points in a straightforward manner. An interpretation that fits all the upper data except for one point is suggested by two lines in this region. Region 2 for the shock velocity range of 7.4 to 8.4 km/sec is described by

$$U_s = -1.0 \pm 2.0 + 2.0 \pm 0.4 U_p .$$

The data of region 3 which extends from 8.4 to 9.0 km/sec fits the equation

$$U_s = 4.06 \pm 0.05 + 0.92 \pm 0.01 U_p .$$

It is not known at the present time whether this behavior is real or a manifestation of some undiscovered systematic experimental error.

The Russian data agree fairly well with the present data at the lower end. Their two highest points bracket the disordered region and consequently provide no help in clarifying the situation. Their experimental techniques were very similar to those used here in that the shock velocity is measured by the electrical pin technique and then impedance matched to an aluminum standard.

Another observation gained from the U_s-U_p plot is that the fitted line extrapolates to a velocity on the U_s axis which is higher by about 70% than the reported sound speed[45] of 0.88 km/sec. Freezing may take place under dynamic conditions below pressures of 16 kbar. Bridgman[13] has reported melting data for nitrogen to nearly 6 kbar.

No two-shock wave experiments were conducted; primarily because at these low temperatures the required experimental apparatus make the experiments very difficult. In addition, no electrical conductivity experiments were performed, but might prove interesting.