

- 1104 Rinehart J S
SOME QUANTITATIVE DATA BEARING ON THE SCABBING
OF METALS UNDER EXPLOSIVE ATTACK
Journal of Applied Physics
1951, Vol. 22, pp. 555-560.
- The phenomenon of scabbing is stated to be dependent on the stress distribution within a wave and a critical normal stress that is a characteristic of the material. This paper presents the results of a modified Hopkinson pressure bar experiment in which results of stress versus time and critical velocity were obtained.
- 1105 Allen W A and McCrary C L
EXPERIMENTAL TECHNIQUE USED TO MEASURE TRANSIENT WAVES THROUGH SOLIDS
Review of Scientific Instruments
1953, Vol. 24, pp. 165-171.
- 1106 Walsh J M and Christian R H
EQUATION OF STATE OF METALS FROM SHOCK WAVE MEASUREMENTS
Physical Review
1955, Vol. 97, pp. 1544-1556.
- Pressure magnitudes of from 150 to 500 kilobars were obtained from metals with high explosives. Free surface velocities were determined by photographing the movement of shock waves in air or argon due to the pressure wave in the material. Results are analyzed and techniques are described.
- 1107 Allen W A and McCrary C L
TRANSIENT WAVES THROUGH STEEL PRODUCED BY IMPULSIVE LOADING
Paper presented at meeting of American Physical Society
Berkeley, California, December 27-29, 1951
Abstract in Physical Review, 1952, Vol. 85, p. 769.
- The transient behavior of a thick circular plate deforming under explosive attack has been investigated. An experimental technique, based upon the principle of the optical lever has been used to measure surface oscillations as small as 10μ in amplitude. Measured particle velocities determined by this method indicate the presence of elastic and plastic waves.
- 1108 Rinehart J S and Pearson J
SOME TENSILE FRACTURES GENERATED IN METALS BY IMPULSIVE COMPRESSIONAL LOADING
Paper presented at meeting of American Physical Society
Berkeley, California, December 27-29, 1951
Abstract in Physical Review, Vol. 85, p. 768.

One aspect of the part that high intensity stress waves play in the fracturing of metal cylinders subjected to internal explosive loading has been studied. It has been found that tensile type fractures will result from the interference of reflected tensile stress waves whenever the resulting tensile stress exceeds the critical normal fracture stress of the material

Stress wave velocities have been measured for low-carbon steel, brass, copper, lead and aluminum alloys from the geometry of fracture. These velocities are in reasonable agreement with accepted values for the velocities of dilatational waves in these metals.

- 1109 Rinehart J S
SCABBING OF METALS UNDER EXPLOSIVE ATTACK, MULTIPLE SCABBING
Journal of Applied Physics
1952, Vol. 23, pp. 1229-1233.

The mechanism of multiple scabbing is explained in terms of stress propagation theory. Experimental results are shown which verify the theory. Particle velocities are determined by the use of pellets in a hole drilled on the back of the plate.

- 1110 Rinehart J S
SOME EXPERIMENTAL INDICATIONS OF THE STRESSES PRODUCED IN A BODY BY AN EXPLODING CHARGE
Journal of Applied Physics
1951, Vol. 22, pp. 1178-1181.

The effects of detonating explosive charges on the surface of heavy steel plates is discussed. The mechanism of failure is discussed and stress distribution is determined by conducting a hardness survey after the plate is sectioned. Experimental techniques are not discussed.

- 1111 Pack D C, Evans W M and James H J
THE PROPAGATION OF SHOCK WAVES IN STEEL AND LEAD
Proceedings of the Physical Society, London
1948, Vol. 60, pp. 1-8.

An experimental investigation is presented in which transit times for the passage of a shock wave through plates are measured. Wave is instigated by the detonation of explosive. Lead and steel plates are used. Time measured by making and breaking electrical contacts.

- 1112 Rinehart J S
WORK HARDENING OF MILD STEEL BY EXPLOSIVE ATTACK
Journal of Applied Physics
1951, Vol. 22, pp. 1086-1087.