

g. of crystals of nearly the same rotation. Three grams of the substance was thus prepared in two experiments. One recrystallization from hot water gave a pure product, the rotation of which was not changed by four subsequent recrystallizations; m. p. 96°. The rotation measurements on the final product are recorded in the table, the tube length being 2 dm. and the solvent being pure chloroform. The angles are in all cases dextro-rotations.

TABLE I

ROTATION OF PURE  $\alpha$ -METHYL *d*-LYXOSIDE TRIACETATE IN CHLOROFORM SOLUTION

Concn., g./100 cc. of soln.	Sodium yellow $\lambda = 589$		Mercury yellow $\lambda = 578$		Mercury green $\lambda = 546$		Mercury blue $\lambda = 436$	
	$\alpha$	$[\alpha]_D^{20}$	$\alpha$	$[\alpha]_{578}^{20}$	$\alpha$	$[\alpha]_{546}^{20}$	$\alpha$	$[\alpha]_{436}^{20}$
0.745	+0.438	+29.4	+0.461	+31.0	+0.530	+35.6	+0.705	+61.0
1.307	+ .803	+30.7	+ .838	+32.1	+ .941	+36.0	+1.62	+62.0
1.776	+1.074	+30.2	+1.137	+32.0	+1.274	+35.8		
1.908			+1.208	+31.7	+1.358	+35.6	+2.40	+62.9
	Average	+30.1		+31.7		+35.8		+62.0

A Zeisel analysis showed 10.4% of methoxyl (0.3222 g. of substance yielded 0.1552 g. of AgCl) in comparison with the value 10.7 required by the formula  $C_{11}H_{13}O_7OCH_3$  (m. w., 290).

An acetyl estimation by the method of Kunz<sup>10</sup> agreed with this formula for a triacetate (0.2126 g. of substance was equivalent to 21.5 cc. of 0.1 *M* HCl).

### Summary

Pure  $\alpha$ -methyl *d*-lyxoside triacetate has been prepared and it is concluded from a comparison of its rotation with that of  $\alpha$ -methyl *d*-xyloside triacetate that the lyxoside derivative possesses a 1,4-ring structure, and that crystalline  $\alpha$ -lyxose ( $[\alpha]_D = +5.5$ ) also has this ring structure since its rotation differs normally from that of  $\alpha$ -methyl *d*-lyxoside.

WASHINGTON, D. C.

### NEW BOOKS

**A Comprehensive Study of Starch Chemistry.** Volume I. Compiled and edited by ROBERT P. WALTON in collaboration with twenty other authors. The Chemical Catalog Company, Inc., 419 Fourth Avenue, New York, 1928. 240 + iv + 360 pp. Illustrated. 18 × 26 cm. Cloth. Price, \$10.00.

In the introductory paragraph of the Preface the compiler writes: "The most prominent aspects of the subject have been treated by authorities who have contributed significantly to the advancement of the field and who are actively engaged in further investigations or developments." This statement describes adequately the nature of the first part of the book and the material presented in it.

The nineteen papers comprising the symposium and the first 235 pages of the volume range in subject matter from various aspects of the molecular constitution and physical and chemical properties of starches and

<sup>10</sup> Kunz and Hudson, *THIS JOURNAL*, **48**, 1978 (1926).

related substances by Pictet, Irvine, Ling, Pringsheim, Samec, Taylor (T. C.), Katz and Sherman, through the role of starch in such industrial processes as bread making and fermentation by Alsberg, again Katz and Fernbach; the manufacture and use of starches, gums and adhesives by Moffett, Preuss, Bloede, Alexander, Nivling and Farrow; and starch-converting enzymes by H. C. Gore and others. The final article is a review of the early development of starch chemistry and manufacture (to 1811) by the editor of the book.

The latter half of the volume comprises an elaborate list of verified references to books and articles on starches, dextrines and amylases that appeared in the period 1811-1925. These are grouped under six general divisions and 46 classifications. Following each reference is a brief "discriminative" abstract or description of the material contained in it, often quoted from abstracts previously published in the literature.

Each of the two parts of this book—the symposium and the bibliography—covers material that is amply sufficient in itself to justify publication. Together they comprise a survey of the field of the starches and their congeners that makes the book of extraordinary value, both to the student and to those trained workers whose activities are concerned with these substances.

WILLIS A. BOUGHTON

**Tables of Physical and Chemical Constants and Some Mathematical Functions.** By G. W. C. KAYE, D.Sc., Superintendent of the Physics Department, the National Physical Laboratory and T. H. LABY, Sc.D., Professor of Natural Philosophy, University of Melbourne. Sixth edition. Longmans, Green and Company, 55 Fifth Avenue, New York, 1928. iii + 163 pp. 16.5 × 25 cm. Price \$4.75.

Except for a table of Isotopes and one of the Thermal Conductivities of Gases, this edition appears to be a reprinting of the fourth and fifth editions (1920 and 1926). The table of atomic weights is that of 1925.

ARTHUR B. LAMB