed to follow the classical lines, *i.e.*, according to Kraepelin's teaching. He had had cases of katatonia in which that condition came on suddenly, with very little premonitory trouble or symptoms such as Dr. Bruce mentioned; they went through a long course of stupor, rigidity, and, as one might call it, mental disappearance. And, just as the onset was sudden, so was the recovery. One of the cases he had in mind was that of a man, aged 35, who came to the institution in a state of confusion. He had had some trouble at home for two days, and that led to his admission. Almost immediately on admission he fell into a condition of rigidity, and refused food. Nothing would rouse him. Little was then known about testing the blood. He was kept in bed, and was fed three times a day. That went on for six months, and he came to be regarded as a mere receptacle for food. One day, without any apparent change in his condition, he suddenly sat up in bed when the speaker was walking along the ward and asked for a cigarette. From that time he proceeded to recover, and he had now been back at his work six months.

Another and more pronounced case was of three years' duration, and came on in much the same way. One day, after being in bed in that condition for three years, this man suddenly sat up and asked for a bottle of stout. As a result of lying in bed such a long time his knees had become ankylosed, but he was able to sit up in a chair. According to his view of Kraepelin's idea and description, these cases should not have got better; they should have gone on to dementia. He, the speaker, did not see that there was any great difference between what was called progressive dementia and what Kraepelin called dementia præcox, since the latter occurred at all ages. It was a term which, he thought, should not have been introduced, and it had a confusing rather than a helpful effect in this work.

The meeting and the Association would feel greatly indebted to Dr. Bruce; he was a brave man for venturing to shed any criticism on Kraepelin's theories.

Dr. A. WALK said that Dr. Bruce had described three cases of confusional insanity. It was well recognized that katatonic symptoms could occur in confusional states due, it was presumed, to toxic causes; the interesting point was

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the mechanism by which katatonia could arise in such conditions. Dr. Bruce brought out the fact that the affective state of these patients was one of fear. He, Dr. Walk, wished to draw the attention of the meeting to the interpretation given by Dr. Graves, of Birmingham, in his work on "Sinusitis in Mental Disorder," which would appear in an early number of the Association's Journal. Dr. Graves, the protagonist of the physical origin of many cases of insanity, which he regarded as due to infection, thought that the occurrence of katatonia in the course of these cases was directly due to this affective state of fear; indeed, he regarded it as a manifestation of fear, as a reaction which took the form of the simulation of death, *i.e.*, great immobility. It was of interest that, in regard to the mechanism of katatonia, Graves did not postulate an infection of the mid-brain or the basal ganglia, or some portion of the cerebral anatomy, but was definitely in favour of a psychological explanation of the occurrence of katatonia in these cases.

The point which had been raised acutely that day was the relation of three different conceptions—katatonia, schizophrenia, and dementia præcox—and it might clarify ideas if one regarded them as being three different aspects of, or approaches to, what might or might not be the same disorder. When speaking of katatonia one meant a neurological symptom consisting of certain motor phenomena; when one used the term "schizophrenia" one meant a psychological picture or syndrome presenting certain peculiar psychological features, such as inconsistence of thought; when one spoke of dementia præcox one meant a disease which ran a particular course, ending in severe deterioration. Were these to be taken as in any way synonymous? It must be admitted that they were not synonymous, but there was a correlation between the three. They overlapped, but it was possible to have any one of the three conditions present without the others, and the cases which Dr. Bruce had related were good examples of katatonia in a confusional state, apart altogether from dementia præcox. The same would apply to katatonia occurring in encephalitis, and to the experimental katatonia produced by bulbocapnine. Examples of schizophrenia apart from either katatonia or dementia præcox also existed; such were the transitory acute forms of mental disorder, mostly in young people, from which the patient recovered; also schizoid personalities that remained eccentric, and continued all their life to show those psychological characters which were called schizoid; and in the same category there were the schizoid features of some cases of general paralysis, especially of some cases that had been treated with malaria. And thirdly, there were cases of dementia præcox in which there was no schizophrenia, and they were those cases known under the heading of "dementia præcox simplex." In these there was slow deterioration, but no reactive phenomena that could be called schizophrenic.

Of course there was a large residue of cases in which both dementia præcox and schizophrenia occurred together, and in which katatonia was common also. But when one looked upon these three terms as denoting separate aspects, one realized that the approach to the problem of the causation must be different; in one case it must be psychological, in the other it must be through the laboratory and through anatomical means.

Meantime much was owing to Dr. Bruce for having emphasized these katatonic cases which were not cases of dementia præcox, and which should not be dismissed as such, but investigated and treated from the point of view of the underlying physical condition.

Dr. Donald Ross said that Dr. Walk's remarks led him to mention a case. It was a case which seemed to be of psychic origin. A soldier was fit, and was doing his part up the line, when in 1917, during a bombardment, he suddenly presented a complete picture of katatonia. He was not injured. The speaker saw him towards the end of 1918, after he had been invalided home. No response could be obtained from him, and apparently he had been continuously katatonic for over a year. His extremities were cyanosed, his circulation sluggish, and he had a mask-like lack of expression. So true a picture of dementia præcox did he present that he was used by a colleague as a demonstration case. Apparently there was nothing more to be done. But one day, almost as suddenly as the condition had come on, he recovered. On going through the dormitory one morning the speaker was greeted with "The top of the morning to you, Sir!," repeated three times. It was at first thought that the man was hilarious. He eventually returned to Canada quite recovered. He had since heard that the recovery was maintained. In

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that case there seemed no reason to suppose that there was any toxic element present.

Dr. BRUCE, in reply, said he did not profess to be a bacteriologist, and as he was also a busy man he feared he had rather neglected to investigate the bacteriology of these three cases.

Dr. Paterson's remarks on experimental production were very interesting. Before the war the speaker experimentally produced katatonia in rabbits, and Dr. Ford Robertson's father kindly made the observations on the nervous system, but nothing definite was found. It was work done on the lines of bacterial infection. In the very early stages of katatonic disorder possibly no gross pathological change could be found, and it might be a functional disorder.

Dr. Menzies had emphasized that katatonia might take many forms, and that was true; one found katatonic symptoms in all kinds of cases, but he was certain that the condition of katatonia he, the speaker, had been describing to-day was not acute confusional insanity which had become katatonic, as there was an entirely different blood picture. In all the katatonic cases of which he had record one found that the condition of stupor came on in twelve hours, and, coincidentally, there was this severe leucocytosis; that was not met with in the acute confusional state. An acute confusional patient started with a leucocytosis at eighteen, and at sixty he still had it. He had had cases which had lasted for thirty-three years. Though these katatonic symptoms ran through all chronic cases, he thought the cases he had just described, and a few similar ones he had seen previously, were a distinct entity. Why should there be an increased temperature and leucocytosis unless there was some infection? It might be a virus. Two of the girls were sent to him as cases of acute encephalitis lethargica.

Dr. Ross said he saw a case of katatonia in the trenches; he, the speaker, had seen the same, but he did not know why they arose. He had one also who came back when he, Dr. Bruce, was in camp in Lincoln, and he sent it into the Lincoln Hospital as a case of katatonia. There it was found to be a case of epidemic cerebro-spinal fever, as they isolated the specific organism from the cerebro-spinal fluid.

What interested him was what was the cause of the condition? Was it purely emotional, or mental, or purely physical? Or was it a combination of two conditions? In none of the three cases did he find signs that the patient had psychological disturbance before the attack came on. They seemed to be people who were capable of doing their work, and their conduct did not attract undue notice.

He thanked all who had joined in the discussion.

LUNCHEON.

Members and their guests were entertained to luncheon at the Golden Lion Hotel, at the invitation of the County Council of Stirling.

Capt. HARVEY (County Convener), speaking on behalf of the Stirling County Council, welcomed the Association to Stirlingshire.

Dr. R. R. LEEPER responded.

EXCURSION TO THE TROSSACHS.

In the afternoon, by the kind invitation of the President and Mrs. Campbell, the members and guests enjoyed a motor drive through the Trossachs and tea at the Trossachs Hotel. The party also had an enjoyable sail on Loch Katrine in motor-launches kindly placed at their disposal by the Corporation of the City of Glasgow.

Saturday, July 16.—Morning Session, 9.45 a.m.

At the Municipal Buildings, Stirling.

21. VOTES OF THANKS FOR HOSPITALITY.

The PRESIDENT explained that it was customary at the conclusion of the Annual Meeting to accord votes of thanks and to arrange for letters of appreciation and gratitude to be sent to all who had given hospitality to the Association during the

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