Fig. 1—The σ-ε curves for celluloid at the time points
t = 0,5, 10,20, 30 and 60 min. respectively.   δ = lines of
constant double refraction.   Thickness, d = 7.6 mm.

reason of the difference lies in the range of regions considered. While the latter were obtained for the reversible state only, the present formula is valid for any state, including irreversible strains.

The diagram shown in Fig. 1 describes the relation mentioned above in one example of a celluloid sample at the creep deformation process. The identical values of the double refraction for the different time points of creep lie on the straight lines, but not on parallels. While in the elastic region—as far as about δ = 3—these lines are parallels (with ε-axes), beyond this region the rate of these lines grows, including the increment of the double refraction due to increasing irreversible deformation. The distances between the lines of double refraction are equal on the stress–strain line for the time t = 0 only.

The range of elasticity is necessary to see as a region limited by that value for which the deformation (and birefringence) is reversible after a time determined beforehand. Stresses in the diagram are considered as conventional; taking the true stress into account, the lines are similar but have a little different rate.

These interesting features of the multiple theory of plastics and the theory based on the double nature of the polarizability of macromolecules show the new possibilities, especially in photoplasticity. In order to determine all the questions concerning this method it will, however, be necessary to collect more experimental data.

Bibliography

1. A. Kuske, Multiphase Theory of Plastics, EXPERIMENTAL MECHANICS, 2, No. 9, 278–280 (1962).
2. Die Physik der Hochpolymeren, Herausgegeber A. A. Stuart, J. Springer Verlag, Berlin-Göttingen-Heidelberg, 1955/56, t. III and IV.
3. J. Javornický, Beitrag zur Analyse der Doppelbrechung in der Photoplastizität, Z. Angew. Phys., 14, No. 3, p. 152–157 (1962).
4. J. Javornický, Photoplastische Versuche am Werkstoff Zelluloid (Internationales spannungsoptisches Symposium) Abhandl. Deut. Akad. Wiss., Kl. Math. Physik Tech. No. 4, p. 63-74 (1962).

It is interesting to note that these conclusions—even in their linearity—are similar to the diagrams shown by Kuske, but not in accordance. The

ERRATA:

Shear-stress Measurements "In Situ" of Soils Subjected to Vibratory Loads
by R. K. Bernhard

We regret that an error appeared in the text on page 102 of the April issue of E/M, under the heading "Setup". The sentence, "As long as the distance between the units and the tanks' borders exceeded approximately 3 ft, no change in output of the walls could be observed" should

read "As long as the distance between the units and the tanks' borders exceeded approximately 3 ft, no change in output of the transducers due to reflection or restraining effects of the walls could be observed."

Editor