former was placed in a thin quartz jacket (4) fastened to the graphite crucible cover. The "cold" junction of the thermocouple was deeply inserted into the electric lead-in (5).

Its temperature was measured with the second thermocouple (6) introduced into the body of the electric lead-in from outside, whereby the distance from the junction of this thermocouple to the "cold" junction of thermocouple (3) did not exceed six millimeters. To heat-insulate the furnace from the walls of the cone's canal, all the free space in the intensifier canal, with the exception of the upper part where the piston was moving, was filled with a fine aluminum oxide powder.

The electro motive force of both thermocouples was measured with two potentiometers of the PP-1 type. The pressure in the intensifier canal was measured by a manganin manometer coil mounted on the electric lead-in (7). The resistance of the manganin coil was measured by a type MVL-47 resistance bridge. The measurements of pressure and temperature were carried out within an accuracy of ± 100 kg/cm^2 and ± 2°C respectively.

The experiments on the melting of aluminum under pressure were carried out in nitrogen and argon media (in view of the possibility of a reaction between the aluminum and nitrogen with the generation of nitride). The measurements are presented in Figure 2. From Figure 2, it is evident that the melting point of aluminum rises linearly with the pressure in the argon and nitrogen media.

To obtain a higher temperature at the determination of the pressure dependence of the melting point of copper, the nichrome coil was replaced by one made of tungsten, and the quartz jacket was replaced by a steel "pocket" with a four-millimeter thick wall to protect the "hot" junction of the thermocouple. The over-all scheme and method of computatiin remained unchanged.

In these tests, nitrogen served as a pressure transmitting medium. The results of the measurements are presented in Figure 3. The accuracy of measurements of temperature in the 1,050 - 1,250° range is estimated at ± 5°C. Within the limits of experimental error the melting point of aluminum and copper rise linearly with the pressure. For aluminum the value of dT/dP amounts to 6.3 x 10^{-3} degrees x cm^2/kg, and for copper it amounts to 4.6 x 10^{-3} degrees x cm^2/kg.

Consideration of Results

F. E. Simon and his collaborators /10/ suggested the following equation to express the pressure dependence of the melting point of substances: