while in order to evaporate some of the ether before dipping in the tube. The thickened collodion solution will then by the further evaporation of ether prevent a bubble of air from entering the gooseneck of the electrode vessel and thus increasing the resistance of the system. In order to test the membrane at any time, the stopcock of the siphon tube is opened; if no liquid drops appear at the end of the tube, the membrane has been satisfactorily made. With this device careful adjustment of the levels of the solutions in the several vessels is not necessary, for no potassium chloride will siphon into the solution whose hydrogen-ion concentration is to be measured. The authors have made over a hundred measurements on various solutions of hydrochloric, acetic, monochloro-acetic and oxalic acids with saturated potassium chloride solution as salt bridge, and in no case did they obtain a test for either potassium ion or chloride ion with the collodion membrane.

It is customary practice to accept the final value in all e.m.f. determinations when the resultant e.m.f. value is constant for an hour or more. Experience has shown that the drift in the contact potential has caused considerable uncertainty in the final value. With the collodion membrane this drift is greatly retarded, as evidenced by the constancy (within ± 0.2 mv.) of the final observed values after the hydrogen electrodes have become thoroughly saturated with hydrogen.

The following observed values show the constancy of the measurements on acetic acid.

SYSTEM: Hg–HgCl SAT. KCl–SAT. KCl–SAT. KCl–Hx–H_2Pt

Temp. 25° C. ± .01° 3.0 *M* CH_3COOH

Start H_2 at 2:10 P. M.	Min.	For collodion Membrane	Start H_2 at 3:30 P. M.	Min.	For Cotton Plugs
2:46	36	0.3608	4:13	43	0.3622
2:59	49	.3608	4:34	64	.3615
3:26	66	.3607	4:48	78	.3616
3:31	81	.3607	4:55	85	.3611
3:38	88	.3608	5:06	96	.3618

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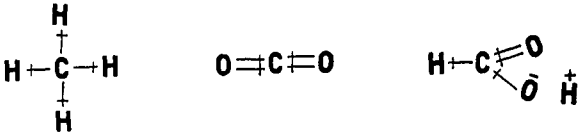
A Simplified Method of Writing "Electronic" Formulas.—The current methods of writing or printing "electronic" formulas, besides lacking uniformity, are open to other objections. The formulas in use are often cumbersome and difficult to write and to interpret due to the possible confusion of the valence sign with the negative sign, and the notation for the very low difference of polarity present in methane with the same notation used to indicate ionization.

The method of notation illustrated herewith, which uses a cross line at one end of a bond line has the advantage of simplicity in writing, inasmuch as the valences in an ordinary structural formula can be changed to show a definite polarity by one stroke of the crayon, and there is no chance



for confusion of the negative sign with the valence sign. Valences in which the polarity is not known or need not be considered can be left in the original form. A distinctly non-polar valence can if desired be indicated by writing the cross mark across the center of the valence sign. One of the main advantages of the method suggested is that it gives a notation for a small difference in polarity, different from the notation customarily used to indicate ionization. It is possible to indicate mere differences of polarity and ionization in the same formula without confusion.

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A REVISION OF ROSANOFF'S DIAGRAM OF THE ALDOSE SUGARS[1,2]

BY J. J. WILLAMAN AND CLARENCE A. MORROW

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In 1906 M. A. Rosanoff[3] published a critique of Fischer's classification of stereo-isomers in the sugar group. He pointed out that, although the latter's system of grouping into one family all the sugars which are genetically related, and all the enantiomorphs of these sugars into an opposite family is excellent in principle, it contains several gross errors. These errors are partly due to the order of discovery of certain members of the group, and partly to a false premise regarding the bases for genetic relationships among stereo-isomers. Rosanoff proposed a modified system of classification which would eliminate the discrepancies. He supported his argument by a diagram, which showed by means of symbols the rational

[1] Published with the approval of the Director as Paper No. 279, Journal Series, Minnesota Agricultural Experiment Station.

[2] Presented at the meeting of the American Chemical Society, Sept. 9, 1921.

[3] Rosanoff, THIS JOURNAL, 28, 114 (1906).