

- 1113 Wood R W
OPTICAL AND PHYSICAL EFFECTS OF HIGH EXPLOSIVES
Proceedings Royal Society, London.
1936, Series A, Vol. 157, pp. 249-261.
- 1114 Broberg K B
SHOCK WAVES IN ELASTIC AND ELASTIC-PLASTIC MEDIA
Kungl. Fortifikations for valtningen Befästningsbyran
Rapport 109-12, 141 pp. 1956. Library of Congress P. B. 126210.

The deformation of the copper cap on an explosive detonator is studied to gain information about the mechanism of detonation. A spectroscopic investigation of the exploding materials is also made.

Report gives interesting review of experiments on the propagation of elastic, plastic and shock waves produced by impact and by the detonation of explosive charges. The theory of wave propagation is discussed and the propagation of spherically divergent stress-waves is treated in detail. Tables of numerical values of dynamic stress-strain results for metals and other solids are presented and the fractures produced by the reflection of intense stress waves at the free boundaries of a specimen, are described and discussed. The bibliography contains 71 references in the field, most of which are recent. (Abstract as given in Applied Mechanics Review).

- 1115 Broberg K B
STUDIES ON SCABBING OF SOLIDS UNDER EXPLOSIVE ATTACK
Journal of Applied Mechanics, Trans. ASME
1955, Vol. 77, pp. 317-323.

The mechanism of the scabbing phenomenon is discussed both theoretically and experimentally. Experimental method used to determine pressure-time relation on face of plate where detonation occurs, is a modified pressure bar. Plane scabbings are obtained by inserting cylinders in hole in plate.

- 1116 Kumar S and Davids N
ELASTIC-PLASTIC ANALYSIS OF SCABBING OF MATERIALS
Journal of the Franklin Institute
May 1958, Vol. 265, pp. 371-383.

The graphical method is used to analyze stress propagation. Stress states are analyzed which can cause scabbing. No experimental work is presented.

- 1117 Kumar S and Davids N
MULTIPLE SCABBING IN MATERIALS
Journal of the Franklin Institute
1957, Vol. 263, p. 295.
- 1118 Goldsmith W and Allen W A
GRAPHICAL REPRESENTATION OF THE SPHERICAL PROPAGATION
OF EXPLOSIVE PULSES IN ELASTIC MEDIA
Journal of the Acoustical Society of America
1955, Vol. 27, pp. 47-55.

Analytic expressions of displacements, velocities and stresses as a function of location and time, as solved with the use of an IBM machine, are presented in pictorial form. Presentation is applicable to spherical divergent waves in homogeneous, isotropic, elastic media of infinite extent under the waves generated by an explosion on one face of the medium. Graphs permit a rapid evaluation of the nature of the disturbance.

- 1119 PLASTIC DEFORMATION AND FORMATION OF CRACKS BY DETONATING CHARGES (Swedish)
Ingen. Vetensk. Akad. Tidsk. Tekn. Forsk.
1955, Vol. 26, pp. 16-25.

Author discusses the plastic deformation and some of the fractures which occur when an explosive charge is detonated in intimate contact with, or a high-velocity fragment strikes a solid body. Several specific examples that have not been heretofore reported are described. Each example is accompanied by a brief description of the other investigations that are most likely to lead to an understanding of what has taken place in each case.

- 1120 Pearson J and Rinehart J S
SURFACE MOTION ASSOCIATED WITH OBLIQUELY INCIDENT ELASTIC WAVES
Journal of the Acoustical Society of America
1953, Vol. 25, pp. 217-219.

Well-known laws which govern the reflection of elastic waves that strike free surfaces obliquely, are used to deduce particle motion at the free surface of a body__

The data are expected to be of value in the solution of problems connected with impulsively loaded bodies such as metal-explosive systems. (Excerpt from author's summary).