It contains extra-cellular toxins and a small proportion of endo-toxins extracted by heat. P.T.O. is produced by growing bacilli in the same way, but no heat is applied, and there is no reduction in bulk. It is rendered germ-free by filtration. It contains extra-cellular toxins only, and is very much milder than P.T. Although good results are sometimes obtained by giving tuberculin in small doses at comparatively long intervals, I think in most cases of pulmonary tuberculosis the best results are obtained by the German method of giving the tuberculin at short intervals, increasing the dose rapidly, and going on until a massive dose has been reached. I generally begin with P.T.O., giving it twice a week, every dose if possible being larger than the preceding one. When a dose of 80 to 100 milligrammes has been reached I change to P.T., and try to work up to a dose of 800 to 1,000 milligrammes. I try to avoid reactions if possible. If these tuberculins do not agree it is sometimes possible to get good results by changing to new tuberculin or the bacillary emulsion. In these remarks I am referring to the treatment of pulmonary tuberculosis only. It is improbable that tuberculin has any prophylactic action against tuberculosis. Immunity to tuberculin is not the same thing as immunity to tuberculosis.

Dr. Champtaloup thought that most of those who had used tuberculin—whether diagnostically or for treatment—in connection with sanatorium treatment were more or less agreed that with sanatorium plus tuberculin treatment, given judiciously and by some one who understood it, better results were obtained than by sanatorium without tuberculin treatment. He quoted statistics which supported this. In his opinion medical officers of sanatoria and the bacteriologists of the four chief centres could, by reading papers, giving demonstrations, and contributing articles to the *New Zealand Medical Journal*, help the profession a great deal in this respect, especially those in country districts, who, as a rule, were kept very busy, and perhaps had not the opportunity of reading up literature on the subject. He pointed out the necessity for the tuberculin to be freshly diluted. The material put up by the different firms was in some cases probably a year old and practically of little value.

Dr. Frengley read the following extract from the Fifth Annual Report of the King Edward VII Sanatorium, Midhurst, which, he stated, supported the remarks made by Dr. Blackmore and Dr. Champtaloup with regard to the tuberculin treatment :—

"Treatment by tuberculin has now become an essential part of the scheme for dealing with the tuberculosis problem in Germany; and in the Beelitz Sanatorium, which deals with enormous numbers of insured workers in all stages of the disease, tuberculin is administered to the overwhelming majority of the cases. As a general rule, treatment is commenced with old tuberculin or the new albumose free variety mentioned later, and after toleration has been established treatment is continued with a bacillary emulsion. The method of administration is to begin with minute doses, and to increase the amount rapidly until large quantities can be borne. The opsonic index is not used as a control. Throughout the whole course of treatment febrile reactions are as far as possible avoided. After leaving the sanatorium, and also in the large numbers of patients for whom sanatorium treatment is not available, the tuberculin treatment can be carried out in ambulatory practice in dispensaries. This treatment is quite feasible, and in expert hands is free from any risk, though the increase of dosage is slower and more gradual than is necessary when the patient is under constant supervision. By this method, however, a long continuance of the treatment is possible, and this is regarded as most important for the attaining of permanent results."

Dr. Frengley wished to draw particular attention to the following extract, as showing the effect of tuberculin in reducing the tubercle in the sputum :—

"The influence of tuberculin can be well shown by a comparison of the number of patients who lose the tubercle bacilli from their sputum when treated by sanatorium methods alone, and when these methods are supplemented by the administration of tuberculin : (1.) King Edward VII Sanatorium—631 patients, of whom 147, or 23·3 per cent., lost their bacilli. (2.) Loewenstein reports from Beelitz that of 682 patients submitted to the combined treatment 361, or 52·93 per cent., were free from bacilli at the end of the cure. This includes patients of all stages."

As giving some idea of the work to be done by the bacteriologists in relation to the different strains of tubercle bacilli, he further quoted from the same report,—

"Characters of Tubercle Bacillus isolated from Sputum : This work has also been continued, and fifty additional strains of tubercle have been obtained. They had not yet been completely worked out, so that a report on this investigation is held over."

In conclusion, Dr. Frengley stated that it was known that in vaccine therapy autogenous treatment is very much better than any stock stuff, and this seemed to indicate the need for the bacteriologist of the future being able to make up the vaccine from the patients' own sputum; and in view of the task of the bacteriologist of the future in regard to sanatorium treatment he thought it well worth considering whether four bacteriologists would be sufficient for the needs of the Dominion.

In reply to a question asked by Dr. Hardwick-Smith, Dr. Blackmore and Dr. Champtaloup concurred that there was not sufficient evidence to warrant children of tuberculosis parents receiving vaccine treatment to raise their resisting-power.

In reply to a further question, Dr. Champtaloup stated that the best results would be obtained in cases of mixed infection by the use of a series of autogenous vaccines prior to or combined with tuberculin treatment. It was pointed out that two or three vaccines would be required in each case, involving a good deal of work.

Dr. Lyth stated that he had used a good deal of tuberculin, and agreed with what Dr. Blackmore had stated as to the circumstances under which tuberculin should be given. The sanatorium was an ideal place for starting a course of treatment, and if treatment were not carried out in a sanatorium supervision by a medical practitioner should be very strict. He had no doubt that tuberculin had done a good deal of harm through being given under circumstances which