

Fig. 6 - Stress-strain curve calculated from Fig. 5

$$\frac{c_e^2}{c_p^2} = 3 \frac{(1-r)}{(1+r)}$$

we obtain what may be regarded as an upper limit for Poisson's ratio of 0.42: the small stress value is 0.30 [10]. An expression for the fall in elastic stress is

$$2Y_s \frac{(1-r)}{(1-2r)}$$

where  $Y_s$  is the yield stress, assumed to be equal in tension and compression. Substitution of 16 Kbs for the elastic stress release, and the above values of Poisson's ratio gives yield strengths of 2.2 or 4.6 Kbs respectively; the results therefore suggest an increase in yield strength with stress, above the static value of 1 Kb.

#### REFERENCES

1. G. R. Fowles, "Shock Wave Compression of Hardened and Annealed 2024 Aluminum," *J. Applied Physics*, Vol. 32, No. 8, August 1961, p. 1473.
2. Z. V. Arkin et al., "The Isentropic Compressibility of Aluminium, Copper, Nickel and Iron at High Pressures," *Soviet Physics J.E.T.P.*, Vol. 11, No. 4, October 1960, p. 766.
3. R. J. Eichelberger and G. E. Hauver, "Solid State Transducers for Recording of Intense Pressure Pulses," Paris Conference les Ondes dé Detonation, September 1961.
4. U. I. Berg, "Investigations on a Very High Pressure Transducer," *Arkiv För Fysik* Band 25 nr 10.
5. D. R. Curran, "Non-hydrodynamic Attenuation of Shock Waves in Aluminium," *J. Applied Physics*, Vol. 34, No. 9, September, 1963, p. 2677.
6. J. W. Craggs, "Plastic Waves," *Progress in Solid Mechanics*, Vol. 2 (ed. by I. N. Sneddon and R. Hill), North-Holland Publishing Co., p. 141-197.
7. P. J. A. Fuller and J. H. Price, "Dynamic Pressure Measurements to 300 Kilobars with a Resistance Transducer," *Brit. J. Applied Physics*, Vol. 15, 1964, p. 751.
8. S. A. Novikov et al., "Investigations of the Structure of Compressive Shock Waves in Iron and Steel," *Soviet Physics J.E.T.P.*, Vol. 20, No. 3, March, 1965, p. 545.
9. L. W. Morland, "The Propagation of Plane Irrotational Waves through an Elasto-Plastic Medium," *Phil. Trans. Roy. Soc. London A 251*, 341 (1959), p. 341.
10. G. W. C. Kaye and F. H. Baily, "Tables of Physical and Chemical Constants," 12 ed. Longmans.

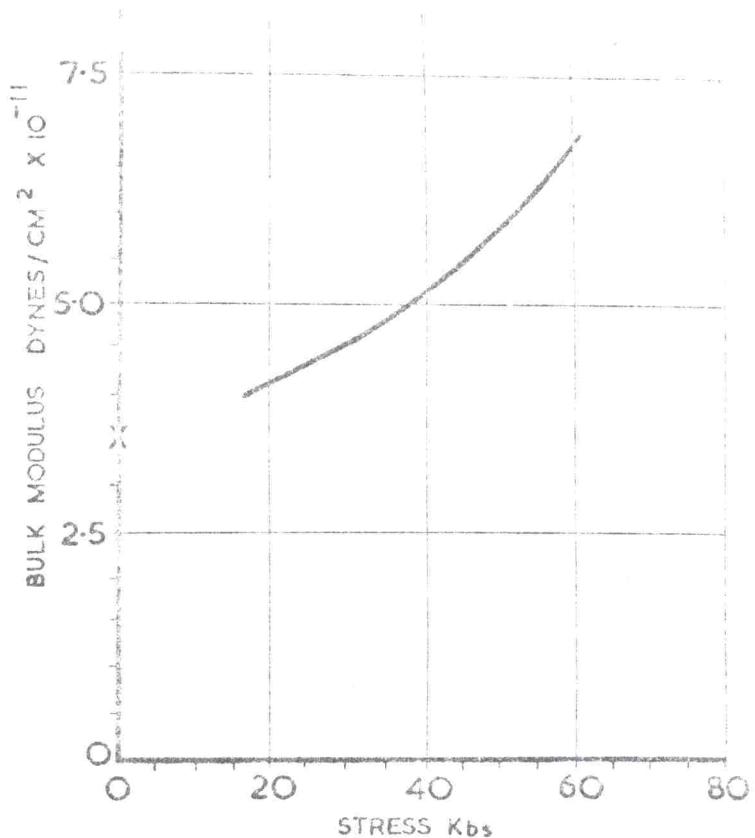


Figure 7