

THE CHESAPEAKE CHEMIST

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THE JANUARY MEETING

On Friday, January 30, Dr. Robert C. Hockett will talk on sugar as an industrial chemical. Sugar as such is used in a variety of commercially important products and processes. It also serves as a starting point for the preparation of an ever-increasing number of industrial chemicals: sugar alcohols and their derivatives (useful as drugs and emulsifying and blending agents), unsaturated ethers (possible materials for the varnish and coatings field), sugar acids and their salts, mercaptols, drugs and vitamins. The fermentation of sugar - which has produced alcohol, acetone and butanol, citric acid, and lactic acid - is rich in investigative possibilities. By-products already obtained from sugar manufacture include wax, pectin, betaine, pentoses and several acids.

Dr. Hockett studied at Ohio State University (A.B., 1925; Ph.D. 1929). He worked with Dr. C. S. Hudson at the National Institute of Health and was later appointed to the Institute staff. In 1935 he was called to M. I. T. to lecture on carbohydrates and establish a research program in that field. Late in 1943 he was granted a five-year leave of absence to serve as Scientific Director of the Sugar Research Foundation, a non-profit body which was organized by producers and processors of sugar for the exploration and development of non-food uses of that commodity. Dr. Hockett has published more than fifty research papers, for the most part on sugars. He has been active in the administration of the Sugar Division of the ACS and in the promotion of publication of articles by Latin-American scientists in U. S. journals. He has lectured widely on both technical and popular aspects of chemistry, and is a member of many scientific and professional organizations.

The dinner preceding the meeting will be held at the Johns Hopkins Club on the Hopkins campus, and is open to all members of the Section. Reservations must be made before noon, January 29, with Dr. A. H. Corwin, Department of Chemistry, The Johns Hopkins University, Baltimore 18 - telephone HO Hopkins 3300, Extension 58.

Section Officers

Chairman J. A. Herculson, 407 Murdock Road, Baltimore 12
 Vice-Chairman A. H. Corwin, Department of Chemistry,
 The Johns Hopkins University, Baltimore 18
 Secretary-Treasurer H. H. Lloyd, Goucher College, Baltimore 18

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 Editor: Belle Otto, Goucher College, Baltimore 18, Maryland.

THE REMSEN LECTURE

Dr. Robert Fowler, chairman of the Department of Chemistry of The Johns Hopkins University, will act as chairman of the Maryland Section Committee to select the Remsen Lecturer for 1948. The Remsen Lecture is a Section activity, and Dr. Fowler will be happy to receive suggestions from Maryland chemists recommending men who might be considered for choice as the Remsen Lecturer.

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REPORT OF THE TREASURER

Maryland Section, American Chemical Society
 January 1, 1947 to January 1, 1948

Cash on hand, January 1, 1947		\$ 175.29
Receipts:		
Apportionment of ACS funds	\$ 1,118.00	
Commissions for new members	15.00	
Local Section dues for 1947	338.00	
Local Section dues for 1948	142.00	
Remsen Memorial contributions for 1948	115.00	
Interest on bonds	17.50	
Adjustments	29.94	
	\$ 1,775.41	1,775.41
		\$ 1,950.70
Expenditures:		
Speakers' expenses (travel, hotel, meals, etc.)	561.48	
Printing ("The Chesapeake Chemist" and meeting notices)	499.53	
Postage, telephone, stationery, etc.	301.83	
Secretarial and janitor services	151.50	
Refreshments (after meetings)	93.49	
Miscellaneous (filing equipment, affiliation fee for Engineers Club, meeting of Affiliated Societies, etc.)	96.54	
Bank service charges	3.00	
	\$ 1,707.07	1,707.07
Cash balance on hand, January 1, 1948		\$ 243.63
United States Government bonds		700.00
Total resources (cash and bonds)		\$ 943.63

Respectfully submitted,
 H. H. Lloyd, Treasurer

OPEN MEETINGS OF INTEREST TO MARYLAND CHEMISTS

The American Institute of Chemical Engineers will hold a meeting on wetting agents at 8:15 P.M. on January 22 in Room 110, Maryland Hall, on the Johns Hopkins Campus.

The American Institute of Electrical Engineers will hear an address on "Industrial Electronics" at the Engineers Club on January 20.

The Maryland Association of Medical and Public Health Laboratories will meet on February 18 to discuss "Atomic Medicine".

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from page 4) Montebello Filters
 treatment for corrosion control. The application of lime to the filtered water is controlled by a recording potentiometer, since the reduction of corrosion is a direct function of pH value. For Baltimore water this critical pH is 7.8, therefore this value is maintained continuously. The neutralization of "aggressive" carbon dioxide by alkali checks corrosion by precipitation of a film of calcium carbonate on the internal walls of the pipes. Formation of incrustations which reduce the carrying capacity of pipe lines is eliminated, and corrosion of consumer piping is avoided, with consequent saving in replacement costs. Complaints about rust staining of clothes and bathroom and kitchen fixtures are also avoided. It has been demonstrated in Baltimore over the years that corrective treatment with lime produces a water which has the greatest economic value to the largest number of users.

Due to the stabilization of mineral content by the passage of water through the large Loch Raven and Prettyboy reservoirs, chemical constituents do not vary. The water is a moderately soft type having a hardness of 51 ppm. and an alkalinity of 47 ppm. Complete mineral analyses, based on daily samples, are made each month and show only slight variation. This uniformity has had real value in bringing certain types of industry to Baltimore. Assurance that the water is of uniform composition has been of much practical value for chemical plants and for others who are generating steam.

One of the unique characteristics of the operation of these plants is the manufacture of liquid alum on the premises, thus effecting a considerable saving in operating costs. The alum is produced in ten ton lots from bauxite (200 mesh) mixed with sulfuric acid and allowed to react completely without external heating. Such operations would not be economical for small plants, but there are four or five other large cities which manufacture alum at their filtration plants.

It will be of interest to chemists in the Chesapeake area to learn that the water supplies of the larger towns in the region are purified by the same processes as are used in Baltimore. Annapolis, Hagerstown, Cumberland, Frederick, Westminster and Havre de Grace, like Baltimore, produce and maintain an unfluctuating quality of water that is in every sense a "standard" chemical reagent.

NEXT MEETING January 30 TIME 8:30 P. M.
PLACE Room 101, Remsen Hall, Johns Hopkins, Charles & 34th Sts.
SPEAKER Robert C. Hockett on "Sugar in Industry"
DINNER Johns Hopkins Club, Hopkins Campus, at 6:30
The meeting is open to anyone who may be interested in attending.
Save Friday, February 27th, for the next meeting of the Section.

GETTING ACQUAINTED WITH CHESAPEAKE CHEMISTRY
XIV. Montebello Filters - Baltimore, Maryland

Water as supplied by the average municipal purification plant is a manufactured product produced under chemical and bacteriological supervision, a fact not usually realized by the consumer. Prior to 1915 the water supplied to Baltimore was obtained directly from the Gunpowder River and was used without treatment other than the application of hypochlorite of lime. In 1915 the Montebello Filters were placed in service, and until recent years this plant, with 240 million gallons capacity per day, was the largest "rapid sand" type filter in the world. It has now been surpassed by the Detroit and Chicago systems. The Baltimore filters are now operating at a rate of 200 million gallons per day.

The basic principles of water purification are familiar even to school children. Practice in Baltimore involves coagulation of suspended mud particles by use of ferric or aluminum salts, followed by agglomeration of the colloidal particles into floc. Subsequent sedimentation in basins at reduced flow for not less than three hours removes most of the mud. Passage of the settled water through sand filter beds, two feet in thickness, produces the crystal clear water delivered to the city.

Reduction of bacteria from the river water is directly proportional to the efficiency of removal of suspended material. However, sterilization is accomplished by application of chlorine gas to the raw water. Efficiency of sterilization is controlled by testing for the presence of Coliform bacteria. The presence of these organisms is an indication of extraneous material reaching the water supply rather than of pollution by a specific germ. They are always present in river water and are very rarely found after treatment.

Continued safety of the water in the distribution system is assured since the uncovered balancing reservoirs, used to maintain pressure, are equipped with automatic chlorinating apparatus. A residual concentration of 0.4 ppm. as free chlorine is kept in the effluent water from these reservoirs. As a further safeguard bacterial samples are collected weekly from 51 fire engine stations throughout the city and tested for the presence of Coliform organisms. Water delivered to Baltimore consumers has been consistently maintained at a greater degree of purity than is required by Health Department standards.

Treatment with lime, to remove "aggressive" carbon dioxide and retard cold water corrosion in the distribution system, was begun here in 1922 and has been continuously applied to our filtered water ever since. Baltimore pioneered in this (to page 3