shock three liquids at a time. There are, however, some changes which could improve the precision of the velocity measurements. They are (1) to provide better control of the temperature and density of the liquids so that the initial and final states lie on the same Hugoniot for each shot, (2) to use a standard target material which has an impedance closer to the liquid samples than 2024 dural, (3) to use higher purity liquids, and (4) to require closer tolerances on the parallelism and flatness of the explosive charges and target plates and the setback between the center electrode and silver cap in the coaxial pins. This last suggestion would increase the cost and time necessary to construct the experimental apparatus, however.

The results of the liquid nitrogen study indicate that shock Hugoniot data at these low temperatures can be obtained. The present design, however, needs to be investigated in the light of the poorer liquid nitrogen data obtained at high pressures. In order to study other materials at low temperatures, the apparatus needs some modification. The design was modified in a study of solid argon[47] at 75°K with good results. The precision could be improved if the Hugoniot for the standard target material were known and the pin depths and setbacks were actually measured at liquid nitrogen temperatures. Some of the improvements mentioned above for the organic liquids could also be adopted.

B. Future Studies

It would be desirable to obtain more data on benzene in the neighborhood of the transition to provide a better basis for interpretation. This may prove difficult since the material at this pressure