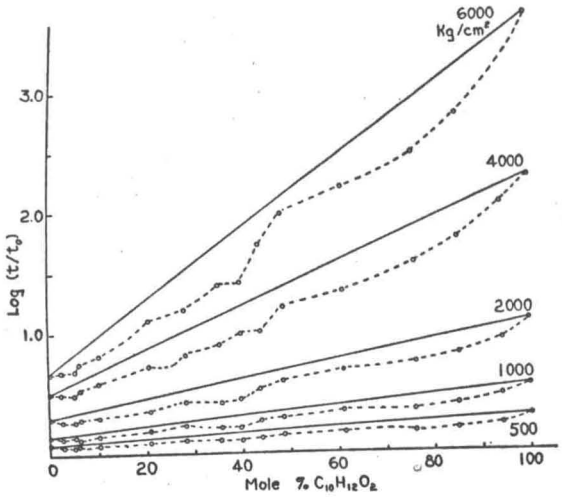

FIG. 7. Relative viscosity at 30° of eugenol carbon disulphide against concentration.

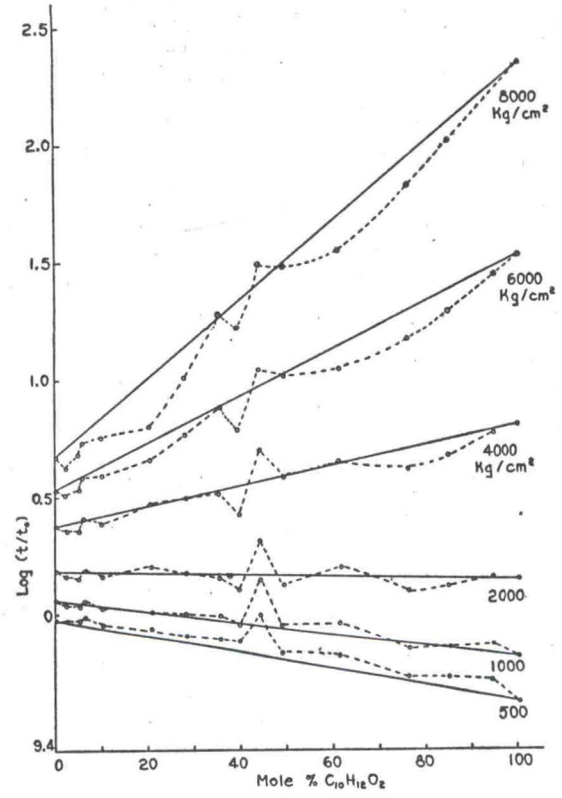

FIG. 8. Relative viscosity at 75° of eugenol carbon disulphide against concentration.

ether, *n*-hexane chlorobenzene, *n*-pentane benzene, and eugenol carbon disulphide display various kinds of irregularities which are in no way similar for these mixtures. For example, the

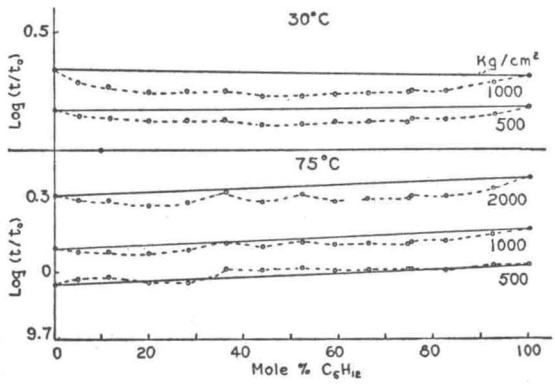

FIG. 9. Relative viscosity at 30° and 75° of *n*-pentane benzene against concentration.

peaks in the hexane chlorobenzene isobars do not appear on the corresponding pentane benzene curves; also, the same curves for hexane ether exhibit distinctive complexities. Inasmuch as these mixtures of the second group, with the exception of pentane benzene, contain a polar component, it is possible that complexes or associations of molecules will affect the results. Although the effects of association, as judged by the departures of the density-concentration curves from linearity do not seem to be significant for the viscosity of the mixtures at atmospheric pressure, the effects at high pressures may play important parts in the observed viscosity. While the final free space arrangement of the molecules depends little on whether the molecules are in a combined or free state, it is clear that the effect on viscosity will be different, for the mechanism of viscous resistance involves relative motion of interlocked structures which in turn will depend on the molecules of the mixtures.

Bridgman[17] in discussing association as applied to his results on water at high pressures prefers to leave open the question of whether pressure increases or decreases the amount of association, although his results suggested that pressure merely influenced the effects of association without necessarily changing the amount. Collins,[18] from an investigation of the infrared absorption spectra of liquids known to associate, concludes that his results indicated no change in association

[17] P. W. Bridgman, Proc. Am. Acad. 47, 546 (1912).
[18] J. R. Collins, Phys. Rev. 39, 305 (1930).