admit their existence. Personally, I know no limitations to the use of tuberculin in pulmonary and other forms of tuberculosis provided the disease has not wrought so much destruction of tissue that recovery could only be brought about by a miracle.

I have already said, and I am quite earnest in my statement, that I know no contraindication to the use of tuberculin except despair. Within the last year I have treated at the tuberculin dispensary more than 100 cases of pulmonary tuberculosis in all stages, and apart from the cases of mixed infections, always in an advanced stage of the disease, I have been unable to find any limitation circumscribing the use and value of tuberculin. To be quite accurate, I am ready to admit that it is not wise, except with certain precautions, to use tuberculin in cases of well marked renal disease. Renal disease is in itself, sooner or later, fatal, and there is not much object in curing a tuberculous lesion when there already exists a disease which in itself is likely to be fatal.

The other point I wish to discuss is the need for "constant, skilled medical supervision." Again, these authorities do not define what they mean by "constant, skilled medical supervision," but I take it that, imbued with the idea that "auto-inoculation" by graduated exercises is the cardinal principle of treatment, they mean that the physician must constantly watch this empirical system of introducing into the circulation a sufficiency of poison from the diseased foci to stimulate the tissues to produce a sufficiency of antibodies to neutralize the effects of the disease. I am convinced that by the system of graduated doses, which can be measured with mathematical accuracy, by the subcutaneous injections of tuberculin, there is not the same need for "constant medical supervision." In our system experience has shown that it is enough to record the temperatures every three hours, and to weigh the patients at regular intervals, in order to work out the salvation of the victim. We teach even our youngest patients to take their own temperatures, and we instruct them or their parents to keep the patient quiet if the temperature rises. By working on this system for many years in Australia and for more than a year in England, where I have treated nearly 200 patients, we have found no difficulties which could not be surmounted.

It is too often forgotten that in dealing with tuberculosis among the poor it is necessary to reduce expense to a minimum; and if there is little risk in carrying out this system at a cost of at most £2 for every case treated, I see no reason for spending another £30 a case in order to secure this "constant, skilled medical supervision." If this money is given to us, we should spend it, not on this "skilled medical supervision," which does not greatly benefit the patient, but rather upon trying to introduce permanent improvements in the homes of the poor—not merely in bricks and mortar, but in supplying the ordinary necessities and comforts of life. It is only too clear to me that this "constant medical supervision" is much over-rated, because for at least ten years it has been my custom to treat well-to-do patients at a distance—even in the late stages of the disease—and I cannot remember an instance in which these patients were any the worse because I was not at their elbow every hour of the day to tell them to do this and not to do that. In fact, by this system of training one teaches the people themselves to understand the importance of carefully watching the course of the temperature and the value of improving their health and nutrition by a proper and regular system of dietetics, which can be controlled in a practical manner by the weighing machine.

Lastly, by a proper course of tuberculin treatment, it is almost the rule that cough and expectoration cease, so that the victims themselves cease to be a danger to their friends and relations. Bandelier and others, including myself, have proved beyond all doubt that tuberculin treatment is a much more powerful factor in converting infectious into non-infectious cases than the best sanatorium treatment. This transcendent advantage of tuberculin treatment, which is admitted by all the best authorities—Turban, Bandelier, Koch, Cornet, Petruschsky, Spengler, Moeller, Pfuhl, Krause, Behring, Mitulescu, Roepke, Rembold, and myself—seems to be given no weight, and yet it is perhaps the greatest advantage of all. Such a system benefits not merely the individual victim, but mankind.

THE FRENKEL SYSTEM OF EXERCISES FOR TABES.

By J. G. GARSON, M.D.,

PHYSICIAN TO THE EVERSELEY SANATORIUM, HANTS.

THE following case is of interest as illustrating the beneficial effects which result from the systematic practice of the exercises designed by Dr. Frenkel of Heiden for restoring the power of co-ordinate movements in persons affected by tabes dorsalis. It shows how a person who has been reduced to a state of almost complete invalidism may by this means regain the power of locomotion so as to be able to live a comfortable and useful life.

A. B., aged 39, was admitted on April 30th, 1908, suffering from tabes dorsalis in the ataxic stage. He had contracted syphilis fourteen years previously, from which he had suffered severely, and had treatment continuously for about three years. Neurasthenic symptoms occurred in 1905, which were soon afterwards followed by girdle pains, bladder symptoms, and difficulty in walking. Tabes dorsalis was definitely diagnosed by Dr. Risien Russell, by whom he was treated for a time. The ataxic symptoms had gradually increased in severity till he was able to walk only by aid of two sticks. When I first saw him he had a very pronounced ataxic gait and frequently fell, so that it was no longer safe for him to walk in the streets alone. The knee reflexes were entirely gone, Romberg's sign was very marked, and the Argyll Robertson pupil present. The girdle pains and bladder trouble continued, and varied in severity at different times. Ocular symptoms did not then trouble him, and he had fair control over the sphincter ani. The muscles of the lower limbs were in good condition, but slow of action. There was some increase in the range of movement in the joints and some degree of hypotonia, likewise some loss of sensibility of the skin, muscles, and joints, particularly the knee. The symptoms were rather more marked on the left than on the right side. Owing to the falls he had had he was very nervous in walking. He was utterly unfit to follow any pursuit, and the prospect in life before him was very unfavourable.

As the patient had been treated for some time for the disease, which appeared to have remained, for some months at least, *in statu quo*, the most pressing object was to alleviate the disablement in locomotion resulting from the destruction of nerve tissue which had already taken place. To this end Frenkel's exercises were employed. The first thing done was to teach the patient the various movements of the body required to enable him to rise from and sit down on a chair, as a sound person does instinctively and generally without knowing how he does it. The successive movements included in these acts had to be learnt one by one and repeated frequently with the attention concentrated upon them by the patient till he was able to regain the power of performing them in the ordinary manner. The patient was likewise set to do walking exercises daily along a track 21 cm. broad (8½ inches). At first little regard could be paid to the length or regularity of the steps taken. How to advance one foot before the other, to gain sufficient control over his limbs in order to be able to place his foot upon the track at each step, and to correct the outward rotation of the legs while doing so, occupied all the patient's attention at the beginning. Not only had he to be taught in their proper sequence the various physiological movements of the body required to perform the mechanical act of progression, but he had also to learn to forget the faulty methods of moving his limbs which he had developed during the course of the disease. Progress was necessarily slow at first, but little by little improvement took place as the movements were repeated day after day with the attention concentrated upon them. After a time it became possible for the patient to take steps of a given length (30.5 cm.), and later on he learned to take steps of shorter and of longer lengths, and various combinations of steps in the manner laid down by Frenkel. Finally, practice was conducted on Frenkel's narrow track, 11 cm. wide.

After four months' treatment in the sanatorium he went to a private residence in the country, where he continued to practise in the garden the exercises which he had been taught under my supervision. Several months later he wrote to me in 1909 saying:

Now I can assure you that the progress I have made has quite surpassed my most sanguine expectations. I have entirely discarded the use of a stick in the house; urinary troubles are vastly improved. My strength is increasing, especially in the legs; the calves have become firmer and the muscles under control. Outsiders have noticed the improvement even more than I have.

I have at intervals heard from him since, and the improvement which he enthusiastically describes has been fully maintained. About two years ago he was married, and has in no way suffered any set-back in consequence.

The case is one which corroborates very forcibly the teaching of Frenkel with respect to the ataxic condition. As long as a certain amount of sensibility exists in the muscles and joints, systematically performed movements, frequently repeated with the attention concentrated on the acts, produce certain impressions on the neurones still unaffected by the disease; these impressions are accumulated until their collective intensity equals that of a stronger but less frequent stimulus, and are capable of being reproduced by the central nervous system. Naturally, the greater the loss of sensation the more difficult and prolonged will the treatment be, but in Frenkel's practice it has been rare to find a case in which the sensibility of the muscles and joints has been so reduced as not to be capable of great improvement. In Frenkel's clinic I have myself seen patients gradually recover their powers of locomotion who, when they began the treatment, were quite incapable of walking, and only able to practise the exercises designed for bedridden persons.

The results of the Frenkel treatment are so excellent that to carry it out to best advantage I have had constructed here a permanent plant fully equipped with all the outfit Frenkel recommends for the purpose. The exercises designed to be performed in bed or on a couch are done by patients separately, but the walking exercises are best done when three or four patients are simultaneously on the track and practise them alternately, as there is then a spirit of emulation and intentness of purpose aroused which has a very beneficial influence on the result.

SEVENTY-NINTH ANNUAL MEETING

OF THE

British Medical Association.

Held in Birmingham on July 21st, 22nd, 24th, 25th, 26th, 27th, and 28th.

PROCEEDINGS OF SECTIONS.

SECTION OF ODONTOLOGY.

Professor F. E. HUXLEY, M.D.S.Birm., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE President in opening the proceedings of the Section stated that the relation of the teeth to public health would form the leading theme of the papers and discussions of the Section throughout its session, and that on one day a joint meeting had been arranged with the Section of State Medicine and Industrial Diseases. He spoke also of the limited opportunities at present afforded for scientific research in this branch of medicine, and of the growing responsibilities of dentistry; also of the advantages of meetings like the present, where the specialists' views were enlarged by coming in contact with general practitioners and physicians. They would be obliged to avoid questions which might arise concerning the large amount of unqualified dental practice, as political topics were not admissible in the Sections.

DENTAL DISEASE FROM THE STANDPOINT OF THE PHYSICIAN.

By R. J. ERSKINE YOUNG, M.D.Edin., L.D.S.Edin.

OF late years considerable attention has been drawn to the deplorable dental condition of elementary and industrial school children. From a medical, from a dental, yes, and from a national standpoint the need is so great and the problem so big that, in spite of the establishing of dental clinics in certain places—for example, Cambridge, Liverpool, Kettering, and other towns—its solution is still afar off, and only the fringe of the subject has been

touched. I propose to deal this morning with only one of its aspects, and I have come to Birmingham to ask you a question—namely, What is your everyday attitude to the whole question of dental disease and its far-reaching consequences? Medicine is a huge subject, and the ordinary medical man finds it almost impossible to keep in touch with its many aspects.

In my medical days I gave some special study to neurology, to insanity, to chest disease, diseases of children, and gynaecology. But I frankly admit that odontology was conspicuous by its absence. During the time I was engaged in medical practice I suppose I did not look at the teeth of six patients in six years.

Is it a case, gentlemen, of "tu quoque"? Do "you also" plead guilty in this respect? You are perhaps interested in gynaecology, or you like eye work, or you have a "bent" towards the chest, or possibly you are a keen heart man, and take special interest in the detection of a faint post-diastolic murmur. But dental disease and its results—what of them? "Well," you reply, "of course the teeth are very important, now that I come to think of it, but such cases find their way to the dentist." Yes, but you do not emphasize the necessity for treatment, and your patients may or may not attend to the matter, and they suffer accordingly. Now these remarks do not apply to many of the medical profession, but there are some to whom the following clinical-pictures may be useful. Let us say you have a certain good family as patients. The daughter of the family has been anaemic for long. The blood tonics you have prescribed are legion, and yet your patient does not get well. She still has a "bruit de diable," and giddiness, headache, and lassitude are complained of. You try a new tonic, elegantly written in the classic language, and while you replace your stethoscope in your hat you tell her mother that you think she is better to-day. You bid her adieu, step into your brougham, take up the *BRITISH MEDICAL JOURNAL*, and at once become absorbed in the report of the recent annual meeting at Birmingham, and especially in the proceedings of the Odontological Section. You have paid your visit. Excuse me, are you sure you have? for you quite forgot that your patient has oral sepsis, and you did not even glance at her teeth.

Those of you who are Edinburgh graduates or licentiates will be familiar with the story of the woman who was asked if she had any children. What she manifestly wanted to say was that she was a joyful mother of only two instead of the desired number of six. What she did say was that she had no children to speak of. If you had looked into the mouth of your anaemic patient, you would have found that she had "no teeth to speak of." (It is a useful habit, gentlemen, to think in parallel.) A septic mouth, carious teeth, with perhaps a discharge of pus here or there, and chronic auto-intoxication. An early recognition of this condition on your part might have resulted in a more speedy cure, for I am very certain that an impoverished condition of the blood is at least aggravated (I might almost say caused) by oral sepsis. Take another case. A mother tells you that Mary has had a bad night with toothache but in the morning the pain went, and so did the child—to school. A year later Mary has developed enlarged cervical glands, and has got thinner, and is worried by a cough at night. You tell the mother, with your best professional manner, that you fear the condition may be tuberculous, and you tell yourself that you are more than sorry that you did not examine the child's mouth at the time. What is the life-history of that case? Toothache due to acute pulpitis, death of the pulp, septic pulp, suppuration, enlarged cervical glands, and tubercle has gained entrance to that child's system. You propose removal of the glands under chloroform, which may or not cure the condition, and a lifelong scar may be left. Gentlemen, how about that attack of acute pulpitis?

And what of cases you see by the score of long-standing atonic dyspepsia, and of gastric ulcer? Have you ever considered the relationship between a diseased, and therefore a defective, masticating surface, oral sepsis, and appendicitis, aggravated by the strain and stress of life, hurried meals, and bolted food? I hold that if appendicitis cannot be actually traced to diseased teeth and oral sepsis, the latter is at least a predisposing cause. When you suspect appendicitis, I earnestly ask you to give the state of the mouth much more than a passing thought.