

In the above-mentioned contributions we have the most noteworthy recent contributions to our knowledge of the greatly vexed question of immunity. For nearly two decades this subject has been to the fore and has been the occasion of a wordy warfare between experimental pathologists the world over. It would take us too far afield to discuss the merits of this conflict in any detail, but it is necessary for the proper understanding of what is to follow to pass in review the facts as they are accepted to-day.

In regard to the manner in which the animal organism protects itself against the ravages of pathogenic micro-organisms, which may be introduced within it, experimentalists have been divided into two camps. Metschnikoff is the apostle of the doctrine of phagocytosis, which attributes the cure of infective disease and the production of immunity to the activities of special cells—phagocytes—which include particularly certain leucocytes of the blood, the splenic corpuscles, and the lining or endothelial cells of blood—and lymph-channels and serous sacs. The phenomena of phagocytosis are directly dependent upon the attraction (positive chemiotaxis) existing between these cells and the products of bacterial metabolism. In the opinion of this eminent pathologist and his pupils, phagocytosis is the all important factor in the struggle of the body against infective disease.

Opposed to this view is that of the "Humoralists." The work of Traube, Von Fodor, Pfeiffer, and Nuttall, among others, goes to shew that certain protective substances are contained in the serum and plasma of the blood, which have the power of destroying infective micro-organisms. From this point of view, without denying the fact of phagocytosis, the struggle against infection may be regarded as a sort of scavenging process, the phagocytes taking up and digesting micro-organisms that have been killed or injured by other means. Flugge has graphically illustrated this conception by comparing the phagocytes to the trenches made ready behind the fighting line to receive the conquered dead.

It might at first sight be thought that these two views are incompatible but a little reflection will shew that this is not necessarily so. It is conceivable for example that the bactericidal substances present in the serum or plasma are produced by certain cells, and therefore, the humoral theory may be merely a corollary of the cellular. More searching experiments would seem to bear this out. Long ago, Hankin proved that the leucocytes of immune animals contain bactericidal substances, and the more recent researches of Buchner, Vaughan, Denys and Havel, and Ribbert, seem to prove that the bactericidal power of blood serum is