172 (1919)

A method for the estimation of the hydrophilic colloid content of expressed plant-tissue fluids.

By ROBERT NEWTON and ROSS AIKEN GORTNER.

[*From the Division of Agricultural Biochemistry, University of Minnesota, St. Paul, Minn.*]

The freezing-point depression of the freshly expressed plant juice is first obtained. Then, having determined the total solids by the refractometric method described by Gortner and Hoffman in the preceding note, a quantity of sucrose just sufficient to make a molar solution in the total water present is added. The freezing-point depression is again determined, and is usually found to have increased more than the theoretical amount (2.085°, allowing for the formation of sucrose hexahydrate).

It is assumed that the magnitude of the excess depression is a measure of the quantity of water held in such a way as to be unavailable for the solution of the sugar. This has been found to correspond in a general way with the content of hydrophilic colloids, as indicated by viscosity measurements, and proved by dialysis of the juice where this has been carried out, as well as by the preparation of colloidal solutions of known composition. Preliminary experiments with gum arabic indicate a close relationship between the "bound" water and the concentration of the added colloid.

It seems probable that the method may be applied to any biological fluid. A more detailed account of the experiments will be published in a botanical journal.

173 (1920)

Calcium phosphate metabolism showing the prevention of rickets by feeding clear grades of flour.

By J. F. McCLENDON.

[*From the Laboratory of Physiological Chemistry, University of Minnesota, Minneapolis, Minn.*]

In the milling of flour the ideal seems to have been production