$$\frac{P}{a} = \left(\frac{T}{T_0}\right)^c - 1, \qquad (1)$$

where P -- pressure, T and T_0 -- melting point in ^0K at P pressure and atmospheric pressure respectively, α and c -- constants. For nonpolarized substances, the value α proved to approach in magnitude the so-called internal pressure, determined by the evaporation energy of a substance ( )

$$\alpha = \frac{\lambda - RT}{V}, \qquad (2)$$

where V -- volume of the liquid. The value c for these substances was between 1 and 2. Thus, for argon c = 1.16 /11/, for helium 1.554 /12/ and for nitrogen - 1.775 /11/. At c = 1, the melting point should rise linearly with the pressure. With the rise of c the melting curves T - P decline from the straight line towards the pressure axis. Simon /13/ made an attempt to apply equation (1) to the melting of alkali metals, by utilizing the data obtained by Bridgeman /1/. It appeared that for them the value c amounts to 3.8 to 4.8. In the meantime, all the attempts to calculate the value c on the basis of various equations of the state of liquids and solids (see /14-16/) ended up with 1 < c < 1.5. Apparently, in the case of the fusing of metals, Simon's equation must be considered to be empirical.

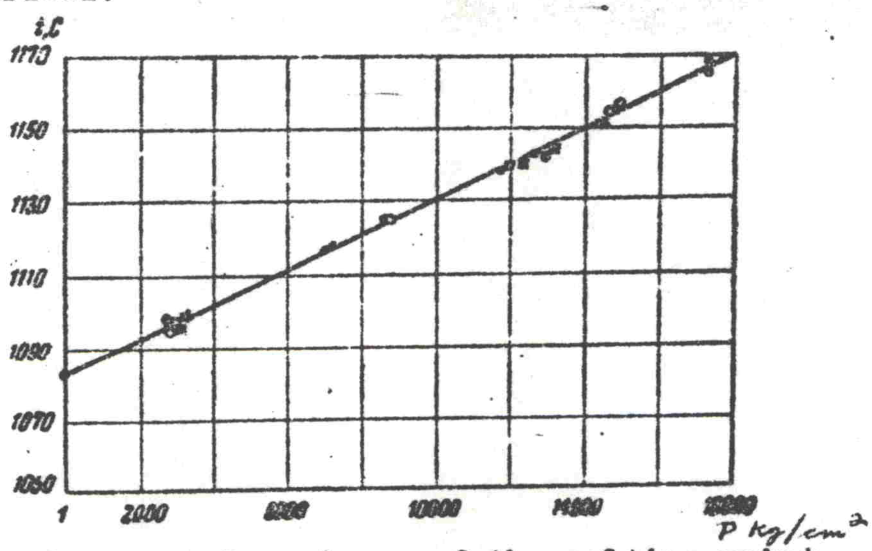

Fig. 3. Pressure dependence of the melting point of copper. Points -- results of separate experiments.

Calculations show that in the case of fusing of lead and tin /4/ the values of c amount to approximately 2.5 and 4.0 respectively. It should be noted, however, that the