light beginning at about 70 kbar with complete opaqueness observed at approximately 150 kbar. It was concluded from this that the shock induced conductivity has a threshold pressure near 70 kbar. This has since been verified from work[44] conducted at the Lawrence Radiation Laboratory at Livermore. The break at 4.7 km/sec in the U_s-U_p plot corresponding to a pressure of nearly 150 kbar may have some significance to the observed high electrical conductivity and opaqueness of the shocked material at this pressure.

It is believed that the original carbon tetrachloride Hugoniot lies in a low temperature phase and then crosses the phase line into a high pressure and temperature phase. This explanation suggests the liquid form transforms to an ice or other solid form when crossing the phase line. Since the carbon tetrachloride molecule has spherical symmetry each molecule would need to rotate through only a relatively small angle to be oriented sufficiently for the formation of a solid structure. However, the Hugoniot temperature at the 150 kbar transition pressure is 2800°K and this high temperature may nullify this explanation.

G. Liquid Nitrogen

The Hugoniot data are presented in Table VIII and in Figs. 22 and 23. The Russian[17] data are plotted as solid circles. In the shock-particle velocity (U_s-U_p) plot, the points fit the straight line

$$U_s = 1.49\pm0.06 + 1.49\pm0.02U_p$$

up to a shock velocity of about 7.4 km/sec. Above this velocity the behavior is not well established and prevents relating the individual