the orifice was recorded by a stop-watch and the values charted in Fig. 2. Repeated determinations showed this method to be accurate to ± 0.001 minutes.

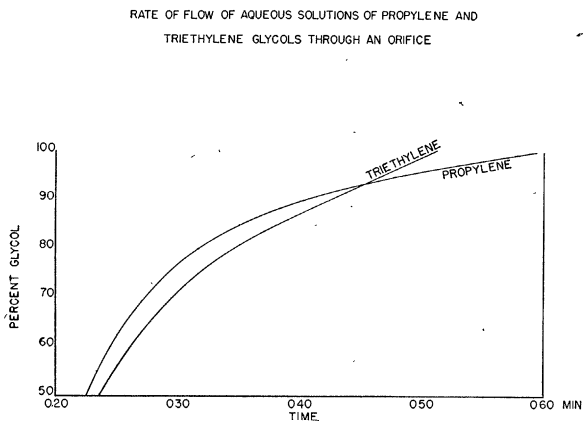

FIG. 2

Since the orifice of any given apparatus is arbitrary it would be very difficult to reproduce exactly our data. Therefore, a graph—Fig. 3—was constructed to enable the rapid calibration of any orifice. This was determined by plotting the relative viscosities of glycol to water against the known concentration of glycol. These relative viscosities were obtained by measuring the time for pure water at 25° C. to pass through our orifice and our interval. When the time required for a known series of glycol solutions to pass through any viscometer is divided by the time for water to pass through the same system the curve is obtained. Since the densities of the two liquids are practically equal they may be ignored in computing the relative viscosity. Therefore, when a new apparatus is constructed, generally having a somewhat different-sized orifice, it is only necessary to obtain the time interval using pure water. When this value for water is multiplied by the various viscosities of the glycol solution, taken from Fig. 3, a curve is easily constructed to fit the particular apparatus.

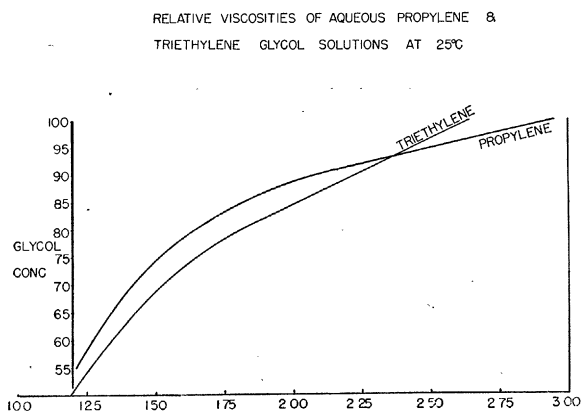

FIG. 3

CONCLUSIONS

This apparatus is easily constructed and can determine the concentration of glycol solution with an error of less than 0.5 per cent. The time required for a determination is about one minute, depending upon the size of the orifice. Using this method and the data supplied it is not necessary to measure the absolute viscosity but only the time utilized by the glycol solution in passing a given interval through an arbitrary orifice.

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A SIMPLE METHOD FOR PREPARING AQUEOUS SUSPENSIONS OF URINARY SEX HORMONE RESIDUES[1]

THE two commonly used vehicles for subcutaneous injection of urinary female sex hormone residues are oils (sesame or corn) and water. Neither is wholly satisfactory. The oils are poorly absorbed by the experimental animal and tend to encapsulate. Water is a poor solvent for the sex hormones and the inactive contaminants present in urinary residues. An aqueous suspension has been successfully employed,[2] but its preparation is rather laborious.

We wish to report a simple method for preparing an aqueous suspension of the urinary female sex hormone residue, which we have found to be entirely satisfactory.

The residue is dissolved in 2 ml of ethyl alcohol. From 0.1 to 0.2 gm (small spatulaful) of sodium alginate[3] and exactly 30 ml of water are added and the mixture is stirred on a hot plate, just short of boiling, for two or three minutes. On cooling, the suspension should have about the same viscosity as that of a heavy oil.

The success of this procedure depends upon two factors: (1) Care must be taken to add the right amount of sodium alginate, as too much will result in gel formation; a little practice soon establishes the ideal proportion to be used. (2) The stirring should begin while the water is being added in order to insure maximum dispersion of the insoluble material.

The resulting suspension is stable and shows no observable tendency to seep out at the site of injection when a No. 20, 1½ inch needle is used. The foreign material is completely absorbed and well tolerated by the spayed rat. No unfavorable reactions have occurred over a six-month period of repeated injections of our rat colony with this agent.

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[1] From the Rees-Stealy Medical Research Fund.

[2] Gustavson, R. G. et al., Am. J. Obst. & Gynec. 35: 115 (1938).

[3] Prepared and sold under the name of Kelgin by the Kelco Company, San Diego, Calif.