

phosphate solution to each cell, the liquid which was shaken with the gypsum turns colorless while the other remains pink. The experiment takes only two minutes to perform; if more time is available for filtration, etc., it may be carried out on a larger scale without the lantern, and an actual titration made, by which a difference of 10 percent can be shown in the concentrations.

(b) The above experiment may be shown more strikingly by the use of an adaptation of Töpler's "Schlierenapparat" to lantern projection,¹ by which concentration streams in a liquid are made visible on the screen. A flat cell containing water, with a transparent gypsum crystal hung just below the surface, is first projected with the lantern. As the gypsum dissolves, a narrow stream of solution is seen flowing down from the lowest point of the crystal. Next the crystal is hung in the normally saturated gypsum solution; no stream is visible. Finally a little glass trough containing a pinch of the finely powdered gypsum is hung in a slightly inclined position in the same cell. In a few seconds a stream of concentrated solution is seen flowing down from the lower end of the trough. The trough may be made by splitting a small thin-walled glass tube and sealing a glass hanger to it as shown in Fig. 1, B.

The writer has tried to show, by this means, the simultaneous solution and crystallization of gypsum in a slightly "super-saturated" solution, but the rate of separation of the gypsum is so extremely slow compared with the rate of solution that streams of weaker solution could never be seen rising from the crystal.

4. *Surface Concentration in Saponin Solution.*—A very simple experiment showing that the surface tension of a freshly formed surface of saponin solution is practically the same as that of water may be carried out as follows. Two beakers are filled to exactly the same depth of about 2 cm—one with water and the other with a saponin solution con-

¹ A description of this will shortly appear in THIS JOURNAL by W. Lash Miller and the present writer.