importance to certain disintegrative changes produced by his special method of testing *in vivo*. We have stated elsewhere that highly active cultures, if left for a few hours longer than usual between the times of transplantation, rapidly undergo involution changes, and while in this condition are far more liable to show agglutination than was the case with the same cultures tested a few hours earlier. We have found that for class purposes involution forms in cholera are as abundant and striking in a virulent culture left unchanged for three or four days as would be the case with a non-virulent culture, grown at room temperature, if left without transplanting for as many weeks or months. Bouillon cultures, which have stood long without transplanting, show a tendency to spontaneous partial clumping, which is quite absent during the first 24 hours. For this reason we prefer to use 24 hour bouillons, which are free from sediment, for the test.

The peculiar disintegration obtained by Pfeiffer in typhoid cultures placed directly in the peritoneum of a specially immunized animal, do not tend to occur where the serum is tested in vitro by the hanging-drop method. With blood solution, however, this peculiar phenomenon is frequently witnessed. The clumped bacteria, if watched, for an hour or so, may be seen to break up in granules, which gradually become indistinct and vanish whilst under observation until practically no trace remains of the clumps which shortly before studded the entire field of the microscope. The change is more liable to occur in cultures some days old than in young cultures and more, perhaps, with attenuated than virulent cultures. It does not occur with all samples of typhoid blood, and is not well marked in very dilute blood solutions.

This greater tendency to bacteriolytic action in blood solutions often makes the reactions obtained with them look at first sight less striking and intense than that obtained with serum where the clumps usually remain intact Apparently, however, the difference indicates that a large amount of the bactericidal substances originally found in the plasma do not permanently remain as constituents of the serum. This not only has an obvious bearing on serum therapeutics, but explains how the action of serum may be modified by mechanical mixture with the fibrin elements of the blood.

Quantitative estimation of the degree of dilution in the case of blood solutions is possible by hæmometry as well as by making direct measurement. With samples of freshly dried blood, sufficiently accurate observations can be made to express the degree of dilution in multiples of 10—($\frac{1}{10}$ $\frac{1}{20}$ $\frac{1}{50}$, etc.)

We have employed a cell having a depth of 0·85 mm. and giving