

A photoelectronic apparatus has been developed which makes possible the continuous simultaneous measurement of the depth of penetration, the speed, and the deceleration of a nondeforming small-caliber projectile during armor penetration. The basic operating principle of the apparatus is to have the flight path of the projectile pass perpendicularly through a thin parallel light beam of uniform intensity which activates a vacuum type phototube _____.
(Authors' abstract)

Decelerations as high as 10^8 ft/sec² ±2%.

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CONCRETE PENETRATION
1945, OSRD 4856.
- 3018 Bethe H A
AN ATTEMPT AT A THEORY OF ARMOR PENETRATION
1941, Ordnance Laboratory, Frankford Arsenal.
- 3019 Rinehart J S and White W C
SHAPES OF CRATERS FORMED IN PLASTER OF PARIS BY ULTRA-SPEED PELLETS
American Journal of Physics
1952, Vol. 20, p. 14.
- 3020 Thompson L T E and Scott E B
A MOMENTUM INTERPRETATION OF PENETRATION DATA
Memorial de l'artillerie Francaise
1927, Vol. 6, p. 1253.
- 3021 Pugh E M, Heine-Geldren R V, Foner S and Mutschler E C
KERR CELL PHOTOGRAPHY OF HIGH SPEED PHENOMENA
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- 3022 Spells K E
VELOCITIES OF STEEL FRAGMENTS AFTER PERFORATION OF STEEL PLATES
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Proceedings Physical Society of London
April 1951, Series B, pp. 298-310.

- 3024 Sonntag G
CRITICAL CONSIDERATIONS OF THE DYNAMIC RESISTANCE OF A
PLATE CONSISTING OF SEVERAL LAYERS, STRESSED BY IMPACT
(German)
Zeitschrift für Angewandte Mathematik and Mechanik, Berlin
May 1949, Vol. 29, pp. 157-159.

The author considers two cases of impact stress in a plate consisting of several layers. _____
The author investigates the question of whether it is of advantage to divide the plate into several layers in order to reduce the impact force, decrease the deceleration of the point of impact and thereby decrease the shear stress around the impact center _____
(Abstract as it appears in Applied Mechanics Review).

- 3025 Nishiwaki J
RESISTANCE TO THE PENETRATION OF A BULLET THROUGH AN ALUMINUM PLATE
Journal of the Physical Society of Japan, Tokyo
September-October 1951, Vol. 6, pp. 374-378.

- 3026 Heine-Geldren R V and Pugh E M
THE PHOTOGRAPHY OF HIGH-SPEED METALLIC JETS
Meteoritics
1953, Vol. 1, No. 1, pp. 5-10.

- 3027 Rostoker N
THE FORMATION OF CRATER'S BY HIGH SPEED PARTICLES
Meteoritics
1953, Vol. 1, No. 1, pp. 11-27.

This article is a study of the craters formed by high-speed particles ($>10,000$ ft/sec). The theories of Öpik are compared to the theory that has been used for lower velocities (volume of crater proportional to kinetic energy). Experimental results are shown.

Problem is well discussed.

- 3028 Allen W A, Mapes J M and Wilson W G
AN EFFECT PRODUCED BY OBLIQUE IMPACT OF A CYLINDER ON A THIN TARGET
Letter in Journal of Applied Physics
1954, Vol 25, pp. 675-676.

Letter to the editor describes a phenomenon observed when a circular steel cylinder is fired at ordnance velocities at thin lead targets (0.005 - 0.010 in).

If a critical angle of incidence of the projectile on the target is exceeded the front surface of the cylinder is marked by a series of ridges. Photographs are shown of the phenomenon.