A new method for determining the Hugoniot equation of state of solids has been developed. This method uses an oblique shock in a wedge-shaped specimen, cut so that the oblique shock is incident at an angle close to normal over the wedge face. The oblique shock is produced by a slab of explosive, lying on top of the wedge and line-initiated, providing essentially a two-dimensional shock. Simultaneous measurement of shock and free-surface velocities down the wedge face provides the data for calculation of the Hugoniot pressure and density over a wide range on a single shot. In aluminum a pressure range exceeding 2:1 may be observed on a single shot. (Authors' Summary)

1167 Al'tshuler L V, Krupnikov K K, Ledenev B N, Zhuchikhin V I and Brazhnik M I
THE DYNAMIC COMPRESSIBILITY AND THE EQUATION OF STATE FOR IRON AT HIGH PRESSURES
Zhur. Eksper. i Teoret. Fiz. 34:874-85, No. 4, April 1958.

The paper describes two methods for measuring the dynamic compressibility of substances. These methods are based on determining the kinematic parameters of shock waves (propagation velocity and the mass velocity of the material behind the wave front). Using these methods in the pressure range from 4×10^5 to 5×10^6 atm., the adiabatic curves are obtained for the shock compressibility of iron specimens with various initial densities. The resulting experimental data is used to derive the compressibility curve at absolute zero. The curve is extrapolated to pressures for which the statistical models for an atom are valid. (Authors' abstract) (Abstract in Physics Express, July 1958).

1168 Al'tshuler L V, Krupnikov K K and Brazhnik M I
THE DYNAMIC COMPRESSIBILITY OF METALS AT PRESSURES FROM FOUR HUNDRED THOUSAND TO FOUR MILLION ATMOSPHERES
Zhur. Eksper. i Teoret. Fiz. 34:886-93, No. 4, April 1958.

The paper presents a method for determining pressures and densities under conditions of shock compression. The method is based on measuring the propagation velocities for high-power shock waves. The method was used to measure the dynamic compressibility of copper, zinc, silver, cadmium, tin, gold, lead and bismuth in the pressure range 4×10^5 to 4×10^6 atm. The highest degrees of compression (2.26 and 2.28 times) were observed in zinc and bismuth (i.e., for elements with large atomic volumes). The highest absolute density (32.7 g/cm^3) was registered for gold. (Abstract in Physics Express, July 1958).

1169 Allen W A, Mapes J M and Mayfield E B
SHOCK WAVES IN AIR PRODUCED BY WAVES IN A PLATE
Journal of Applied Physics
1955, Vol. 26, pp. 1173-1175.

A shadowgraphic technique has been used to measure surface motion of a series of steel plates while they deform under impact caused by 1/2-in. diameter steel cylinders fired into their back surfaces at about 2800 ft/sec. The strength of the air shock produced when an initial longitudinal wave in a plate strikes the free surface of the plate has been inferred from the measured shock wave velocity in the air. The shock strength has been related to particle velocity of the surface of the plate. The results are compared to previous work involving contact explosions of small charges on plates. (Authors' abstract)