

themselves or their products, and develop the immunizing substances. Of different character is the immunity acquired by the addition to the body tissues or fluids, of substances in themselves immunizing. In this way is developed so called passive immunity. The agents which we find producing this form of immunity are certain drugs and antitoxic serums. Such substances are *not only protective but curative as well*. Practically the only drug extensively used as an immunizing agent is quinine against malaria. In reality it is not immunizing but antimicrobial as it acts by destroying the young plasmodia and thus prevents their development in the blood or viscera.

Of much greater importance are the antitoxic serums of which diphtheria serum is now so extensively employed. Besides we have antitetanic, antistreptococcus and antiplague serums all possessing merit. Practically these serums are used as curative agents, but considerable use is being made of some of them for protective purposes, e.g., those against diphtheria and the plague. The protection afforded by the use of antitoxins is generally fleeting, contrasting fairly sharply with the protection given by the active methods of immunization. For example antiplague serum loses its protective properties in about 14 days, while the plague prophylactic (Haffkin) maintains an efficient immunity for six months or more.

I have outlined at greater length than I had intended the ways in which immunity can be conferred against various infections. Now comes the important question, how do these measures produce immunity? As for antitoxin immunization we must first have an immune animal from which to obtain the serum, I can leave antitoxin out of consideration for the present.

It is a well known fact that bacteria act as infecting agents through their toxic products. The relation of these metabolic products to the bacterial cell body is the important factor in the distribution of the bacteria in relation to the lesions found in the various diseases, and is also a very important factor in determining the character of the immunizing substances. Thus, with those bacteria which form soluble and diffusible toxins the immunizing bodies are mainly antitoxic in character, while