

**Measurement of the Thomson Effect at Low Temperatures.**

G. BORELIUS and F. GUNNESON. (*Ann. d. Physik.*, No. 14, 1921.)—If the middle point of a metal wire be kept at one temperature, while the two ends are maintained at some different temperature alike for both, then with symmetrical conditions two points of the wire at the same distance from the middle would have the same temperature. Let now an electric current flow from one end of the wire to the other. In one-half of the wire it goes uphill as regards temperature and in the other half downhill. The two points which previously had the same temperature now are found to have different temperatures. One point has grown warmer while the other is cooler. Lord Kelvin inferred the existence of this phenomenon and confirmed his conclusions by experiment. Hence the designation "Thomson Effect." The effect is reversed in sign when the current is reversed and at a given temperature the direction is dependent upon the metal of the wire.

The two investigators in the University of Lund have examined copper, silver, gold, zinc, cadmium, tin and lead from the temperature of liquid air to that of boiling water. In the cases of copper, silver, cadmium and tin there is a temperature within the specified range at which the direction of the effect reverses itself, that is, if the current flows toward parts of the wire at higher temperatures and in so doing raises the temperature of the wire, then upon elevating sufficiently the temperature of the wire the current will no longer raise but will on the contrary lower the temperature. No such change was observed with gold, zinc, and lead. When curves are plotted connecting temperature with volts per degree for copper, silver and gold the forms are similar as might be expected from the relations of these metals in the Periodic System. The results are given in micro-volts (millionths of a volt) per degree. Cadmium displays the greatest change with temperature—0 at 150° abs. to 9.8 at 380° abs. Lead is very conservative in its changes in comparison with cadmium.

G. F. S.

**Encouragement of Research on Glass.**—With a view of securing additional information concerning the chemistry and physics of glass, a Committee of the American Ceramic Society has made arrangements for providing investigators with samples of desired composition and form. These will be supplied without charge, the only conditions being that the recipients shall proceed with investigations and furnish the results for publication. The following are the members of the Committee, to any one of whom the application for samples may be made: E. C. Sullivan, Corning Glass Works, Corning, New York; E. W. Washburn, University of Illinois, Urbana, Illinois, and R. B. Sosman, Geophysical Laboratory, Washington, D. C.

H. L.