

ice from distilled water is rapidly being replaced by production of ice from raw water, due principally to cheap dependable power and water softening. The requisite characteristics of first quality ice are clearness, firmness and freedom from discoloration. In freezing water, by far the greatest part of the substances dissolved in it freeze out in the ice produced. Ice made from impure water is opaque, discolored and brittle, depending on the nature of the impurities. Lime-soda softening, followed by sand filtration, is the most efficient purification of raw water to be frozen. The most objectionable impurities are compounds of magnesium, calcium and iron, organic matter, silica and alumina, and sodium salts. Softening with lime eliminates temporary hardness, magnesium and iron, and reduces organic matter, silica and alumina. Recent investigations indicate that soda may be omitted from treatment, as removal of permanent hardness appears to be unimportant if all of magnesium is replaced by calcium. Temporary hardness is particularly objectionable, causing gritty white sediments in center of cake, white deposits in clear ice, weak structure, and probably crackings and also necessitates one or more core pumpings. Zeolite softening of the raw water has been shown to be unsuitable for ice making, due to the relatively large quantity of sodium salts which it leaves in the treated water to retard freezing and form deposits, to the fact that bicarbonates, which are in some manner connected with cracking, are not removed, and to the non-removal of iron, organic matter, alumina and silica.

*Specifications for glassware for waterworks laboratories:* HARRY E. JORDAN.

*Hardness of surface waters in the United States:* W. D. COLLINS.

*The new sewage testing station of the Illinois State Water Survey Division:* EDWARD BARTOW. With the cooperation and assistance of the Sanitary Districts in Illinois, The State Water Survey Division has started again the sewage testing station that was operated from 1914-17 and in which work was practically discontinued during the war. It is proposed to test all processes of sewage disposal that may be applicable to Illinois conditions, as time and funds permit. The first test will be of the Dorr-Peck modification of the activated

sludge process, which will be tested from raw sewage to clarified effluent and to dried sludge.

CHARLES L. PARSONS,  
*Secretary*

### THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

#### SECTION E—GEOLOGY AND GEOGRAPHY

SECTION E of the American Association for the Advancement of Science held its sessions this year in conjunction with the Geological Society of America and the Association of American Geographers, in Rosenwald Hall of the University of Chicago, from December 28 to January 1. In accordance with the agreement whereby the affiliated societies take charge of the program whenever they meet jointly with Section E, the Section had no program of its own. The address of the retiring vice-president, Dr. Charles Kenneth Leith, of the University of Wisconsin, upon the subject, "The structural failure of the lithosphere," was delivered on the evening of December 28 at the annual smoker of the Geological Society of America. It has been published in SCIENCE. The papers of the general sessions will appear in the *Bulletin of the Geological Society of America*, Vol. 32, and in the *Annals of the Association of American Geographers*, Vol. 11.

At the regular meeting of the Sectional Committee the following were nominated for sectional officers:

*Vice-president and Chairman of the Section*, Dr. Willet G. Miller, director of the Ontario Bureau of Mines.

*Secretary for 4 Years*, Dr. Elwood S. Moore, Pennsylvania State College.

The election of a committee member was not required this year.

ROLLIN T. CHAMBERLI  
*Secretary*

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