and the brown rat are highly susceptible. Acquired immunity, on the other hand, results either as to the natural sequence of infective disease, and is well seen after small-pox, scarlet and yellow fevers, or as a transient state after diphtheria, pneumonia or erysipelas, or as the results of treatment.

Immunity is produced in two ways, either actively or passively: active immunity by seeking to call into action the natural protective processes of the body. An example is seen in vaccinia where vaccination is practised and the mild resulting infection protects against variola. Similarly, but by artificial means, the defensive mechanism is put in play by bacterial vaccines.

For various reasons vaccination is the fashion just now, and is receiving an extensive trial, but I would emphasize that immunity can also be produced *passively*. This results from the introduction into the body of anti-bacterial or anti-toxic substances or sera, obtained *ready made* so to speak, from animals, by the process of inoculating them either with bacteria or bacterial toxins.

The most favourable example of this is seen in diphtheria, in which the mortality has been reduced from 29.29 per cent. of patients treated in 1894 to 11.15 per cent. in 1901 (Metropolitan Asylums' Board). In Chicago the five year pre-anti-toxin period exceeded by 42 per cent. the actual number of deaths in the succeeding five years.

The question arises, "Why not use sera more frequently?" The reason is that a serum of high potency cannot always be produced. I will attempt a possible explanation. Diphtheria and tetanus differ from most infective diseases as tubercle, staphylococcus, pneumococcus, plague, Malta fever, etc., in being "intoxication" diseases, and their bacilli when grown in broth produce soluble poisons of toxins. Staphylococci, etc., produce little or no *soluble* toxins. We have seen that it is from the injection of these toxins into animals that the production of protective (and curative) substances or anti-toxic sera result. Thus, the injection of sterile cultures of certain infective diseases results in little or no anti-toxin being formed, though anti-bacterial bodies may be. In short, the injection of bacteria or their toxins in animals does not always result in a *proportionate* amount of these anti-toxins being formed. Hence there is no cumulative action in inoculation and sera of a high potency cannot always be obtained, and lack of success has resulted in their use. The reason for the extreme potency of diphtheria anti-toxin I cannot explain.

I mention some of the substances which may be present in the blood and which are hostile to the presence of bacteria. Bactericidal bodies