larly useful for alkalies, especially if provided with an obliquely-bored or otherwise alkali-resistant stopcock.

This apparatus may be had, of any specified dimensions, from Eimer & Amend.

NORMAN ROBERTS.

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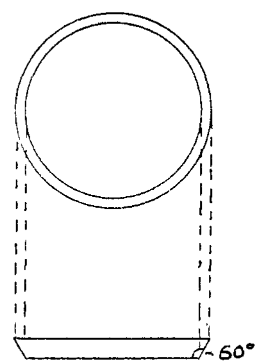
Filtration with Alundum Plates.—Filtration of large volumes of liquids containing very fine precipitates, by means of asbestos fiber and the Witte plate, has been found very inconvenient at times.

Fig. 1.



As substitutes for filter plates and asbestos, disks made of "alundum" (fused aluminium oxide) have shown great efficiency. These filter disks were made by the Norton Co., of Worcester, Mass., according to the design, as shown in the accompanying sketch.

An ordinary flat rubber band stretched around the filter disk or plate makes it fit snugly to the funnel, when suction is applied by means of the filter pump. These plates may be had in several grades with pores of different sizes, those with the smallest pores retaining the finest precipitates perfectly. Their use saves the trouble of preparing asbestos and also makes it possible to stir the precipitates without danger of dislodging the filtering material as when asbestos is used.

RAYMOND C. BENNER,
WILLIAM H. ROSS.

UNIVERSITY OF ARIZONA, TUCSON.

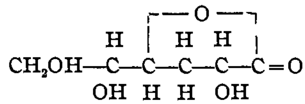
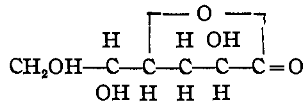
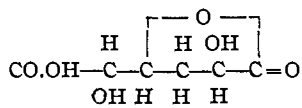
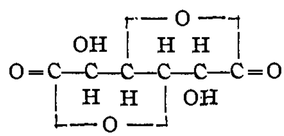
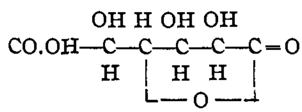
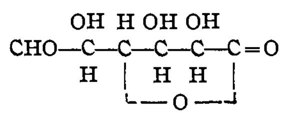
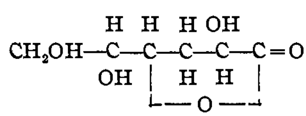
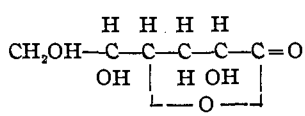
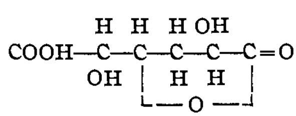
THE RELATION BETWEEN THE CONFIGURATION AND ROTATION OF THE LACTONES IN THE SUGAR AND SACCHARINIC ACID GROUPS.

BY ERNEST ANDERSON.

Received October 17, 1911.

Hudson[1] has pointed out a very simple relation between the configuration and rotation of the lactones of mono-basic sugar acids, namely, lactones of dextro rotation have the ring on one side of the structure, lactones of levo rotation have it on the other. This relation is true not only for the lactones described by Hudson but for practically all monobasic and some dibasic acid lactones in the sugar and saccharinic acid groups. In the following table are collected the configurations and specific rotations of eighteen such lactones.

[1] THIS JOURNAL, 32, 338.

Substance.	Configuration.	Rotation.	Ring position.
α-Galacto-metasaccharin[1]		—45.3°	above
β-Galacto-metasaccharin[1]		—63°	above
β-Galacto-metasaccharonic[1]		—98°	above
l-Manno-saccharic[2]		—201°	above
d-Saccharic[3]		+38°	below
Glucuronic[4]		+19°	below
β-Dextro-metasaccharin[5]		+8°	below
α-Dextro-metasaccharin[5]		+25°	below
β-Dextro-metasaccharonic[6]		—4.7°	below

[1] Nef, *Ann.*, 376, 1.

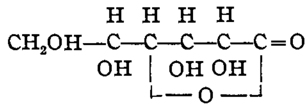
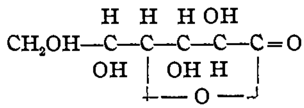
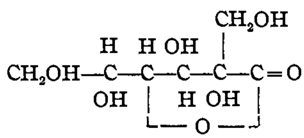
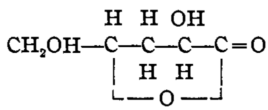
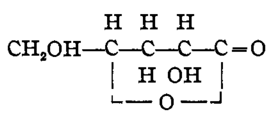
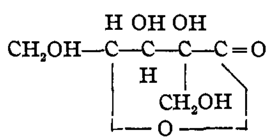
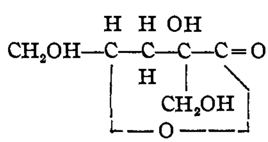
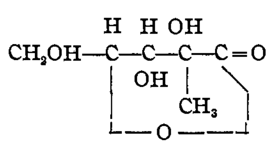
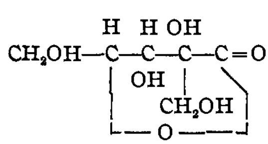
[2] Fischer, *Ber.*, 24, 539. This substance is a di-lactone, both rings agree with Hudson's hypothesis.

[3] Sohst and Tollens, *Ann.*, 245, 10. The ring is below for both carboxyl groups. It probably has the position given.

[4] Fischer, *Ber.*, 24, 521.

[5] Nef, *loc. cit.*

[6] Nef, *loc. cit.* This is an exception to the hypothesis. However, the sodium salt of this acid rotates —35° and the dextro rotation, due to lactone formation, is not strong enough to overcome this levo rotation.

Substance.	Configuration.	Rotation.	Ring position.
d-Allonic[1]		—6.8°	below
d-Lactonic[2]		+35°	below
α-Hydroxymethyl-*d*-gluconic[3]		+	below
l-Threo-C_5-metasaccharin[4]		+43°	below
d-Erythro-C_5-metasaccharin[4]		+55°	below
α-Hydroxymethyl-*d*-lyxonic[4]		+82°	below
α-Isosaccharin[4]		+63°	below
α-Saccharin[4]		+93°	below
α-Hydroxymethyl-*d*-arabonic[5]		+72°	below

[1] Levene and Jacobs, *Ber.*, 43, 3141. This is an exception to the hypothesis.

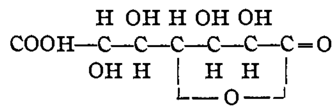
[2] Levene and Jacobs, *loc. cit.*

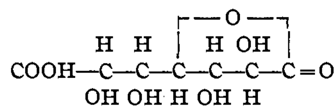
[3] Kiliani, *Ber.*, 19, 1914. Nef, *loc. cit.*

[4] Nef, *loc. cit.*

[5] Spoehr, *Am. Chem. J.*, 43, 235.

The above-described relation between configuration and rotation affords a new method for determining the configuration of the lactones formed by some dibasic acids. Thus, β pentahydroxy pimelic[1] acid forms a mono lactone which has either configuration, I or II.

I. 

II. 

Since the specific rotation of the lactone is $+68°$, it must have configuration I.

The data given above furnish additional evidence for the hypothesis advanced by Hudson. They show how varied the lactone structure may be and that hypothesis still apply.

KENT CHEMICAL LABORATORY,
UNIVERSITY OF CHICAGO.

[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF HARVARD UNIVERSITY.]

2,5-DIMETHYLHEPTANE.

BY LATHAM CLARKE AND SYDNEY A. BEGGS.

Received November 6, 1911.

In the study of the octanes, which for some years has been in process in this Laboratory, certain relationships have been discovered between chemical constitution and physical properties, an account of which has been included in an earlier paper.[2] It is of considerable interest to ascertain whether these relationships hold true in the series of nonanes as well as in the series of octanes, and the study of the nonanes has therefore been taken up; meanwhile, the researches on those octanes which are yet to be synthesized are being pushed on as actively as possible. In this paper is given a description of the synthesis and properties of 2,5-dimethylheptane, the first nonane to be prepared in this laboratory.

This hydrocarbon has been made by Mlle. Welt,[3] who used the Wurtz reaction; but the compound prepared by her was apparently not at all pure since the boiling point is given as 128–134°. The 2,5-dimethylheptane prepared in this research boiled at 135.6–135.9° at 760 millimeters pressure and had at 15° the specific gravity 0.7190, compared with water at 15°.

The literature records four nonanes in addition to that of Mlle. Welt:

[1] Fischer, *Ann.*, 270, 90.

[2] THIS JOURNAL, 33, 520 (1911).

[3] *Ann. chim. phys.*, [7] 6, 122.