ing glucose ingestion also to determine the presence and amount of sugar voided in the urine during these determinations and in the complete twenty-four-hour specimen.

Glycosuria, which is normally absent under the conditions of the test, is not a necessary accompaniment of decreased tolerance. A normal blood sugar curve accompanied by glycosuria usually indicates renal diabetes. We have also found this test useful in the diagnosis of incipient diabetes. All cases of Graves' disease examined, and certain of chronic interstitial nephritis, show a prolonged blood sugar curve. Hypo-endocrine conditions such as cretinism and muscular dystrophy[1] are characterized by increased sugar tolerance with the ordinary urinary test, but blood sugar determinations showed hypoglycemia and a delayed tolerance curve. Evidently the hypoglycemia accounted for the contrary result obtained by the usual test. In view of these findings former clinical observations on sugar tolerance require revision.

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The inversion and determination of cane sugar.

By ANTON R. ROSE (by invitation).

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Sucrose is completely inverted by heating in a solution of picric acid. This fact has been made use of in the estimation of cane sugar in solutions and extracts. After the cane sugar is hydrolyzed by heating with picric acid under properly controlled conditions, the invert sugar formed is determined by a modified Lewis-Benedict colorometric method. Glucose and fructose are determined at the same time.

The technic of the method is as follows: 1 c.c. of the clear liquid containing the sugars is transferred to each of two graduated narrow test tubes containing 2 c.c. saturated solution of picric acid. One of the tubes also contains 1 c.c. 20 per cent. sodium carbonate. The two tubes are then immersed into a bath of boiling water. After ten minutes 1 c.c. of 20 per cent. sodium

[1] Janney, N. W., Goodhart, S. P., and Isaacson, V. I., *Arch. f. Int. Med.*, article in course of publication.

carbonate is also added to the tube containing the acid mixture. After heating for 30 minutes the color in each tube has reached its maximum and they are allowed to cool. The contents of the tubes are diluted to a suitable volume and matched against a standard solution in a colorimeter. The readings for the tube which was alkaline at the beginning of the heating represents the glucose and fructose and the other tube represents these sugars plus the invert sugar from the sucrose.

When this method is applied to solids or semisolids, such as mashed fruit pulps, 1–10 grams are taken and triturated in a mortar with 100 c.c. water including the moisture of the sample and a clear liquid obtained by filtering or centrifuging.

Picric acid may also be used as the inverting agent in the determination of cane sugar by polarizing. The picric acid has no influence on the rotation of the polarized light and in many instances it acts as a clarifier and as a remover of soluble proteins. In practice it is well to add the picric acid in the form of a saturated solution, either one or two parts to each part of sugar solution to be determined, and to heat not more than twenty minutes in the boiling water bath. Glucose and fructose are both stable under these conditions.

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The influence of anesthesia and alkali therapy on the diastatic activity and sugar of human blood.

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To study the effect of general anesthesia, produced by ether or chloroform, on the activity of the diastase and the sugar content of human blood, samples of blood were obtained from patients in the surgical service of the hospital, 12–24 hours before operation. A second sample of blood was drawn immediately after the operation, while the patient was still under the anesthetic. Determinations of the sugar content and diastatic activity, were made in these two specimens as described in an earlier com-