

From this description it will be seen that only one tubercle vaccine has been used. The difficulties of isolating and growing the tubercle bacillus in order to prepare a special vaccine for each patient, are at present insurmountable. It would seem reasonable to suppose, however, that there are varieties of tubercle bacilli, pathogenic to man, indistinguishable from one another by methods at present at our disposal, but differing from one another sufficiently to require a specific vaccine in order to gain the best results. This supposition is based, first, on the fact that considerable variation occurs in the clinical course of apparently similar cases during treatment with Koch's tuberculin; and, secondly, on the fact that in the case of other infections the best results are often found to follow the use of special vaccines. In other infections it has been found advisable to use a specific vaccine prepared from the actual organism isolated. There seems, however, to be considerable variability in this respect, for in the case of members of the colon and streptococcus groups this factor is apparently essential, while in the case of the staphylococcus group it is not so important.

The technique employed in the estimation of the Opsonic Index is as follows.

The essentials required are:—(1) Pipettes; (2) washed corpuscles; (3) bacterial emulsion; (4) serum to be estimated; (5) normal sera or pooled sera.

The pipettes should all be of an approximate calibre, and but slightly tapering towards the point, and with a tightly fitting teat. The ends should be cut square, and the pipettes marked with a paraffin pencil about  $\frac{3}{4}$  inch from the extremity.

**Washed Corpuscles.** The tubes for these should be of uniform calibre, weight and length. They should be rinsed out with acid, water, and citrate of soda solution. Not less than  $\frac{2}{3}$  of the tube is filled with 1.5% Sod. Cit. Solution and blood is run in to fill the tube. The tube is then inverted two or three times to mix the blood and citrate solution, but must not be shaken. The tubes are now centrifuged for the minimum time compatible with the settling of the corpuscles, the supernatant fluid is pipetted off, and the corpuscles are mixed—not shaken—with sufficient 0.85% Sodium Chloride to fill the tube. After centrifuging again, for