

those of animal origin, such as snake-venom. After twenty years of research we are only now beginning to realize the importance of these antitropines and to apprehend to some extent the marvellous complexity of the protective forces of the body. We know, however, that there are different kinds of bacterial antitropines, for example, anti-toxins, agglutinins, precipitins, lysins, and opsonins, and, moreover, that these differ both quantitatively and qualitatively in special cases.

Antitoxins are substances that neutralize the effects of certain bacterial toxins, the best known being those of diphtheria, tetanus, and botulismus. In many diseases it has been found impossible to demonstrate the existence of antitoxin, or, at least, the amount present is so small that it is impossible to detect it.

Pfeiffer has shewn, also, that the protective powers of the immune sera in experimental cholera and typhoid are due to the presence of lysins, substances which bring about the dissolution of the typhoid bacillus and the cholera vibrio. Here, again, there are many affections in which the existence of lysins in the serum cannot be demonstrated. Moreover, before bacteriolysis occurs the bacteria are rendered motionless and gathered into groups. It used to be thought that this phenomenon of agglutination was a necessary part of bacteriolysis but this is now known not to be the case. A serum, for example, that is both agglutinative and bacteriolytic may be deprived of the latter property without damage to the former. Agglutinins are therefore different from lysins.

If an animal receive injections of the blood serum or tissue juices of a second animal, or of egg albumin, peptone, milk, whey, or urine, there develop in the animal injected substances (precipitins), which, when added to clear fluids containing traces of the substances injected, give rise to precipitation. These reactions are within certain limits specific and are valuable in medicolegal cases to detect blood, or semen, and are also of value in shewing the relationship existing between closely allied animal species.

After this preamble, we may proceed to unfold the nature of opsonins and to indicate their practical bearing on the diagnosis and treatment of infective disease, which is the main purpose of this resumé

The work of Wright and Douglas, published during the past two or three years, has thrown a flood of light on the abstruse subject of immunity production. These observers have proved conclusively that the blood-fluids play a most important role in connection with phagocytosis. By investigating the action of the serum and the leucocytes separately