

**Effect of Finely Divided Material on the Freezing Point of a Liquid.**—F. W. Parker of the University of Wisconsin has studied this problem. (*Jour. Am. Chem. Soc.*, 1921, xliii, 1011–1018.) The finely divided, insoluble substances included ferric hydroxide, aluminum oxide, silica, and a silt loam; the liquids were water, benzene, and nitrobenzene. Determination was made of the freezing point of the mixture obtained by moistening a finely divided substance with one of the liquids. From a series of such determinations it was found that finely divided material produces a depression of the freezing point of a liquid, when that liquid is present as a film or in the capillary condition in the solid material. Moreover, the freezing point depression due to solid material and that due to material in solution are additive. Therefore the concentration of the soil solution cannot be determined by the freezing point method unless the moisture content be very high.

J. S. H.

**The Glarimeter, an Instrument for Measuring the Gloss on Paper.** L. R. INGERSOLL. (*Jour. Optical Soc. Am.*)—When light falls on a piece of paper, part of it is diffusely reflected and part is reflected specularly—that is, as from a mirror. This latter part is found by experiment to be almost completely plane polarized, when its angle of incidence on the paper is about 57.5 degrees. An eye-piece is set so as to receive the specularly reflected beam which has mingled with its also diffused light. Gloss is defined as the fraction of the brightness of the composite ray due to the plane polarized light contained in it. This constituent of the beam is eliminated by passing the light through a nicol and from the setting of the latter it is possible to calculate the desired fraction. There still remains an arbitrary element, the angle subtended by the source of light, and since this is so the author takes the angle through which the nicol must be turned from a certain setting as a convenient, though not an absolute, measure of the gloss. On this scale blotting paper reads 20 degrees; Solio, 50; ordinary magazine paper, 25 to 40. An absolute determination of the gloss as above defined can be got by using two different angles of incidence.

The instrument, the glarimeter, is portable and strong. Only 15 or 20 seconds are needed for a determination, and darkening the room is not necessary. Its use is not limited to paper. The gloss of paints, varnishes, textile fabrics and finishes can be investigated with it. Its special employment seems to be for controlling the calendering process of papers.

The instrument in its general outlines was devised some years ago, but the famine of optical parts during the war delayed its completion. Keisel, in Germany, appears to have developed a similar instrument independently, though later.

G. F. S.