where a is a constant (in poises) and H_η the energy of activation for viscous flow, in cal/g at. The constants a and H_η for seventeen different metals have been calculated from all available data and are given in Table 1. As can be seen from Fig. 1, the experimental values of $\log_{10}\eta$ all fall on straight lines when plotted against $1/T$.

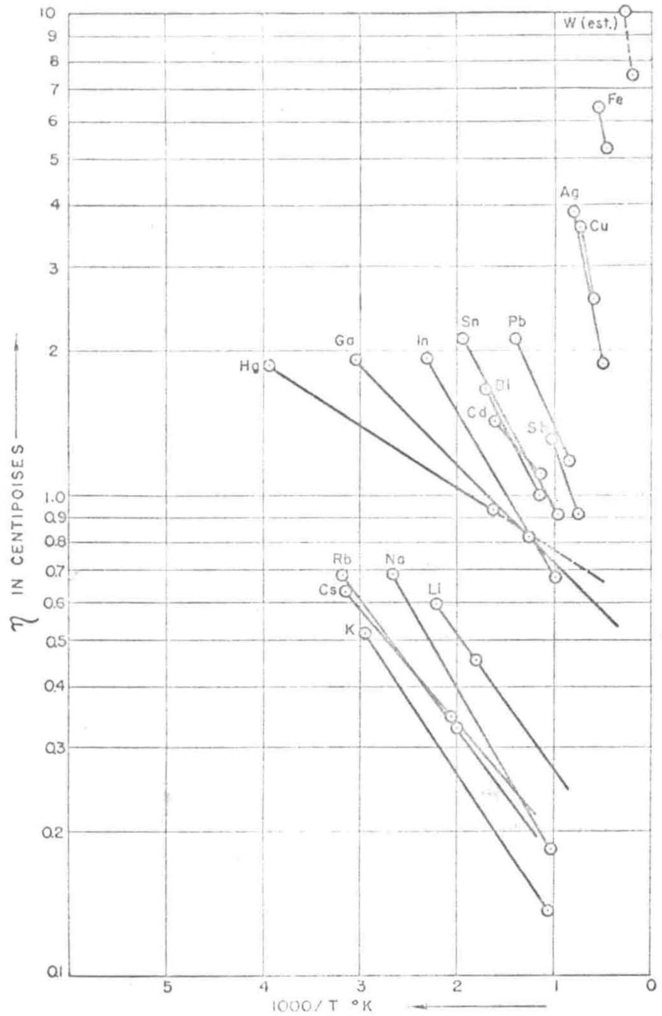

FIG. 1.—Viscosity of metals.

A more accurate viscosity formula takes cognizance of the change of density or specific volume with temperature and is also due to ANDRADE[(6)] (*loc, cit.* p. 704):

$$\eta \, . \, v^{\frac{1}{3}} = a' \, . \, \exp\,(c/vT),$$

where v is the specific volume at the temperature T.

From the theoretical standpoint it would be simpler to discuss the viscosity of metals *at constant volume*. Practically, over any reasonable temperature range, it would require very high pressures to keep the volume of the liquid metal constant and thus cannot be readily realized experimentally. We will therefore restrict ourselves to viscosity at constant pressure (i.e., 1 atm).