

present, or at least something analogous to an antibody antigen reaction, that it would be possible to demonstrate the presence in the patient's serum of the specific antigen. The variety of substances, however, that were found to give fixation made this impossible and the chemical character of the antigen was then investigated, and Levaditi and Yamanouchi (23) were able to show that it was a substance that was soluble in alcohol, the solution was not changed by heating to 80° C., and it was found to be a lipid, present in the luetic liver which material had been used as an antigen. This observation has also been reached by Landsteiner (24), Noguchi (25), Porges and Meier (26), and others.

While it is known that lecithin will act as antigen, as has already been mentioned, yet Gross and Volk (27) were able to show that it was not the lecithin in an alcoholic extract of the human heart, used as antigen, that gave fixation, but some other lipid not unlike lecithin. Nearly all writers on this aspect of the subject have maintained that the antigenic substance is a lipid. Weil and Braun (28), however, have pointed out that when a watery extract of a liver is taken and all the lipid extracted (by means of petroleum ether), the antigenic property still remains. Sachs and Altmann (29) profess to have shown that sodium oleate can act as antigen. In the face of all this mass of conflicting evidence it is satisfactory to know that the majority of workers using the Wassermann method prefer the luetic extract to any of the other substitutes, and various observers state to be able to get a higher percentage of positive cases in this way. While much has been done the exact nature of the antigen remains unsettled.

In regard to the character of the antibody or substance in the serum of the syphilitic patient that combines with the antigen to fix the alexin, the work of Noguchi (30) on the subject has been the most exhaustive and most conclusive; he was able to show that the active component of the substance combining with the antigen is contained in the euglobulin fraction of the serum, can be inactivated