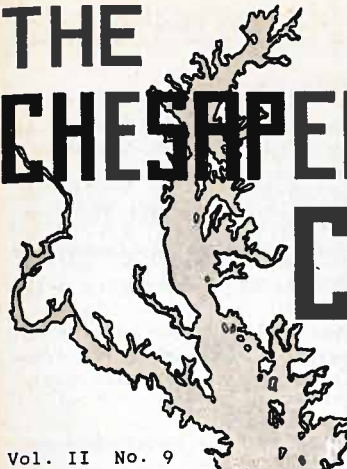


DECEMBER 1946

# THE CHESAPEAKE CHEMIST

PUBLISHED BY THE  
MARYLAND SECTION  
AMERICAN CHEMICAL SOCIETY



Vol. II No. 9

## THE DECEMBER MEETING

The December meeting will be held on Friday evening, December 13th, when it will be our privilege to have as our guest Bradley Dewey, president of the American Chemical Society. President Dewey will talk informally, and has presented no subject for his address. Those who have heard his presidential speeches at ACS meetings, and have seen him preside at meetings of the Council are agreed that he is at his best in such friendly, informal discussion. His good sense and good humor are outstanding, and his remarks at our meeting should be very worthwhile.

Mr. Dewey is a New Englander, by birth (Burlington, Vermont), by training (Harvard, M.I.T.) and by residence (Cambridge, Mass.). In his peacetime pursuits he is president of the Dewey and Almy Chemical Company, which he founded after the first world war. Chemical and Engineering News has said of Mr. Dewey and his company, "The company became one of the leaders in the field of natural and artificial colloidal dispersions. Colonel Dewey's background and experience made him a logical choice as deputy to Rubber Director Jeffers, and when the latter resigned it was natural that he should be succeeded by his right-hand assistant. Colonel Dewey returned to his company September 1, 1944, after stating that the country was producing more synthetic rubbers of high quality than there was manpower to make them into tires, and that the broad powers of the Office of Rubber Director were no longer needed." Mr. Dewey received the Chemical Industry Medal in 1944 in recognition of his technical accomplishments in rubber and colloids and his services in the administration of the synthetic rubber program.

Colonel Dewey's military rank was achieved in World War I, when he served in the Chemical Warfare Service and earned the Distinguished Service Medal. His national service (to page 4

## Section Officers

Chairman Giles B. Cooke, 502 Yarmouth Road, Baltimore 4  
 Secretary-Treasurer C.W. Wilson, 4122 Westview Road, Baltimore 18  
 Vice-chrm. J. A. Herculson Asst. Sec.-Treas. P. K. Leatherman

THE CHESAPEAKE CHEMIST is published each month from September through May by the Maryland Section, American Chemical Society.  
 Editor: Belle Otto, Goucher College, Baltimore 18, Maryland.

## ELECTION OF OFFICERS

The election of Section Officers for the calendar year 1947 will be held at the meeting on December 13. The nominating committee, Dr. Wilton Harden, Chairman, has proposed the following slate.

Chairman: Giles B. Cooke, Research Chemist, The Crown Cork and Seal Company

Vice-Chairman and Chairman of the Program Committee: John A. Herculson, Chairman of the Department of Chemistry, Morgan State College

Secretary-Treasurer: Paul Leatherman, Chief Chemist to the Maryland Racing Commission

Councillors: (Six to be elected)

C. Jelleff Carr, Associate Professor of Pharmacology, University of Maryland Medical School

A. H. Corwin, Chairman of the Department of Chemistry, The Johns Hopkins University

Leslie HELLERMAN, Asst. Professor of Physiological Chemistry, The Johns Hopkins Medical School

Duncan MacRAE, Chief Chemist, Edgewood Arsenal

Belle Otto, Professor of Chemistry, Goucher College

E. E. Reid, Professor Emeritus of Chemistry, The Johns Hopkins University

Members of the Executive Committee: (Six to be elected)

Charles E. Bramble, Assistant Director of the Clinical Laboratories, Mercy Hospital

Sylvan Forman, Research Chemist, U. S. Industrial Chemicals  
 Winslow Hartford, Research Chemist, Mutual Chemical Company of America

F. C. HETTINGER, Plant Manager, U. S. Industrial Chemicals  
 Arnold H. Johnson, Chief Chemist, Sealtest Inc. Research Laboratories

Carl ZAPPE, Consulting Metallurgist

Other candidates may be nominated from the floor. If additional nominations for councillor are made, the nominator should be reasonably sure that his candidate will attend the sessions of the Council when the American Chemical Society meets.

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Dr. Richard C. Lord, Jr., has gone to Massachusetts Institute of Technology as Assistant Professor of Chemistry and Director of the Spectroscopy Laboratory.

## REPORT OF THE SECRETARY FOR 1946

The membership of the Maryland Section remained practically constant during this year, at about 560 members. The official count of members has not yet been received from National headquarters. In addition to the members of the National Society, there are now 17 members of the Local Section only.

Nine meetings were scheduled during the year, and the attendance at all of them was excellent. Two plant inspection trips were held, and it is hoped to continue this plan in the future, since plant trips appear to be of great interest and value to a very large number of members of the Section.

The May meeting deserves especial mention in that it was the occasion of the first Remsen Memorial Award. Dr. Roger Adams, world-renowned chemist and former president of the Society, was the recipient. The arrangements for this meeting, as well as the selection of the chemist to receive the award, were made by the Remsen Award Committee, of which the Chairman was Dr. A. H. Corwin, Chairman of the Department of Chemistry of The Johns Hopkins University.

An innovation in our meeting programs was the Open Forum held in March. At this meeting no outside speaker was provided, but the membership was encouraged to propose and lead discussion on any topic of interest to the chemists of this Section. The meeting was well attended and the idea proved very popular. The discussion covered such topics as Licensing of Chemists, National Meetings, Proposed Amendments to the ACS Constitution and Employment Clearing Houses.

The inspection trip through the Baltimore Refinery of the Standard Oil Company of New Jersey brought out the greatest attendance, there being over 500 members and guests present. The program began at 2:00 in the afternoon at the Refinery and was concluded about 10:00 in the evening with Dr. Frolich's address at the Belvedere Hotel.

Attendance at other meetings averaged about 125.

The following list indicates the program for each meeting held during the year, including the speaker and the subject of his address.

January - John A. Timm (Simmons College), "Problems in Chemical Education"

February - Dean Burk (National Cancer Institute, Bethesda, Maryland), "Biochemical Aspects of Cancer"

March - Open Forum

April - Plant inspection trip. U. S. Industrial Chemicals, Inc., Fairfield Plant

May - Remsen Memorial Lecture. Roger Adams, "Chemical Research in War and Postwar Periods"

September - C. S. Fuller (Director of Research, Bell Telephone Laboratories), "Interpretation of the Properties of Thermoplastics"

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from page 3 - Secretary's Report continued)

October - Plant inspection trip. Standard Oil Company of New Jersey refinery. Address by Dr. Per K. Frolich, "Recent Developments in Hydrocarbon Chemistry"

November - A. E. McAbee (Fabric Development Division, E. I. duPont de Nemours), "Synthetic Fabrics"

December - Col. Bradley Dewey, President of ACS

THE CHESAPEAKE CHEMIST has been continued through this year and has achieved outstanding success in stimulating the interest of members in Local Section activities and in important activities of the National Society. Nine issues have appeared under the able editorship of Dr. Belle Otto. This publication is expected to be continued as a permanent feature of the services of our Section to its members.

Our relations with the National Society continue to be excellent. We have been fortunate on several occasions in having National Officers attend our meetings. The National Society is expanding its efforts to assist local sections in order that the interests and welfare of all chemists may be promoted.

Channing W. Wilson, Secretary

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from page 1) has also included membership in the ACS Advisory Committee to the Chemical Warfare Service, consultant service to the Quartermaster Corps and to OSRD, and Chairmanship of the Committee on Guided Missiles for the Joint Chiefs of Staff. Last summer he was an official observer at the Bikini atom bomb tests.

President Dewey will be our guest at dinner preceding the meeting. Those who wish to attend should notify the Program Chairman, Mr. John Herculson, 407 Murdock Road, Baltimore 12, Evergreen 896, before Monday, December 9th.

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Items of interest in recent issues of the "News Edition":  
ACS Awards: Have you any candidates to propose? If so, make your nominations before January 1 -- pages 2593, 2660, October 10  
Training of graduate students -- page 2620, October 10  
Post-doctoral fellowships, for new Ph. D's. -- page 2821, Nov. 10  
Chemists and politics: The ICCASP, Pro and con -- pages 2758, 2770, October 25  
Professional and economic status: Licensing? -- page 2754, October 25; page 2916, November 10

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Recent additions to the books of the Industry and Science Department, Enoch Pratt Free Library, include:

Gray -- Phosphates and Superphosphates (1946)  
Schneider -- Qualitative Organic Microanalysis (1946)  
Semt -- Introduction to Atomic Physics (Rev. ed., 1946)

## MARYLAND SECTION NEWS

The following chemists have recently joined the Maryland Section. We welcome them to our group and hope that they will plan to participate in all of our local chemical activities.

Allen, Clinton J., Jr.

Amoss, Alice M.

Berzof, Herold

Brunings, Karl

Budnichuk, William D.

Caraway, Wendell T.

Creamer, Robert M.

Escabi, Rodolfo S.

Feinsilver, Leo

Groszos, Stephen J.

Harmon, William M.

Herro, Alex C.

Johnson, Lester E.

Kuehler, Walter W., Lt. Col.

Metcalf, Edward A.

Nicholas, Robert E.

Noble, A. Gregg, Major

Reid, Evans B.

Rush, Cecil A.

Saacke, Charles W.

Schwanke, Edmund H.

Servis, John D.

Smith, Pierre F.

Wilson, George B.

H. Latimer Elderdice, a member of the Department of Chemistry of Western Maryland College, resumed his duties there at the beginning of the current college year, having returned from service with the Armed Forces. Professor Elderdice, as a Captain in the National Guard, was called into active service January, 1941, and was discharged in the spring of 1946 with the rank of Colonel.

The Engineers Club of Baltimore and its affiliated societies (of which the Maryland Section is one) on November 6 sponsored a demonstration lecture on "Radar" by Dr. J. O. Perrine, assistant vice-president of the American Telephone and Telegraph Company. Dr. Perrine spoke to a capacity audience at the Maryland Casualty auditorium, and proved himself a master demonstrator and lecturer. Mr. Tatum, of the Chesapeake and Potomac Telephone Company, who is president of the Engineers Club, said in his introductory remarks that he hoped the Club would sponsor more scientific lectures of this sort in the future. Certainly the Engineers Club is to be encouraged in such an undertaking, for Dr. Perrine's discussion was a most stimulating and worthwhile experience for his listeners. Similar lectures, so ably presented, would be of value to all of us.

W. H. C. Ruedgeberg has been released by the Army and has joined the civilian staff of the Chemical Warfare Technical Command at Edgewood Arsenal. He is serving as Research Chemist, Organic Branch, Chemical Division.

The Baltimore Division of the University of Maryland will continue in the second semester its evening program of graduate work in chemistry. An organization meeting to determine the specific graduate courses to be offered, and registration therefor, will be held on Tuesday, February 4, at 7:00 P.M. in Room 41 of the Pharmacy Building at 32 South Greene Street. Courses will be scheduled to conform to the sequence of subject matter needed by present enrollees in Chemistry and for others as their interests are manifested.

## WARTIME CHEMISTRY IN THE CHESAPEAKE AREA

## VI. Mutual Chemical Company of America

Like many other chemical companies, the Mutual Chemical Company's principal function during the war was that of supplier to the primary producers of war materiel. The importance of this job was recognized during the later years of the war by the assignment to the manufacture of chromium compounds of the highest priorities for both labor and material.

The military applications of these materials were numerous, and the Baltimore research laboratory was busy in providing users with information to aid them in producing articles that would meet the specifications of the War and Navy Departments. This was particularly true in the field of metal finishing, where development work was done on the following problems:

Establishing the fundamental principles governing the chromic acid anodizing of aluminum, and developing simple methods of process control. Anodizing was required at many points in aircraft manufacture.

Development of a method for dyeing chromic acid anodic films, thus providing means for identifying instrument panel fittings without the need of a separate anodic process or painting operation.

Studies on bichromate treatments for zinc, which replaced cadmium and brass in many uses during the war. Without these bichromate treatments, the corrosion of zinc coatings is a serious handicap in many applications.

Service to users of hard chromium plating, used to prevent wear in such widely different fields as production dies, aircraft motors and gun barrels.

Chromic oxide gained prominence during the war because its infra-red reflectance and green color duplicate more closely than other pigments the properties of natural foliage. It therefore found wide use in camouflage. Another chromium pigment, zinc yellow, was specified as a primer on ships and aircraft. Mutual research prior to the war provided processes and information important to the production of these pigments.

A special grade of potassium chromate was produced at Baltimore for use as a corrosion inhibitor in airplane floats and gasoline tanks, and was sold directly on Navy contract.

VII. The CY War Project Laboratory,  
The Johns Hopkins University

Working under contract with the War and Navy Departments on one of the war's most carefully guarded secrets, the scientists, engineers and technicians assembled by Dr. D. H. Andrews in what became known as the CY War Project Laboratory of The Johns Hopkins University, were committed to the development of apparatus that could be used by the Armed Forces "in the field" for the fast detection of weak infra-red signals without (to page 7

from page 6) emitting any detectable ray that would disclose the position of the observer or enable the enemy to "jam" the process, as is the case with radar.

The possibility of achieving this end had been suggested by the pre-war discovery, in Dr. Andrews' physico-chemical research laboratory, that columbium nitride exhibits a sharp transition from ordinary to extraordinary ("super") conductivity as the temperature falls through a narrow range near the triple point of hydrogen (15°K). War project research and development which extended over the years 1942-46 was prosecuted simultaneously along three different lines.

The first of these, cryogenic in character, resulted in the development of two instruments for producing and maintaining the low temperatures required: a portable liquefier of the Ahlberg type that converts ordinary tank hydrogen, after charcoal purification, into liquid hydrogen at the rate of 1.5 liters in 45 minutes; and a portable cryostat in which a liter of liquid hydrogen will maintain temperatures from 14-20°K over a period of 20 hours. The cryostat contains an inner jacket of one liter of liquid nitrogen to reduce heat leak to the liquid hydrogen, and is fitted with electrical leads and a rock-salt window especially designed for optical studies of superconductors.

The second line of research, involving chemical, electrical and optical studies, resulted in the development of a superconducting bolometer for the fast detection of infra-red rays, such as those emitted by bodies or objects that are slightly warmer than their surroundings. The sensitive element in the bolometer is a ribbon of pure columbium nitride, which, when maintained in precisely thermostatted surroundings at a temperature near the triple point of hydrogen, and when made a part of suitable compensating electrical circuits, is capable of responding to infra-red rays that warm it only one one-millionth of a degree. The response may be amplified, as in a radio, and thus be made to produce an audible sound through a loud speaker or a visible diagram of the warm object on the screen of a cathode ray oscilloscope.

The third line of research, which has not yet been completed, was directed toward the development of a cryodyne, a device for producing and maintaining low temperatures without the consumption of nitrogen and hydrogen, thus eliminating the need of bulky gas cylinders, and permitting more extensive range without replenishment.

Unfortunately, the two lines of research and development that were completed did not advance quickly enough to have actual wartime use. Nevertheless, the scientific progress accomplished was sufficiently notable, once the veil of wartime secrecy was lifted, to bring to Dr. Andrews numerous requests for papers and lectures, both in this country and abroad. Possible applications of a practical nature include the detection of heat losses from buildings, medical diagnosis and the development of television equipment.



Bradley Dewey

NEXT MEETING December 13 TIME 8:30 P. M.  
SPEAKER ACS President Bradley Dewey  
BUSINESS Election of Maryland Section Officers  
PLACE Room 1, Remsen Hall, Johns Hopkins  
Charles & 34th Streets  
Note the change in meeting room

## BRING ANOTHER CHEMIST

This is the only notice of this meeting which you will receive.

## CHEMICAL LIBRARIES IN BALTIMORE. III

Elsa von Hohenhoff, Head  
Industry and Science Department, Enoch Pratt Free Library  
(These notes are continued from the May and November 1946 issues)

The Davison Chemical Corporation does not at present have an organized library functioning as such, although they are rendering service that may be so classified. A small collection has been catalogued for one of the chemical laboratories, and this work will be continued until all material scattered throughout the organization has been indexed. There are over 700 volumes of technical books, pamphlets, government reports and special studies, and 100 current subscriptions to chemical, engineering and general trade journals. These are circulated throughout the company and a few are bound for future reference. When resources are coordinated into a central library, as is planned, the collection will cover all phases of agricultural studies, soil conservation, modern techniques of packaging and other special topics of interest to sales, marketing, engineering and technical research departments. At present, it would be difficult to make very much of this material available to outsiders. 20 Hopkins Place.

Hynson, Westcott & Dunning's library consists of a small group of reference works on chemistry as related to medicine, and on pharmacology and bacteriology. It includes the complete sets of Beilstein, Organic Syntheses and Chemical Abstracts, many A.C.S. monographs and the Quarterly Cumulative Index Medicus. Journals received regularly are those of the A.C.S., all American bacteriological titles, the usual medical ones and trade papers on drugs and chemicals. Journals are given to the medical libraries when no longer needed by the company. The library serves the chemical, bacteriological and pharmacological laboratories, and the staffs of these departments supervise the library and add new volumes as they seem significant. Charles and Chase Streets.

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Through error, the September issue of THE CHESAPEAKE CHEMIST credited the recording of Dr. Adams' Remsen Lecture to the Edison Corporation. The name of the company is Thomas A. Edison, Inc., and the transcription was made by the Edison Voice Writer.