Arsenic trisulphide, water, chloroform, alcohol

This system is distinguished from the last by the much greater stability of the colloid; the hydrosol may be shaken with chloroform in presence or absence of alcohol, and homogeneous solutions may be "split" or rendered heterogeneous by addition of water or of chloroform without coagulation ensuing. It consequently seemed more suitable for the object in view, and the work with colloidal metals was discontinued.

In the preliminary experiments, whenever two liquid layers were formed the arsenious sulphide was always contained exclusively in the upper layer, no matter what the proportions of the reagents (aqueous solution of arsenious acid, hydrogen sulphide water, alcohol, chloroform). If distribution was to be observed at all, it was therefore necessary to find the proportions in which water chloroform and alcohol must be mixed to give two liquid layers of almost identical composition.

Determination of the binodal curve, tie-lines and plait-point

The system water-chloroform-alcohol has been studied by Bancroft[1] to whom in fact is due most of our experimental knowledge of similar equilibria; the data for the curve plotted in Fig. 1, however, were not taken from his measurements which were carried out in a thermostat at 20°, but were obtained directly by a series of determinations made without special precautions at room temperature. The abscissae give the volumes of chloroform (and hence of water, the sum in every case being 10 cc) and the ordinates the volumes of alcohol needed to produce homogeneity. The curve so obtained is the "binodal curve" of Schreinemakers.

When the volume of chloroform used was 3 cc or less, addition of alcohol caused the lower layer to gradually grow less and finally to disappear; when 4 cc or more was used, the upper layer disappeared. The abscissa of the "plait-

[1] Phys. Review, 3, 120 (1895).