

**The aqueous fusion of glass, its relation to pressure and temperature.** *Carl Barus. Phil. Mag.* 47, 104 (1899). — From a study of the compressibility of water in glass capillaries under high pressure and at a temperature of 185° C, the author finds that the absorption of glass by the water may be expressed in about the proportion of 180 kg. per sq. meter per year.

The absorption increases with temperature and, reasoning on the action of water on silicates in the earth, he concludes "that the action of hot water on rock within the earth constitutes a furnace whose efficiency increases in marked degree with the depth of the seat of reaction below sea-level." *H. T. B.*

**The absorption of water in hot glass.** *Carl Barus. Phil. Mag.* 47, 461 (1899). — Applying pressure to a thread of water in a capillary tube by means of a column of mercury, the temperature being maintained by a vapor bath between 185° and 210°, the water passes through three stages: one of expansion to retain the temperature of the vapor bath, one of great compressibility when the glass is being absorbed by the water which appears white and opaque, and one where, with increased pressure, the compressibility ceases and the water becomes clear again. During the second stage the water does not act as an elastic medium, differing in this respect from the first and third stages. The compressibility in the second stage may reach and exceed  $500 \times 10^{-6}$ . In the third stage, the water glass is a thick viscous fluid, which on cooling solidifies and is not directly distinguishable from igneous glass. From a thermodynamic point of view, two phases of water glass are supposed to exist. *H. T. B.*

**The specific gravity, refractive index, and content of solutions of sodium tungstate.** *Br. Pawlewski. Ber. chem. Ges. Berlin*, 33, 1223 (1900). — A table is given with the above properties of solutions ranging from 2-38 percent.

*C. G. L. W.*

**On the thermal conductivities of mixtures and their constituents.** *C. H. Lees. Phil. Mag.* 49, 286 (1900). — In the attempt to express the thermal conductivity of a mixture in terms of the conductivities of its constituents, two formulas have been usually employed, which correspond, using either the masses or volumes of the constituents, to two different kinds of distribution. In one, the constituents are arranged as right prisms with axes perpendicular to two parallel isothermal surfaces through which the heat enters and leaves the medium. In the other, the axes of the prisms are parallel to the isothermal surface. The author in a previous paper discusses a slightly different arrangement, which, when the constituents are equal, is capable of expression in a simple logarithmic formula. The case is that of an equal number of infinitely long right prisms arranged end on, but parallel to the isothermal surface. The observations of Wiedemann, Henneberg, and the author for the thermal conductivity of mixtures, are worked out according to the three formulas and the results are aptly given by the author when he says "that the third formula is the least unsatisfactory." *H. T. B.*

**On colloidal solutions of metals.** *K. Stöckl and L. Vanino. Zeit. phys. Chem.* 34, 378 (1900). — Reply to Zsigmondy (4, 547). *W. D. B.*