

It is clear from the results given by all these workers that these reactions, though often enough positive in cases of general paralysis, are not sufficiently characteristic to be of any value in differential diagnosis. This was thoroughly demonstrated by Nonne and Apelt, who repeated the various techniques in a large number of cases, and from personal experience I can fully confirm their conclusion. The reactions are frequently given by fluids taken from the most diverse cases, whether these are of a syphilitic nature or not.

In 1904 Nissl replaced the sulphate of magnesium by that of ammonium, finding that he could thus easily get a clear filtrate which could be more accurately tested. As was mentioned above, Nissl obtained a precipitate with ammonium sulphate (indicating the presence of globulin) only very exceptionally. Nonne and Apelt employed the same method, but introduced another standard in that they declared a case positive if cloudiness arose within three minutes after the addition of the ammonium sulphate. This stage they designate as Phase I., and the precipitate subsequently obtained by heating the acidified filtrate as Phase II. They found the Phase I. reaction positive in all cases of general paralysis, and not often in other cases. In a later contribution, Nonne disclaims any contention that the reaction is pathognomonic, but holds that it has considerable diagnostic value.

Last year another reaction was introduced by Noguchi, which he maintains specifically indicates the presence of syphilitic changes. He applies it in examination of both the blood serum and of the cerebro-spinal fluid. When it is positive in the latter then the presence of general paralysis or tabes is very probable, though it is sometimes positive also in cases of tertiary syphilitic affection of the nervous system. The technique of the procedure in the case of the cerebro-spinal fluid is as follows: To 0.1 c.cm. of clear fluid is added 0.5 c.cm. of a 10 per cent. solution of butyric acid in physiological saline. The mixture is heated to boiling, and then 0.1 c.cm. of 4 per cent. sodium hydrate is added. and the