

## SOME NEW LABORATORY APPLIANCES IN CHEMISTRY. BY H. A. HUSTON.

[ABSTRACT.]

A machine for use in making solutions of difficultly soluble substances at various temperatures was described. Also a new form of stirring machine for use in precipitating ammonium, magnesium phosphate and similar work.

Cuts are necessary for a full understanding of the paper.

---

## VOLUMETRIC DETERMINATION OF PHOSPHORUS IN STEEL. BY W. A. NOYES AND J. S. ROYSE.

## THE ACTION OF AMMONIA UPON DEXTROSE. BY W. E. STONE.

[ABSTRACT.]

Dextrose is commonly regarded as belonging to the class of chemical compounds known as *aldehydes*. Several of the characteristic reactions of this class of compounds are, however, not given by dextrose or have not been heretofore observed. Chief among these are the reaction with a decolorized fuchsin solution and the formation of ammonia compounds.

This paper describes the preparation and properties of a crystalline compound of dextrose with ammonia which seems to belong to the class of aldehyde-ammonia derivatives. Its importance lies in the contribution of this new proof of the aldehyde character of this typical sugar and that without much doubt a whole series of such derivatives can be prepared from the other so-called glucose sugars.

---

## ACTION OF ZINC ETHYL ON FERRIC CHLORIDE AND FERRIC BROMIDE. BY H. H. BALLARD.

## THE SUGAR OF THE CENTURY PLANT. BY W. E. STONE AND D. LOTZ.

[ABSTRACT.]

The "maguey" plant or *Agave Americana* furnishes the materials for many important industries in Mexico. Its juices obtained at the flowering period contain about 15 per cent. of a fermentable sugar. By their alcoholic fermentation are produced several beverages of more or less intoxicating nature. The fibre of the leaves is utilized in many ways and the juices of the plant when treated with ash lye make a kind of soap.

The paper deals more especially with the character of the sugar present which has already been described by two Mexican chemists as a distinct and new kind of sugar. The results given in this paper go to show that this sugar is not different in any way from that of the cane or the beet-root or the maple. That it is a definite chemical compound known as sucrose and that without much doubt the announcement of the Mexicans of the discovery of a new sugar was based upon erroneous observations.

---

CAMPHORIC ACID. BY W. A. NOYES.

---

ACTION OF POTASSIUM SULFHYDRATE UPON CERTAIN AROMATIC CHLORIDES.  
BY WALTER JONES AND F. C. SCHEUCH.

---

A NEW PHOSPHATE. BY H. A. HUSTON.

DIP OF THE KEOKUK ROCKS AT BLOOMINGTON, INDIANA. BY E. M. KINDLE.

In the course of some stratigraphical studies in Monroe County it became desirable to ascertain, as accurately as possible, the dip of the Keokuk strata. As is generally the case with Indiana rocks the Keokuk strata are not sufficiently inclined to admit of the use of the clinometer in determining their dip. It was therefore necessary to determine the relative elevations of two points lying in the direction of dip in some stratum, and separated by a known distance. It is essential in this method of estimating dip that a stratum or horizon be selected which can be positively identified at different points.

The contact of the Keokuk with the Knobstone is readily recognized wherever it outcrops in Monroe County, both by the striking paleontological and lithological differences between the two groups. The Keokuk is everywhere at the contact with the Knobstone an impure fossiliferous limestone, while the Knobstone is a massive sandstone entirely without fossils. I therefore selected the contact of the Keokuk with the Knobstone as the most convenient stratum, from which to determine its dip. The ravines north of Bloomington afford numerous exposures of the contact. Two points for the comparison of elevations were selected, one a mile and a half north of Bloomington on the North Pike, the other in a ravine nearly due east of the first. A surveyor's transit was used to