

mass is mixed with sterilized water and placed in a centrifugal precipitator revolving at the rate of 4000 times per minute. The mixture will be divided into two layers; the upper, supernatant layer being lightly opalescent, but perfectly transparent; and a viscid precipitate will be found clinging to the bottom of the tube. The sediment is again desiccated, triturated and precipitated in the centrifuge. The process is repeated many times until all the bacilli are pulverized and no more sediment forms.

Chemical, microscopical and experimental examinations of the liquids after each precipitation show that the transparent liquid obtained from the first centrifugation is entirely different from the liquids yielded by the final triturations and precipitations. The first liquid does not seem to differ much from the original tuberculin. The liquid obtained from the last centrifugations has all the properties of natural immunization. It is the liquid resulting from the last triturations that constitutes the new tuberculin.

In order to obtain an active tuberculin it is necessary to employ cultures which are as young as possible and as virulent as possible. They must be desiccated in a vacuum and kept, as far as possible, from the light during the processes of sedimentation. The addition of even a minute amount of any antiseptic alters the immunizing properties of the new tuberculin. Hence, absolute cleanliness must be manifested throughout all the manipulations. The last liquid separated by the centrifugal sediments is preserved in glycerine and is ready for use.

Researches upon animals has led Dr. Koch to believe that his new tuberculin possesses both immunizing and curative properties if the treatment is not commenced too late. Contrary to the old tuberculin, the new does not give any general or local reaction in moderate doses. The new is administered as is the old subcutaneously.

In order to immunize a guinea pig it is necessary to use a massive dose at the beginning, which is absorbed without provoking any general symptoms. The guinea pigs become progressively and completely immunized, supporting without infection repeated injections of virulent tubercle cultures. The points of inoculation quickly disappear without leaving any traces; the adjacent lymphatic glands do not infiltrate, as ordinarily, nor do they undergo caseous degeneration. If the animal is subsequently killed no tubercle bacilli will be found.

If the injections of the virulent cultures are made before immunity is thoroughly established, one will observe a simple caseous degeneration of the lymphatic glands in the immediate neighborhood, without any symptoms of a general