1149 Allen W A, Mapes J M and Mayfield E B
SHOCK WAVES IN AIR PRODUCED BY ELASTIC AND PLASTIC WAVES IN A PLATE
Journal of Applied Physics
1955, Vol. 26, pp. 125-126.

Letter to the editor describing shock waves in air produced by free surface velocity of plate. Shadow graphs are shown of these waves. Two shock waves shown for brass but only one wave for copper. Steel and lead also reported. No numerical results presented.

1150 Savitt J
A NOTE ON SHOCK PROPAGATION IN BRASS
Journal of Applied Physics
1953, Vol. 24, p. 1335.

A theoretical description is given on the propagation of longitudinal waves through a body of large lateral extent. (Plates) Combination of elastic and plastic stresses is investigated.

1151 Murgai M P
APPLICATION OF THE HERTZ THEORY OF IMPACT TO EXPLOSION PHENOMENON
Journal of Chemical Physics
1954, Vol. 22.2, pp. 1687-1689.

1152 Singh Sampooran
SPATIAL DISTRIBUTION OF FRAGMENTS OF EXPLOSIVELY LOADED THIN-WALLED STEEL CYLINDERS
Proceedings Physical Society
1956, Vol. 69-B, pp. 1089-1094.

1153 Allen W A and Goldsmith W
ELASTIC DESCRIPTION OF A HIGH-AMPLITUDE SPHERICAL PULSE IN STEEL
Journal of Applied Physics
1955, Vol. 26, pp. 69-74.

Extensive calculations have been performed with an electronic calculator to evaluate a problem in elasticity that simulates the effect of a cylindrical charge of high explosive detonated in intimate contact with a steel plate. The general method of calculation has been described in detail. Although elastic theory has been extrapolated into a regime where it is known not to apply, insight of a valuable general nature has been obtained on the nature of the negative component of the pulse. (Author's abstract)

1155 Kumar S and Davids N
BASIC THEORY OF SCABBING-ELASTO-PLASTIC WAVE PROPAGATION
Interim Technical Report No. 10, Pennsylvania State University.

Semi-graphical approaches to the propagation of stress pulses in bars created by impacts is presented. This report consists of two main parts, viz., "Stress Jump Approach" and the "Strain Contour Approach." In the first part, after a brief discussion and development of the theory of plastic wave propagation, solutions of a number of problems with various boundary conditions for rectangular and triangular pulses of both long and short duration, are presented. An idealized stress-strain diagram for 14 ST-4 Aluminum alloy obtained in our laboratory has been used for most of the above cases. In the second part, first the theory of contour propagation in the X-T plane is developed and a set of rules that govern their geometrical patterns are presented. Then solutions are provided for most cases of reflections and interactions of the strain and velocity contours that are considered necessary for solving any given problem. (Authors' abstract)

1156 Dewey J, Breidenbach H I and Gehring J W
SOME OBSERVATIONS OF ELASTIC PROPERTIES OF SOLIDS UNDER EXPLOSIVE LOADING
Ballistic Research Laboratories, Report No. 931.

The strains and shock fronts in a magnesium alloy subjected to a contact detonation have been determined from flash radiographs. From these the stresses and stress-strain ratios for the compressional and shearing strains at the shock fronts have been computed, using finite strain theory. The compressional stress-strain ratio exceeds the infinitesimal and increases rapidly with strain. The shearing stress-strain ratio is considerably lower than the infinitesimal and about that predicted from Murnaghan's second order theory, $\mu - p$. Much less complete observations on plate glass and Catalin 61-893 are reported and reduced. Observations on heavier materials give subsonic shock velocities under very high stresses. In all materials except glass the compression front is markedly curved, indicating a rapid decay of shock strength. (Authors' abstract)

1157 Kumar S and Davids N
MULTIPLE SCABBING IN MATERIALS
Interim Technical Report No. 4, OOR Project TB2 -0001 (1253), Pennsylvania State University.

This report discusses first, scabbing and multiple scabbing from a phenomenological point of view, then past experiments on scabbing with critical comments. It then suggests new types of experiments and the use of an