

doubtedly progressed, and subsidiary tubercles formed, the process appeared to be quite slow and somewhat indolent.

In the case of the guinea-pigs it was found that the injection of the antitoxic serum had no modifying influence on the temperature. From the autopsy findings it would look as if the use of the antitoxic serum had a notable amount of restraining influence upon the dissemination and development of the tuberculous process. It is equally certain that it was not powerful enough to neutralize the infection and prevent its extension. I would hesitate to draw these conclusions from such a small series of animals were it not for the fact that the results are in perfect accord with those of work previously done on analogous lines.

As a result of these experiments as well as those detailed at the beginning of this paper, I think we are justified in concluding that it is possible to prepare a serum that possesses in a notable degree antitoxic properties against tuberculosis. Whether the various sera prepared are of much clinical value is to my mind questionable. Of course after the announcement of any new curative agent, there is always an outcry in its favour, but two or three years later most of these remedies have died a natural death. The only serum that is still being used is that of Maragliano, and he is so enthusiastic in its praise that an institute has been recently established in Italy for the treatment of tuberculosis by his method, to which he supplies serum gratis. Still his reported results, namely sixty per cent. of improvements, are not so much in advance of the figures furnished by any first class sanatorium, which are from forty to sixty per cent. of cures in the early stages. The results are not so good that we ought to pause in our efforts to obtain a yet more powerful serum. It may indeed well be that we have almost reached the limit of potency in the sera prepared by the methods here referred to and Koch is quite possibly right when he says that immunity to the action of the toxic products of the tubercle bacillus does not necessarily mean immunity to tuberculosis. In this case we probably need some serum powerful enough to destroy the tubercle bacillus in the tissues, or one which will stimulate the body cells to elaborate a germicidal substance. It is certain that further advances in this direction will have to be made on the lines of Behring's recent work, who has succeeded in producing immunity in calves by injecting them previously with attenuated germs of human origin. Possibly by a modification of his methods we may be able to elaborate a serum of the potency required. If not, the problem will have to be attacked on quite different lines.

In conclusion I wish to express my thanks to the Hon. E. H. Bronson