been calculated which gives the units of color corresponding to each scale reading from 100 to 1. A convenient method for determining the color of raw sugars, using the table, is given together with results for various sugars.

The deterioration of Cuban raw sugar in storage: Nicholas Kopeloff and H. Z. E. Perkins. From the results indicated below, a correlation between the number of microorganisms and the moisture ratio is indicated which appears to make it possible to predict the keeping quality of a sugar by a preliminary bacteriological and a chemical analysis. Cuban raw sugars (with moisture ratios varying from .22 to .49) were stored under normal conditions in a large warehouse for 5½ months and analyzed chemically and bacteriologically. There was a loss in polarization at the end of this period, as well as at the end of one month, which was generally accompanied by a gain in reducing sugars. Likewise a gain in moisture content and reduction in the factor of safety was noted. There was a decided increase in total number of microorganisms after one month, which could be correlated within certain limitations with deterioration. Where there was a large initial infection, deterioration was rapid. In general there were more microorganisms in the middle of the bag than at the surface. Bags designated as wet, stained or having sugar light in color, deteriorated more rapidly than when drier, unstained or dark in color. In bags of sugar which are deteriorating rapidly, the surface deterioration is greatest, while in less rapid deterioration the middle of the bag seems to undergo greater decomposition. Deterioration was found to be proportionately greater over a longer incubation period than in one month.

The development of the polarimeter: Noel Deerr. A brief account is given of the development of the polarimeter beginning with the earliest instrument of Biot and continuing with the subsequent improvements of Nicol, Ventzke, Mitscherlich, Soleil, Duboscq, Jellet, Cornu, Laurent, Lippich and others. The three major inventions in this development are the prism of Nicol, the quartz wedge compensator of Soleil and Duboscq, and the photometric end-point of Jellet. German science has contributed nothing elementary to this development, although the manufacture of polarimeters has been allowed to become almost exclusively Teutonic.

Changes in the analytical ratios of sugar during refining: A. F. Blake.

Boneblack and decolorizing carbons: W. D. Horne. Investigators of Boneblack and decolorizing carbons should bear in mind the practical working conditions to be met by these substances. Boneblack or substitutes should exist in grains of 16 to 30 mesh and should be hard, very porous and high in absorptive power for iron as well as for coloring substances. Carbon is not necessarily a constituent, and a more easily cleansed and revivified substance is needed. Decolorizing carbons need to be more absorbent of ash and of red coloring matters such as caramel, and cheap enough to discard after using a few times.

The production of the gum, levan, by mold spores: Nicholas Kopeloff and Lillian Kopeloff. Mold spores contain an enzyme capable of forming gum in sugar solutions of all concentrations up to the saturation point. Pure gum was obtained by precipitation with five volumes of alcohol in alkaline solution and the specific rotation found to be about −40. Upon hydrolysis with acid, levulose was formed. Its melting point was about 200° C. The gum was considered to have properties identical with levan, previously noted in the bacteriological decomposition of sugars by Greig-Smith and Owen. A new method of determining levan and actual sucrose in sucrose solutions was established by using the invertase method (pure invertase solution prepared from yeast) in conjunction with the usual Clerget procedure. Some data have likewise been obtained which indicate the nature of the sugars from which levan is formed.

The determination of moisture in beet sugar factory products: V. L. Aikin.

Charles L. Parsons,
Secretary

(To be continued)

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