

of strain rate on the mechanical properties of materials is pointed out. Some interesting and hitherto unpublished experimental results, obtained by the author by means of an electromagnetic apparatus in which copper wires were loaded by a brief, strong current impulse, are briefly discussed. The effects of the propagation of plastic waves at high-test strain rates (with strain hardening) and of the length of test bar on accuracy of measurement, are considered in this paper.

- 1230 Meyer R H  
EFFECT OF SPEED OF TESTING ON THE TENSILE PROPERTIES OF AUSTENITIC STAINLESS STEEL SHEETS  
American Society for Testing Materials Bulletin Nos. 158,162  
May, December 1949, pp. 57-62 and pp. 53-55.

- 1231 Author unknown  
THE EFFECT OF RATE OF LOADING ON THE BENDING AND COMPRESSION STRESSES OF WOOD (Swedish)  
Svenska Traforsknings Institute Tratekniska  
Avdelningen Meddelande, Stockholm, No. 20, 1949.

- 1232 Warnack F V and Pope J A  
THE CHANGE IN MECHANICAL PROPERTIES OF MILD STEEL UNDER REPEATED IMPACT  
Proceedings Institution of Mechanical Engineers, London  
1947, Vol. 157, pp. 33-43.

The dynamic properties of various plastics are determined. The experimental method involves placing the specimen on the end of a long bar. Another bar is impacted onto the first bar as in a ballistic pendulum. The movement of the two bars together after impact is recorded photographically by high-speed photography.

- 1233 Fitzgibbon D P  
STRESS-STRAIN CHARACTERISTICS OF MATERIALS AT HIGH STRAIN RATE, PART I  
Structural Mechanics Research Lab., The University of Texas.

A photoelectric method for measuring displacements during high-velocity impacts is described. The theory of the system is discussed in detail and a prototype system which was built and tested is described. The performance of the prototype system is evaluated by comparing the results which it gives with results obtained by other methods of measurement. The system was found capable of a resolution of at least .01 inch.  
(Author's abstract)

- 1234 Ripperger E A  
STRESS STRAIN CHARACTERISTICS OF MATERIALS AT HIGH STRAIN RATES, PART II, EXPERIMENTAL RESULTS  
University of Texas, Structural Mechanics Research Lab.  
August 1958.
- 1235 Clark D S and Wood D S  
THE TIME DELAY FOR THE INITIATION OF PLASTIC DEFORMATION AT RAPIDLY APPLIED CONSTANT STRESS  
Proceedings American Society for Testing Materials  
1949, Vol. 49, p. 717.
- 1236 Johnson J E, Wood D S and Clark D S  
DELAYED YIELDING IN ANNEALED LOW-CARBON STEEL UNDER COMPRESSIVE IMPACT  
Proceedings American Society for Testing Materials  
1953, Vol. 53, pp. 755-767.
- 1237 Kolsky H and Shi Y Y  
FRACTURES PRODUCED BY STRESS PULSES IN GLASS-LIKE SOLIDS  
Proceedings of the Physical Society  
September 1958, Vol. 72, Pt 3, No. 465.
- 1238 Kumar S and Davids N  
THE DYNAMIC PROPERTIES OF MATERIALS UNDER IMPACT  
Theoretical Analysis of Scabbing in Materials, Interim Technical Report No. 6, OOR Project No. TB2-0001 (1253) Pennsylvania State University.

The stress-strain curve of a material for dynamic loads is chosen as the basic dynamic property of the material. The importance of strain-rate and other factors affecting it are discussed and some historical remarks presented. Then the present techniques of dynamic testing are discussed. Some semi-analytic approaches to estimate the theoretical relationships are given. After this some qualitative estimates of the nature of behavior of stress-strain curves are presented. In order to be able to study the general behavior of a material under dynamic loads, the necessity of experiments with controlled strain rates is pointed out and design of some experiments of this kind is given. (Authors' abstract)