

A number of interesting effects produced as the result of detonating explosive charges in intimate contact with metal plates, rods, and tubes are described. The principal observable effects are (1) fracturing of the metal caused by a tensional stress produced as the result of the reflection of a high compressional stress wave at a free boundary, (2) the fracturing of the metal caused by high stress concentration, and (3) permanent straining of the metal. (Author's abstract)

- 1134 Scardin H
MEASUREMENTS OF SPHERICAL SHOCK WAVES
Communications on Pure and Applied Mathematics
1954, Vol. 7, pp. 223-243.

Although this article is primarily concerned with shock waves produced by explosives in air, it develops the pressure versus time data on explosives. Experimental data is shown which verify the experimental results. Photographs shown from multiple-spark camera, streak camera, condenser-microphone, kerr-cell photography, x-ray-photography.

- 1135 Walsh J M, Rice M H, McQueen R G and Yarger F L
SHOCK WAVE COMPRESSIONS OF TWENTY-SEVEN METALS
EQUATIONS OF STATE OF METALS
Physical Review
1957, Vol. 108, Part 1, pp. 196-216.

An explosive system is used to drive a strong shock wave into a plate of 24 ST aluminum. This shock wave propagates through the 24 ST aluminum into small test specimens which are in contact with the front surface of the plate. A photographic technique is used to measure velocities associated with the 24 ST aluminum shock wave and with the shock wave in each specimen. Resulting pressure-compression curves are given for 27 metals. _____ pressure interval 150 to 400 kilobars. Very detailed information on the various metals behavior is given. (Author's abstract)

- 1136 Bancroft D, Peterson E L and Minshall S
Journal of Applied Physics
1956, Vol. 27, pp. 291-298.

This article investigates the propagation of compressive waves generated by high explosive in Armco iron. The pin technique is used to obtain free surface velocities. The presentation is given to investigate whether three stable shocks are propagated. Problem of wave propagation and reflection is well discussed.

- 1138 Drummond W E
EXPLOSIVE-INDUCED SHOCK WAVES, PART II OBLIQUE SHOCK WAVES
Journal of Applied Physics
1958, Vol. 29, pp. 167-170.

The explosive production of oblique shock waves in solids is analyzed in the approximation that third and higher order terms in the shock strength can be neglected, and a procedure is developed for calculating the attenuation of the shocks. Application is made to the problem of determining the equation of state of the burned explosive gas. See also 1139. (Author's abstract)

- 1139 Drummond W E
EXPLOSIVE INDUCED SHOCK WAVES, PART I, PLANE SHOCK WAVES
Journal of Applied Physics
1957, Vol. 28, pp. 1437-1441.

- 1140 Deal W E
SHOCK HUGONIOT OF AIR
Journal of Applied Physics
1957, Vol. 28, pp. 782-784.

Experiments are described in which an explosive driven plate set up a strong shock in air in contact with the plate. Free surface velocity and air shock velocity are measured by means of a high-speed framing camera which views the plate in profile.

Experimental results are shown for pressures up to 200 bars. A 24 St Dural plate is used.

- 1141 Allen W A and Goldsmith W
SPALL EFFECTS PRODUCED BY A CYLINDRICAL AND A SPHERICAL CHARGE OF HIGH EXPLOSIVE
Journal of Applied Physics
1954, Vol. 25, pp. 813-814.

A letter to the editor discusses the feasibility of using a spherical charge in replacement for a cylindrical charge in determining spall effects on the free surface of a plate.

- 1142 Becker H
ON SHOCK PROPAGATION IN BRASS
Journal of Applied Physics
1954, Vol. 25, pp. 1066-1067.

- 1143 Savitt J, Stresau R H and Starr L E
COMPRESSION WAVE VELOCITY EXPERIMENTS WITH COPPER
Journal of Applied Physics
1954, Vol. 25, pp. 1307-1310.