rapidly to their original soft state when remoistened. In water they are only moderately strong and disintegrate slowly if subjected to mechanical strain. In 70 per cent. alcohol, on the other hand, they remain soft and pliable, but become quite tough and retain their structure almost indefinitely.

There are several methods by which medicinals as, for example, penicillin, sulfathiazole, sulfapyridine or other drugs can be introduced into a starch sponge. The latter may be squeezed nearly dry and filled by dipping into solution. If desired, the sponge can be filled with medicament, dried and remoistened just prior to use. A medicament, such as sulfathiazole, incorporated in the paste prior to freezing, is retained almost completely in the sponge when excess water is expressed. That the sponge would be dissolved and absorbed in the body, with consequent slow release of the medicament, is suggested by the fact that 100 mg portions of dried sponge disperse in 4 to 7 hours at 37° C. in Seitz filter-sterilized beef serum buffered to pH 7.0 to 7.6.

CLAUDE W. BICE
M. M. MACMASTERS
G. E. HILBERT

NORTHERN REGIONAL RESEARCH LABORATORY,
PEORIA, ILL.
BUREAU OF AGRICULTURAL AND INDUSTRIAL CHEMISTRY,
AGRICULTURAL RESEARCH ADMINISTRATION,
U. S. DEPARTMENT OF AGRICULTURE

MOLECULAR WEIGHT BY ISOTHERMIC DISTILLATION

THE previously described "parallel twin capillary" method of J. B. Niederl and A. M. Levy[1,2] for the determination of molecular weight by isothermic distillation has now been improved by reducing the time necessary for interpretable results to 2–3 days instead of weeks. This has been accomplished by placing the capillaries containing the solutions of the standard and the unknown, "opposite" (mouth-mouth) instead of "parallel." Thus the length of the vapor bridge is reduced to 6–8 millimeters.

As before and as illustrated in Fig. 1, the apparatus consists of a capillary desiccator tube (C) and two capillaries, each 25 mm long and 1.5 mm in inner diameter (A and B). Capillary (A) contains the standard solution, while a similar, but opposite capillary (B) contains the unknown. A cotton wad (D) keeps the capillaries in place. The sealed desiccator tube containing the filled capillaries is mounted, by means of a drop of water glass solution, on a microscope slide (E) provided with suitable reference lines (F).

Three trials are usually carried out simultaneously. The unknown is paired with (a) a higher molar, (b) an equimolar and (c) a lower molar standard solution, preferably 0.15, 0.1 and 0.05 molar solutions of azobenzene in acetone. The solutions of standard and unknown are thus placed in competition for solvent through a short vapor bridge in obedience to Raoult's law. Isomolarity between the unknowns and the standard results in no net change of solvent concentrations, and therefore no relative volume changes in the matched pair of capillaries containing equimolar

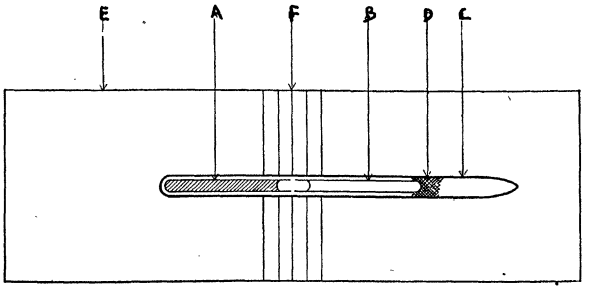

FIG. 1. Apparatus for isothermic distillation.

solutions. However, in the case of the higher molar standard solution the standard gains, while the unknown shows a corresponding loss. With the lower molar standard solution the reverse will be the case.

After an acclimatization period of 24 hours gain and loss of solvent are ascertained by observing the movement of the meniscuses of the solutions by means of a low-powered microscope, possessing a micrometer scale in the eye piece. Readings are taken every 24 hours. With acetone as the solvent two days of observation suffice. The readings are then plotted or tabulated and from these data the results are calculated as described before.[1,2]

The method requires only 25 cu mm of solution per trial, involving as little as 0.5 milligram of substance, which can be recovered. The apparatus consisting of three capillaries is of utmost simplicity.

JOSEPH B. NIEDERL
DAVID R. KASANOF[3]

WASHINGTON SQUARE COLLEGE,
NEW YORK UNIVERSITY

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