

numerous that they could not be counted, and in the positive result not a single coccus was ingested. He had tried to meet the arguments which had been brought forward, but there were many others which arose, though they would occupy too much of the time of the meeting.

The PRESIDENT said the meeting was greatly indebted to Dr. Williamson for his very valuable paper. Many members, especially those as old as himself, would study it very intently when it appeared in the Journal. One could scarcely follow the details properly during the rapid reading, but it had elicited an extremely interesting discussion, and members would join in thanking him very warmly for what he had done.

The Mental Symptoms in Cases of Exophthalmic Goitre and Their Treatment. By JOHN R. GILMOUR, M.B.,
Medical Superintendent, West Riding Asylum, Scalegate Park.

CHANGES in the mental condition of the patient are frequently to be recognised as one of the earliest symptoms of exophthalmic goitre. These mental changes may be present before the cardiac or ocular symptoms have been established and before the changes in the thyroid have been observed. The most common feature is an intense and indefinable agitation leading to a more or less marked motor and mental restlessness, which causes the patient to look for constant change in her surroundings and work. There is an inability to settle long to any one occupation or recreation. Work begun with a feeling of relief at the change involved soon becomes irksome, is then done only with an effort, and with the cumulative feeling of effort and concentration required soon causes distress and the work is laid aside. Any sudden noise, any unexpected news, any of the ordinary disturbing elements of everyday life may be followed by an attack of palpitation lasting some hours, and yet, in spite of this, there is an imperative desire to keep moving; to go where such incidents may be experienced. Dr. Geo. Murray, in the Bradshaw Lecture of 1905, states that he has not noticed this craving for entertainment. It seems to be entirely a question of degree. If the stimulus is moderate there may be pleasure in its fulfilment; if more marked it may pass into an apprehensive dread with inhibition of this desire.

The patients are frequently emotional, ranging from grave to gay, from marked depression to joyous buoyancy, without

any adequate reason. There is occasionally volubility, with what Sir Russell Reynolds calls a "chorea of ideas." A shy, retiring young woman may have an easy flow of language and a considerable mobility of ideas.

Insomnia is frequently distressing, dreams of disagreeable character render sleep fitful, disturbed and unrefreshing, and there may be vivid hallucinations at the point of waking. Some patients become very irritable, irascible, suspicious, untruthful, and occasionally spiteful and malicious. Certain cases may go through a prolonged attack with only the minor alterations in the mental state which are generally associated with any prolonged invalidism, but some evidence of the mental and motor restlessness is generally present.

The patients may be conscious of these changes and complain of them, but generally they resent any interference or correction and the symptoms are related by the friends.

It is of interest to note that Dr. Graves mentions a hysterical state as being not uncommon where the thyroid is affected, and one of his early cases of exophthalmic goitre was so diagnosed.

The two following cases are examples of the usual mental symptoms in a very exaggerated degree.

CASE 1.—A young woman, *æ*t. 22, unmarried. Previously healthy and of good family history, was brought to me complaining of severe recurrent headache and nervousness. There was also inability to settle to any regular work or pastime. She had an excellent voice and was accustomed to sing as soloist at large choral societies and concerts, and had never been unduly nervous when so doing. She stated that at a concert three weeks previously she was very tremulous, so much so as to be unable to hold her copy of the music steady and she had had to dispense with it; also that she had difficulty in sustaining a high note from palpitation. A few days later she was with her mother at a large garden party when she lost her in the crowd. This upset her very much and she had an attack of palpitation lasting some hours. On examination the patient was very well nourished. There was slight exophthalmos, with delay in descent of lids; slight prominence of the thyroid gland; a pulse-rate of 110; fine tremors of practically all the muscles of the body; a slight erythematous

skin condition. Menstruation was irregular in time and profuse in amount. Exophthalmic goitre was diagnosed and the patient put to bed in the open air. The headaches improved and the patient was able to rest well, but the pulse-rate continued about 110. Three weeks later she suddenly developed very acute hallucinations at night. She would sleep for about two hours, and would waken at midnight calling out that someone had touched her, that burglars were in the room and crawling about the floor, that faces were looking in at the windows, that people were talking about her outside and that lights had been flashed into the room. On one occasion she rushed from the room and was found in a very frightened and terrified state in the hall downstairs, having no idea how she came to be there. During these attacks the pulse-rate rose to as high as 160 per minute. Next day she had a vivid recollection of these ideas, but was able to correct the erroneous impressions. Bromide of potassium (gr. xv) and tincture of belladonna (m x) were given three times a day. Under this treatment the pulse-rate dropped to 98, and the hallucinatory periods were less marked. The headaches continued to cause much discomfort, and aspirin (gr. xx), three times a day, was substituted, with a dose of bromide at night only. Improvement at once set in. The appetite returned and the pulse-rate gradually fell. As sleep was still very poor she was allowed up each day, and graduated hill-climbing was then tried with benefit. The headaches were very occasional and controlled by the salicylates. She recovered completely in about four months, and has remained well since, now over a year.

CASE 2.—The second case is that of a lady, æt. 47, unmarried. She has suffered from exophthalmic goitre for over twenty years. She is thin and spare in build. There is marked exophthalmos affecting especially the left eye. There is a hard, almost fibrotic goitre, the left lobe being as large as a hazel-nut. Tremors of the hands and fingers especially. A slight degree of anæmia. Occasional attacks of diarrhœa. This patient has repeatedly an intense desire for change: she will go off without any previous warning to her relatives, and without any preparation beyond taking a limited amount of clothing in a hand-bag. She will telegraph to her friends for money, and again set off on her wanderings. These attacks

have lasted on an average about ten days, at the end of which time she will return home. They recurred about four times a year. The only point she was able to state was that, when the desire for change was becoming marked, and before it became imperative, an attack of diarrhoea might ward off the condition. A suitable, cheerful, and active companion was obtained, and since this has been arranged the condition has been manageable though still unchanged in character.

The following five cases have been certified as insane and treated at Scalebor Park during the past six years.

CASE 3.—A woman, æt. 45, the wife of a clergyman, was admitted in 1904; she was then stated to have been insane for ten days.

Several years previously, shortly after her marriage, she met with an accident, an omnibus in which she was driving having been overturned. She was not at the time apparently injured, and was able to assist the other passengers who had been hurt. Within a fortnight of this the heart's action became rapid and irregular, and the first symptom noted was that at night the forcible palpitation caused the bed to shake under her. The condition was diagnosed as Graves' disease. The goitre shortly afterwards developed. She became irritable, nervous, excitable, quarrelled regularly with her friends, and was considered peculiar; at one time throwing herself energetically into church work, and as suddenly withdrawing from it. About three years before admission she was found to have cholecystitis and gallstone, and an operation was performed by Mr. Mayo Robson. (Here it may be mentioned that exophthalmic goitre seems to predispose to infective processes.) On several occasions after this she was very suspicious, and regarded her husband with aversion, accusing him of immorality; but these periods quickly passed off, regret generally following at once on utterance. Ten days before admission she became very restless, erotic, excitable, accused her husband of committing adultery and other sexual malpractices. She was very incoherent in talk, and had violently assaulted her nurse. There are two children of the marriage, the eldest, a daughter, being a cretinic idiot. On examination she is a fairly nourished woman, 5 ft 6 in. in height, 120 lb. in weight. The eyes are very prominent. Stellwag's and Von Graefe's symptoms

present, vision normal. The goitre is more marked on the left side, about the size of a tangerine orange. Fine tremors of limb present. Pulse, 95–110 per minute. No heart-murmurs; urine healthy; the menses have ceased. There are hæmic murmurs at the root of neck and over thyroid gland. During the first month after admission she was excitable and emotional, craving for attention and demanding to be noticed. She would dress up her hair with any article she could get. She had many delusions about her husband—said he was unfaithful and immoral. She was very erotic, hugging photographs and kissing her hand to every man she saw, saying she was ready to commit adultery with certain men whom she named. The pulse-rate varied from 95–120. Exophthalmos was marked. Insomnia was also very troublesome, sleep averaging about three hours only each night. During the second, third, and fourth months the mania became more disorganised. She became very rambling and incoherent. She kept up a constant verbigeration, repeating long strings of quite disconnected remarks and single words, in which, however, the old erotic ideas could be traced. She became very faulty in her habits, paying no attention to herself, passing urine and fæces in bed without any notice. She then was filthy in all her actions. Diarrhœa became very troublesome—as many as seven loose motions each day. Sleep averaged only about two and a half hours. She lost weight very rapidly; at the end of the fourth month weighing 89 lb., a loss of 31 lb. since admission. During this period arsenic, strophanthus, digitalis, bromide, iron, and phosphate of soda were all tried without any apparent benefit. The goitre became more marked, and the temperature began to show rises of two or three degrees. She was then put on large doses of quinine and salol, and mercuric iodide was applied locally to the gland. During this treatment improvement suddenly set in, and it was continued. The diarrhœa ceased and she began to regain the lost weight, eating very large meals. The mania became quieter, sleep was more refreshing and gradually increased in amount. Her delusions lessened and disappeared. At the end of the sixth month she had passed to what appeared to be a normal state for exophthalmic goitre, that is, there was the old desire for change and mild restlessness, but she was quite free from any marked impulsiveness, and the mental symptoms

were so improved that she was discharged. She was sent home and has since been able to remain there. I understand that the mental symptoms are of the same type as before this attack of mania developed.

CASE 4.—Woman, typist, æt. 28, unmarried. There is a neurotic family history. She had an attack of exophthalmic goitre at sixteen—at puberty—the symptoms then lasting about twelve months. At eighteen she was so well that she took up typing as an occupation and continued able for this until twenty-one years of age, when the second attack came on. She was stated to have been over-worked, but of this there is no evidence, the worry and strain alleged being probably the first symptoms of inability to settle to the work. The mental condition was first noted in April, 1908, when she had an attack of depression, followed by confusion, then screaming, and a hysteroidal seizure. This recurred in July and September, and in October delusions followed, in the course of which she made an abortive attempt to cut her throat, and she was admitted.

On admission.—A thin, nervous-looking woman. There is exophthalmos, more prominent on the left side; Graefe's and Stellwag's signs present. Complains of stiffness of the eyes on convergence. Goitre fairly prominent. There is marked fullness of the neck. The thyroid isthmus is enlarged and the right lobe forms a soft fluctuating mass, about the size of a small orange. The veins of the neck are prominent and the vessels pulsate forcibly. There are hæmic murmurs at the base of the neck and also over the gland. Tachycardia; pulse-rate during quiescence 110–120 per minute. Skin shows profuse perspiration and erythematous patches; urine is healthy; menses irregular in time. Mentally: very excitable. Says she has an apprehensive dread that she is going to be killed or injured, or that her relatives are to be killed. Has acute hallucinations of hearing. Said she was Jesus Christ and had to save the world by her death. During the first month this case was kept in bed and continued in the same state with slight variations. She had many delusions. She had marked apprehensive feelings and doubts about herself and her relations. She thought her head was to be cut off, that her friends had been murdered, that her heart was to be cut out. Sleep averaged about five hours. At the beginning of December she

was put on the Moebius anti-thyroid serum in doses of 5 c.c. daily, and at once improvement began to set in. She began to sleep better, was quieter by day, lost the marked apprehensive dreads, and was comparatively free from delusions. The pulse-rate gradually fell to an average of 95. The goitre diminished in size. The pulsation in the neck ceased, and the bruits over the thyroid disappeared. Towards the end of December the serum was intermitted, and within a fortnight there was a marked recrudescence of all the symptoms. The goitre again became very marked, the bruits returned, and with them the delusions and the dreads became again persistent. She was during this time, treated as actively suicidal, as she desired to cut off her head or to open her heart. She tried to drown herself while having a bath. At the end of January we were able to begin the milk from thyroidless goats, and within a fortnight there was again an improvement. The pulse-rate declined to 88, and the mental symptoms ceased. Accidentally we had to stop the milk for about ten days, and during this time the goitre again became prominent and the symptoms showed signs of returning. During each exacerbation diplopia was present and troublesome. About the third week in February she had the entire milk supply from one goat and rapid improvement set in. The goitre diminished. She became very cheerful, happy and contented. The pulse-rate fell to 64 per minute. The milk supplied amounted to about fifty quarts in eight weeks.

The points of interest in this case are the very marked variations which occurred in the thyroid gland coincident with the use of the anti-thyroid remedies and the accompanying improvement of the mental symptoms. We could trace no connection between the mental condition and the menstrual functions. From the "tidal" variations in the thyroid I strongly recommended a partial thyroidectomy in this case. This advice was received with marked disapproval by her relatives, and shortly thereafter the patient was transferred. On discharge she was well both as regards the mental symptoms and also as regards the exophthalmic goitre. The immediate relapses which followed any cessation of the treatment are also of interest, but the patient had undoubtedly no symptoms on discharge.

CASE 5.—A clergyman, æt. 36, married, one child, healthy.

There is stated to be no heredity. He was admitted in May, 1908; he was a very popular active preacher and had worked very hard building up a new parish. He became peculiar about a year before admission and had to leave his work with symptoms of a neurasthenic character. He returned to work after a prolonged holiday much improved. About a month before his admission he suddenly became dull, depressed, moody and taciturn. He had the delusion that he had had immoral relationships with certain of his parishioners and by a conspiracy this would be proved against him. He had on more than one occasion contemplated suicide and had bought poison for this purpose. He was a well-nourished man.

There is well-marked exophthalmos, both sides almost equally affected. Stellwag's and Graefe's signs present. The thyroid is uniformly enlarged, and has a distinct tense feeling. The pulse-rate is 110 and slightly irregular. Tremors affecting the hands.

On admission he was very agitated and restless. Had marked delusions as before stated. During the first three months there was a considerable degree of improvement. The expression became more placid. He lost the delusions to a great extent and was more cheerful. The pulse-rate fell to about 84.

During this time he was treated by phosphate of soda, by quinine, by arsenic, iron and belladonna with bromides. He suddenly relapsed without any apparent cause, having an acute exacerbation of the hallucinations, and rapidly became both depressed and actively suicidal. He heard voices taunting him with being the father of many illegitimate children. He mistook those about him for detectives watching him. He had very marked dread that magistrates and police were coming for him. This state has recurred at intervals during the past year, though slight improvement has been occasionally manifest. He now has the idea that if he kills someone his case will be inquired into. Often noisy and shouting at nights. He has made three suicidal attempts recently. There has been a diminution in the size of the thyroid; he has been for some weeks on the goats' milk, and though gaining weight has not benefited mentally as yet. The quantity of milk has averaged about a quart daily. (On August 14th, after eight weeks of treatment, he had gained 14 lb. in weight.

The sleep was much improved, averaging seven hours. Mentally he was quieter and more cheerful ; his apprehensions were less marked though still present.)

CASE 6.—Female æt. 39 years, single. There is a marked heredity for alcoholism and eccentricity, also one case of goitre in the family. About three years ago became very dull, depressed and miserable, and was sent to nursing homes and to the country for rest, but never remained long in one place. Improved for a time, but became acutely depressed and suicidal a year ago and was sent in. There was an attack of rheumatic fever in childhood.

On admission : A thin, sparsely built, emaciated woman. The heart-sounds are rapid and weak, about 130 per minute, and the first sound has a roughened, short, systolic murmur. There are marked bruits in the neck veins and over the thyroid, which is enlarged. There is a small tumour over the right lobe of the thyroid, hard and almost fibrotic to touch. There is discolouration of the eyelids but no marked exophthalmos. This case was provisionally diagnosed as exophthalmic goitre.

During the first two months little change took place mentally. She was dull, depressed, very talkative, keeping up a constant rambling and very disconnected conversation. "I don't know what is the matter with me ; I have done wrong ; I have sinned against my sister and all my family, and brought disgrace upon them." During this time tremor became very marked, and exophthalmos developed with retraction of the lids and delay in descent. The tachycardia continued. The diagnosis was undoubted two months after her admission. In November and December last the anti-thyroid serum was begun. She became much quieter and more rational. The rapid speech disappeared, giving place to a condition of mild confusion and doubt.

This serum treatment was stopped in January for some weeks. She became more easily startled, more sleepless, more excitable again, but never was as acutely ill as before the treatment. In March of this year the goats' milk was begun. She gradually improved in appearance, the exophthalmos gradually subsided, the pulse became stronger and quieter, the agitation lessened, and in every respect there was a decided mental improvement. This continued until about six weeks

ago, when she passed into a quiet, confused, slightly stuporose state, in which condition she is now. She will not answer questions, and the expression is vacant. The milk has been stopped and tonics substituted with calcium iodide. There is a marked diminution of the thyroid. The quantity of milk given in the course of treatment was ninety-eight quarts in eighteen weeks. R. Durig, of Munich, records a case in which during the serum treatment there was the occurrence of a short period of apathy with a feeling of mental enfeeblement, which he looked upon as a mildly myxœdematous condition. This quiet, semi-stuporose state may be a similar condition.

CASE 7.—A single woman, æt. 47. There was marked heredity for insanity, a sister and mother having been affected. There is one case of goitre in the family. Patient was a very capable woman for some years, managing a large business for her father. About eighteen months ago she had marked exophthalmos and gradually became very excitable. There was at the time also a history of weak heart's action and palpitation. She was admitted in September, 1908, and was then stated to have been insane for six months. She has had for nine months delusions that people were following her; thought that people were watching the house at night and endeavouring to break into it. She then thought that everyone looking at her was hypnotising her, and that they were endeavouring to get her to injure herself. She believed that under the influence of hypnotic suggestion voices were telling her to cut her throat, and three days before admission she did so, inflicting a moderately severe wound in the neck.

On admission she was a stout, well-nourished woman. There was a marked prominence of the eyes, the left being especially prominent, though the right was also markedly exophthalmic; both Stellwag's and Graefe's signs were marked. There was a small, hard, nodular thyroid about the size of a tangerine orange, which she stated had been becoming smaller for some months. The pulse-rate was 100. The face was somewhat flattened and expressionless and the hands broadened. Hair was scanty.

On admission had marked hallucinations of sight and hearing, heard her father calling to her, saw him near her at nights. She had a dread that she was to be injured, that everyone was

hypnotising her, and would not allow us to examine her eyes for some weeks owing to this delusion.

This patient continued in this mood for several months with a gradual, very slow improvement in the delusions and a lessening of the hallucinations. Six months after admission the exophthalmos was still marked, the goitre was slightly lessened, and the pulse-rate had gradually fallen to about 84 per minute.

During the past six months there has been a gradual improvement of all her symptoms. The delusions have vanished, the hallucinations also have been completely in abeyance. The exophthalmos is much less marked except during any excitement. The thyroid is much smaller. The pulse-rate is 64 per minute, of good wave and regular.

During this time diarrhoea has occasionally been troublesome, but could be controlled by small doses of bromides. The treatment has been occasional courses of medical izal and quinine with hydrobromic acid and also calcium iodide. The patient has given the impression all along of being a case of exophthalmic goitre passing forwards to a more myxœdematous type, and for this reason direct antithyroid treatment has not been tried. She is to be discharged as recovered at the end of July.

There is great variation in the estimates of the number of cases of exophthalmic goitre which pass on to become actually insane. Professor Murray, in his Bradshaw Lecture, states that out of 180 cases 3 became insane, and that 10 others, without any evidence of insanity, had very acute hallucinations. In the article in Allbutt's *System of Medicine*, Dr. Hector Mackenzie states that "in some cases more serious mental changes supervene, the patient has delusions or hallucinations, or gets ideas of persecution, or becomes quite insane. Such cases are usually fatal, but they are not common, for I can recollect one case only which required removal to an asylum." The numerous cases that have been published of recent years show that a certifiable mental state cannot be so uncommon as these writers suppose. The five cases that I have given are taken from 750 admissions in six years at Scalebor Park. Dr. Rogers some years ago published a series of 13 cases of Graves' disease complicated by insanity during the passing of 600 patients through the Milwaukee Sanatorium in a period of a little over five years

There is a well-known regional distribution in all thyroid diseases which will, to some extent, account for the variation in the figures given in different asylums. In nearly all my cases there has been some neuropathic or psychopathic history, and, as Dr. Rogers points out, we must consider the insanity as a further development of the neurasthenic and hysterical conditions observed even in the mildest cases of Graves' disease—the psychosis developing in the more unstable.

Any statement regarding the type of mental disease cannot be founded on the limited number of cases observed, but agitated melancholia and confusional states seem to be the most common.

Formerly the prognosis was regarded as exceedingly serious and unfavourable, but the whole trend of opinion recently has been to regard the outlook as much more hopeful. The prognosis depends rather on the course of the exophthalmic goitre than on the type of mental illness. Improvement and recovery from the mental symptoms frequently take place. The maintenance of nutrition is the main guide. Where the thyroid shows signs of variation and activity the outlook is more favourable than in cases where atrophic or fibrotic changes have taken place.

The treatment must vary greatly in individual cases.

Whenever there is any restless agitation with marked tachycardia rest is of the greatest importance, and this should be taken in bed in the open air. This is generally preferred by the patients. In several cases I have observed that as soon as modified exercise could be taken sleep was benefited, dreaming was less frequent, and sleep more refreshing. As soon, therefore, as the pulse-rate becomes uniform and falls below 90 (or 100 in special cases) the patients are up for some hours each day. In the later stages graduated hill-climbing is introduced as it can be borne.

Of the drugs used the most serviceable in the early cases are undoubtedly the salicylates. In some patients this group seems to have an almost specific action. Sodium salicylate or aceto-salicylic acid in doses of twenty grains three times a day may benefit all the symptoms. Aceto-salicylic acid will generally be found to control the headaches. If pyrexia be present quinine is indicated in moderately large dose (gr. x three times a day) or in combination with the salicylates. In

the more chronic cases, the bromides alone or with belladonna are extremely useful, *e.g.*, fifteen grains of potassium bromide and ten minims of tincture of belladonna three times a day frequently caused a considerable quieting of the tachycardia and relief from the restlessness. Diarrhœa, which is often a very trying symptom, can frequently be checked by the bromides.

Strophanthus, digitalis, and other cardiac tonics generally have little effect towards reducing the pulse rate. Professor H. J. Campbell, of Leeds, recommends the calcium salts strongly, basing this treatment on the regional distribution of the disease. Iodides are also serviceable in certain cases. I have used a combination as calcium iodide in five-grain doses thrice daily with apparent good in the more advanced conditions. Intestinal antiseptics is also important, and for this salol and medical izal are very valuable.

In regard to what may be called the specific treatment, several substances—thyroidectin, rodagen, and the Moebius anti-thyroid serum—have recently been introduced. These are all prepared from the serum or milk of animals from which the thyroid has been removed.

I have used the Moebius serum in a few cases with very fair results, the tachycardia diminishing and the restlessness passing off almost completely; sleep also was benefited. The results were transitory, the symptoms returning whenever the treatment was intermitted, showing that there was some relationship between the preparation and the results obtained. Some years ago Lanz treated some cases by the milk of goats from which the thyroid had been removed.

Mr. Walter Edmunds, of London, has introduced this treatment into this country and has published his results in two papers (*Lancet*, January 25th, 1908, and April 10th, 1909). The *rationale* of the treatment may be best understood by quoting two sentences from Mr. Edmund's papers: "It has been thought that a remedy might be found in the serum or milk of thyroidless animals, the idea being that to counteract the thyroid secretion the normal body secretes an antithyroidin, and that in thyroidless animals this antithyroidin would be in excess and available to act as an antidote to the excess of thyroid secretion in Graves' disease," and "as the antibody in milk must be derived from the blood-serum it would seem better to administer the dried serum and corpuscles from a thyroidless

animal. But there is one point in favour of the milk : ordinary cow's milk must contain a certain amount of thyroid secretion, therefore we have either to give this or cut ourselves off from an article of diet valuable for invalids ; the use of milk from thyroidless animals relieves us from this dilemma." Mr. Edmunds very kindly allowed me, early this year, to have four of his goats, and it is from these that I have obtained the milk used in my cases. The results obtained are shown in Cases 5 and 6, where a very considerable improvement followed, and in Case 2 where complete recovery took place.

This treatment should undoubtedly be tried in cases which resist the ordinary drugs. No licence is required either for the operation or for keeping the goats afterwards. The thyroidless animals are more delicate than normal goats, but not to a marked degree, and the operation does not materially shorten the useful life of the animals. The entire milk-supply from one goat should be exclusively used for one patient. There is a practical difficulty in obtaining a constant milk-supply as goats kid generally in spring. In this, as in the serum treatment, there seems to be a necessity for prolonged continuance of the milk, as any intermission in the early stages of the course results in rapid return of the symptoms.

Wherever there is variation or signs of activity in the gland the question of thyroidectomy should be considered with a view to more permanent results, but of this mode of treatment I have no personal experience.

DISCUSSION,

At the Annual Meeting held at Wakefield, July, 1909.

The PRESIDENT said the Association was much indebted for the very interesting paper and for the charming notes which had been detailed. The cases of goitre which he had had under his observation were those in which there was melancholic agitation, where motor restlessness prevailed, with certain suicidal impulses, prompted more or less by the very painful nature of the delusions. One case came forcibly to his mind in which there was a very notable psychopathic history, both in the parentage and grand-parentage and numerous members of the same family. There were also very notable hysterical symptoms. It was a particularly painful case owing to the fact that the subject was a most talented young girl, with charming social qualities, who died very suddenly during the belladonna treatment. They, at the asylum, had had no experience of calcium salts, and had not attempted the more advanced treatment which the author mentioned. He would like to hear Dr. Williamson's views on the subject, as he knew he was interested in the treatment of exophthalmic goitre by the milk of thyroidless goats.

Dr. G. S. WILLIAMSON said he had had experience in two cases of that method of treatment, both in females, although there were no symptoms of insanity. Both patients had somnambulist tendencies, and that was the only psychological change. Tremors were generally very well marked in those cases, and could be detected right throughout the body, even to the platysma in the neck. They used

the serum method—essentially the injection method—and it must be persisted in. The patient could not be without it. One of the patients did improve, and could now go about in social circles and conduct the usual routine of life, and the intervals during which she could dispense with the serum, contrary to the general rule, were extending, as though there was some acquired faculty stimulated by the serum. The explanation of the action of the thyroidectomised serum had, he believed, been stated to be the acquired function of hypersecretion of some of the parathyroid glands, or perhaps some of the other ductless glands of the body, and that it really was not in the same category as the immune bodies and the antibodies produced by the entrance into the body of something dangerous to it. He was very much interested in what Dr. Gilmour had put forward, and he thought there were some very suggestive remarks in the way of experiment in the paper. With regard to the nature of the infection causing enlargement of the thyroid, the cause of the symptoms was the hypersecretion in the thyroid. An epidemic broke out in Afghanistan during the rainy season in certain places, and there the thyroid enlarged and took on the hypersecreting function. That was directly traced to the presence of an amœboid animalcule in the intestines. It was on that fact that the salol treatment had been devised. Some of the experimenters used heroic doses of salol, and were able to effect a decided diminution in the number of men affected in that Afghan station.

Dr. BOWER noted with satisfaction the extremely practical nature of Dr. Gilmour's paper, and said it would be a great advantage to the Association if there could be many more papers of the same sort read before it. With regard to the number of patients with exophthalmic goitre twenty-two years ago when he was in America, Dr. Clarke, of Kingston Asylum, was very keen about it. He said 80 *per cent.* of all cases admitted into asylums got exophthalmic goitre. He, Dr. Bower, had certainly not found anything like that percentage.

Dr. ORR said the paper just contributed raised a very interesting point, namely, the difference of the secretion of the thyroid compared with that of the parathyroid. The latest theory with regard to the parathyroid was, that it acted as an antibody to the thyroid secretion. If that were so one could understand that in exophthalmic goitre, with hypertrophy of the gland and excess of function, by giving a serum from a thyroidless goat one supplied to that patient an antibody which was necessary to neutralise the excess of thyroid secretion in the blood. Of course the whole matter was theoretical, but he asked Dr. Gilmour if that theory would fit in with the treatment of the cases in which he found the gland enlarged, and if it accounted for the partial failure in cases in which the thyroid was atrophied and fibrous.

Dr. BAUGH said he had listened with great interest to Dr. Gilmour's paper, and though he could not say very much on the subject, he wished to narrate the case of a young woman, æt. 23, who came under his care in one of the Glasgow mental hospitals last year. The symptoms were very much those which Dr. Gilmour described in the case in which he said there were tidal changes in size. She showed also some signs of neuritis and a certain amount of diarrhœa, which he regarded as a cerebral manifestation. There was a slight exophthalmos, and the thyroid was palpable. She was put to bed and rested, and was given milk, but without much improvement; bromide, belladonna, digitalis were also tried, but without any appreciable effect. He then resorted to the serum treatment, and after giving 40 c.c. the treatment was discontinued. The most marked improvement appeared about three days after the cessation of treatment. About a fortnight later the case began to relapse, as did Dr. Gilmour's. This time he pushed the treatment until he gave 60 c.c. in fifteen days. After that the girl got well and continued so in the hospital for nearly a month. A month after discharge she came and reported herself still well. He mentioned it because it was apparently a point of interest, and he would like to know what doses Dr. Gilmour had given. He gave 4 c.c. daily of (Moebius) anti-thyroid serum. In patients who had shown symptoms of goitre for years before their mental condition necessitated their being sent to institutional care and treatment, improvement in the mental state followed the use of the anti-thyroid treatment, but he regretted to say that the patients were left, as one expected they would be, in a state of mild dementia; and they still at times showed slight transient states of excitement, lasting one or two days. Recently one patient with a manifestation of the polyglandular syndrome described by Continental writers died at this hospital.

Dr. HELEN BOYLE asked what advice ought to be given to patients with exophthalmic goitre in regard to marriage. On several occasions she had been asked about it in regard to young girls, and she had found it difficult to know what to say. One of her patients married and was doing very well, and she had one or two more who wanted to get married, and she had some doubt as to whether she ought to advise them to do so or not.

Dr. GILMOUR, in reply, said he felt almost guilty for having brought forward the paper based on such limited material. He had practically omitted all note of the blood changes, because the examinations were not perfect enough to bring forward the results of them. Those were of great interest in the course of the illness. He agreed that the serum had to be persisted in, and he believed it was necessary for the milk to be persisted in also for very long periods. Dr. Williamson had mentioned salol, and he believed salicylates had a further action, the salicylates in these cases probably influencing the metabolism. They were working on the excretions when salicylates were given, and most extraordinary results were obtained. He would be inclined to attribute the benefit obtained from the salicylates in those exophthalmic goitre cases to the changes in the metabolism, as well as to the intestinal action which the phenol produced. He did not know what to say in reply to Dr. Orr concerning the changes in the secretion of the parathyroid. It opened up the whole question of the pathology of the condition. One thing was undoubted, namely, that the milk had a distinct action, and that if animals were deprived of their thyroids and fed on the milk of a thyroidectomised animal they died a different death from that of the thyroidectomised animal fed on ordinary milk. It was a question whether one should not cease to give milk in such cases, because milk itself was a thyroid stimulant. He used 5 c.c. of the serum a day, and continued it for fourteen days at a time, then intermitted for a few days, and then went on again if there was any return of symptoms. One of the interesting points was that after going on for some time without apparent progress, the cases seemed to go suddenly forward to improvement without evident reason, and there might even be a sudden cure—often permanent. He did not know what to reply concerning the marriage question; he had much too little experience in the matter to give any helpful advice about it. The only married case with the condition which was under his care had a daughter who was a cretinic idiot.

Account of an Attempt at the Early Treatment of Mental and Nervous Cases (with Special Reference to the Poor). By A. HELEN BOYLE, M.D., Visiting Physician, Lewes Road Hospital for Women and Children, Brighton.

THIS paper is an answer to a challenge thrown down by Dr. Urquhart on the occasion of the Annual Meeting of this Association in 1905, when I had the honour of reading a short description of the small hospital we were then opening in Brighton and its *raison d'être*.

After some friendly words he remarked: "If it turns out to be any good no doubt we shall hear of it again!" You are going to hear of it again, and it is to be hoped that from what you hear you will think that the venture was worth while. Perhaps you will pardon my referring briefly to that former