

of fixation" mentioned before and here described in detail are based the Wassermann and Noguchi methods for the serum diagnosis of syphilis. Soon after the reaction was described by Bordet and Gengou in 1901, it was utilized for the diagnosis of various infectious diseases where the antigen was easily prepared.

It will be obvious that the method would be useful in determining not only whether an antibody or sensitizer was present, but also whether an antigen existed in a mixture, provided one knew that the antibody was present and this would be determined by learning whether or not the alexin was fixed. For our purpose this evening it is sufficient to say that if we suspect that a patient has syphilis we use as antigen, luetic material (or some satisfactory substitute), and endeavor to find out whether or not a so-called antibody exists. If alexin is bound or fixed we conclude that it is. Now in order to learn this we must use an indicator, and for this purpose an hæmolytic system is used. This consists simply of fresh washed blood corpuscles and the serum of an animal that has been immunized against these corpuscles, inactivated (heated to 56° C. for thirty minutes); if alexin is not fixed the corpuscles that have been sensitized by the immune serum are hæmolyzed by the free alexin. Having these facts in mind, Wassermann conceived the idea of applying the principles already enunciated in the diagnosis of syphilis, and because the antigen could not be obtained in any other way he utilized a watery extract of syphilitic foetal liver. He found that this extract when mixed with the serum of a syphilitic patient and a small amount of normal guinea pig serum as alexin (complement) the alexin was fixed so that when subsequently a mixture of suitably sensitized sheep's corpuscles were added they were not hæmolyzed. He therefore concluded that the blood serum of a syphilitic individual contained an anti-substance to the cause of syphilis, or a so-called fixation antibody, and the combination of the two is known as an antibody-antigen reaction, the union being brought about by means of the alexin. In the original method of