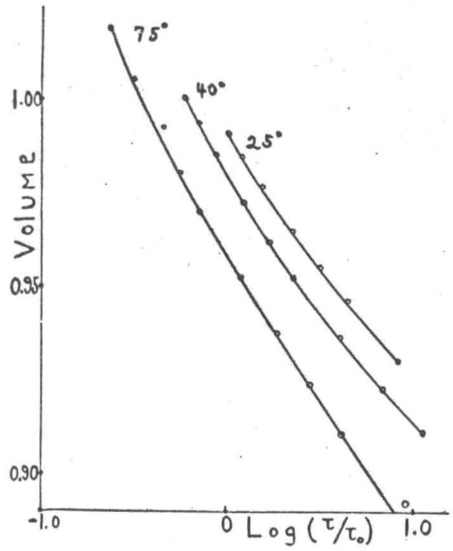

FIG. 1. Relative viscosity of lard oil as a function of volume.

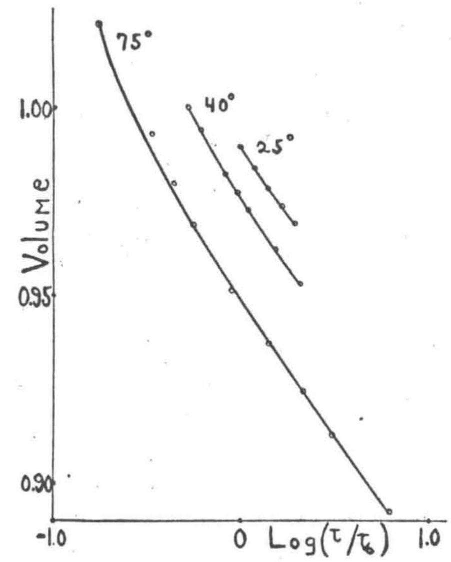

FIG. 2. Relative viscosity of sperm oil as a function of volume.

ture and t_0 the time of fall at atmospheric pressure at 25°. The reader is referred to the original papers for details of method and computation.

Discussion

It is apparent at once on inspection of Figs. 1, 2, and 3, which are drawn from the data of Table I, that the relative viscosity increases greatly with comparatively small decrease of volume. Inasmuch as the figures are drawn from data of different observers, as mentioned previously, there is some doubt as to the experimental accuracy of the viscosity-volume curves. However, the writer's acquaintance with the method used by Kleinschmidt for the viscosity determinations leads him to estimate the inaccuracy of the curves to be not more than a few percent, which does not seriously limit their applicability. The lack of serious deviation of the points representing the experimental values from the smooth curves of the figures gives an indication of the probable degree of accuracy of the data.

An interesting feature of the figures is the relative displacements of the viscosity-volume curves at 25°, 40° and 75°C. If viscosity were a function of volume only, the curves for each oil would coincide at all three temperatures. The figures show that this requirement is not satisfied in any case. The viscosity-volume curve for lard oil at 25° departs from the curve at 75° by an amount sufficient to change the viscosity by a factor of 2.3 at a volume of 0.99, and by a factor of 3.2 at a volume of 0.93. Similar curves for the Pennsylvania oil at 25° and 75° are even more relatively displaced; the discrepancy in viscosity varies from a factor of 3.8 at a volume of 0.99 to 7.6 at 0.94.

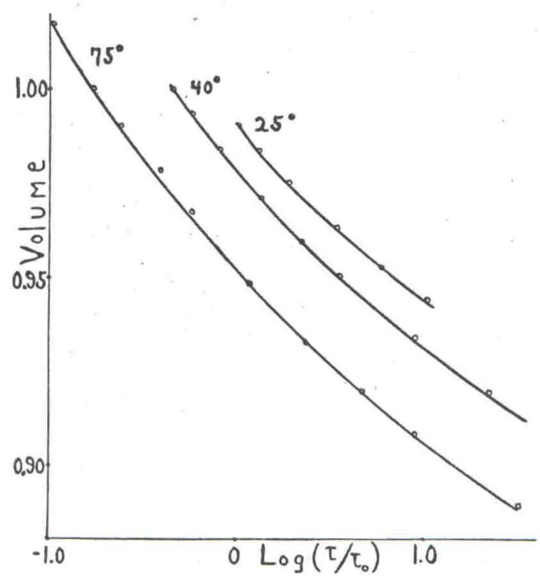

FIG. 3. Relative viscosity of Pennsylvania medium oil as a function of volume.