

ON THE APPLICATION OF THE SERUM DIAGNOSIS OF  
TYPHOID FEVER TO THE REQUIREMENTS OF  
PUBLIC HEALTH LABORATORIES.<sup>1</sup>

Great interest attaches to Widal's important communication to the effect that the serum of persons suffering from typhoid fever, even in the early stages, is capable, when mixed with a pure culture of the typhoid bacillus in bouillon, of arresting the active movement so characteristic of this organism and causing the bacilli to agglutinate into clumps resembling zooglœa. The serum of typhoid convalescents and immunized animals had been shown by Pfeiffer, Durham, and Gruber to possess this property. But Widal has certainly been the one to demonstrate its great clinical value. With the serum of an undoubted case of typhoid fever we are able to apply what appears to be the most conclusive of the tests at our disposal in deciding whether a given organism is really the typhoid bacillus or not. On the other hand, with a culture of the genuine typhoid bacillus, we are able to decide whether a doubtful case is or is not typhoid fever.

Although the test is so recent in origin, those who have tried it appear practically unanimous as to its being of great delicacy, and, in particular, the negative results which it furnishes are of nearly as much practical value, something which can scarcely be said of the routine bacterial tests for tuberculosis.

Widal's original method was to obtain the serum from the vein of a patient's arm by means of a sterilized syringe, descanting the serum after it had separated and adding it to bouillon culture of typhoid bacilli. This was then placed in the incubator, and showed, after several hours, a flocculent precipitate composed of the immobilized and agglutinated bacilli and a clearing of the upper part of the fluid. This was found by Widal to be characteristic of typhoid blood. The blood in other febrile disorders, such as malaria, typhus, tuberculosis, pyæmia, etc., as well as the serum of healthy persons, was found to have no power of producing this phenomena when mixed with typhoid cultures. Those who have repeated Widal's experiments have also been able to confirm his statements that the colon bacillus does not give this reaction with typhoid blood.

Widal was fortunately led to simplify the method materially by taking

<sup>1</sup> Read before the American Public Health Association, at Buffalo, N. Y., September 17, 1896.