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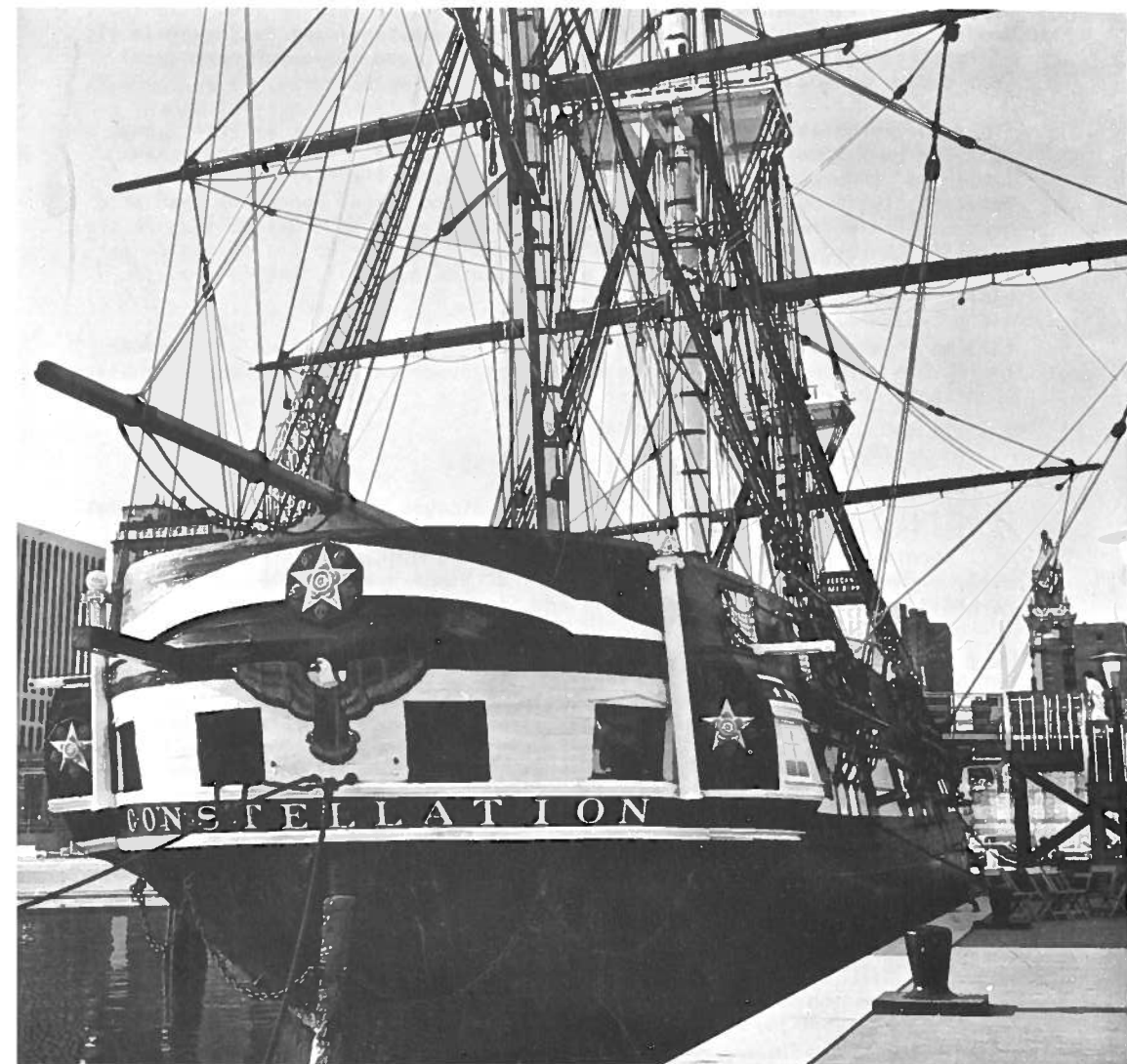
CHESAPEAKE CHEMIST

MARYLAND SECTION
AMERICAN CHEMICAL SOCIETY

VOL. XXXVIII

MARCH, 1882

NUMBER 3



Volume 1, Number 1 appeared as *The Chesapeake* -?- in May of 1945. A Publication Committee of four members was named. It was a four-page 8.5" x 5.5" newsletter. As Section Chairman W. F. Reindollar put it, "The recent growth in membership ... requires the adoption of suitable measures for implementing a satisfactory relationship among the individual members." The present name was soon adopted, and Belle Otto was named Editor in December of 1945.

In 1956, with Giles Cooke as Editor, the style changed to the 9" x 6" glossy booklet, headed by the whimsical map of the Chesapeake Bay, which we still use today. A succession of Editors, responding to changing demands, have, of course, contributed numerous changes in format and content. Color was used frequently, beginning in late 1958, a practice which was phased out in 1974 as an economy measure.

PURPOSES

The Chesapeake Chemist is the primary vehicle for communicating news of Section activities to the membership. Some communication is formal in nature: election ballots, Executive Committee actions, Councilors' reports, identities of Section officers. Other information is less formal but no less essential: meeting information, short course announcements, awards, special events. All of these things must be passed on to our members, and a regular periodical publication is the most efficient way to meet the requirement.

After the essentials have been cared for, there is sometimes a little space left for news items or perhaps even a feature article. In years past news items and feature articles were common: a series by Tim Parr on local industries stands out. But in recent, more austere times, space has been at a premium. Sometimes we even omit the cover photograph in order to squeeze the necessities into eight pages, but a few times each year we are forced to expand to twelve pages (9, 10 and 11 are forbidden numbers), and on those occasions a feature article would be welcome.

This month the Editor has claimed the extra space, but articles and commentaries are welcome from all members, and the Editor will be pleased to publish such contributions at the earliest possible date.

ADVERTISING

In 1961 *The Chesapeake Chemist* published 81.8 pages of ads in 168 total pages. In 1980 this had been reduced to 23.35 in 88 pages and in 1981 only 16.25 in 80. Regular or frequent advertisers in 1961 included A. H. Thomas, Beckman, Will, Fisher, Corning, Owens-Illinois, U. S. Stoneware, Harshaw, J. T. Baker, Perkin-Elmer, Sargent, Eastman Kodak and Standard Scientific Supply.

Most of these advertisers (and their corporate successors) no longer appear in our pages. This is primarily a result of the fact that companies tend now to place ads through large national advertising agencies, not through their local or regional sales offices, and the agencies don't bother much with small local publications, unless a regional sales agent can get a message through his corporate headquarters to the ad agency that it would be desirable to advertise occasionally in a local section publication.

In more recent years we have run frequent ads from Macalester Bicknell, Lancaster Laboratories, Anderson Laboratories and Towson State University. We still hear from Fisher and Beckman occasionally (perhaps we can thank Lou Sacchetti of Fisher and Bob Schneider of Beckman, both active members of the Maryland Section, for some special efforts), but since April of 1975 our most faithful advertisers have been Micron, Inc. of Wilmington, Delaware and Galbraith Laboratories of Knoxville, Tennessee.

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THE CHESAPEAKE CHEMIST STAFF

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Nolan Phillips.....Treasurer
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385-0159

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848-7000 ext 493 or 876-2055

David Roswell.....Loyola College
323-1010 ext 235

Charles Rowell....U. S. Naval Academy
267-2808

COMMITTEE CHAIRPEOPLE - 1982

Awards.....Ernest Silversmith
Morgan State University
Baltimore, MD 21239
444-3216

Chemical Education...Sr. Mary Vincent
The College of Notre Dame of MD
435-0100

Program.....Merle I. Eiss

Archives.....Ernest Silversmith

House.....Cheryl Manger

Member Assistance....Joseph Cogliano
W. R. Grace & Co.
531-5711

Public Relations.....John I. Stevens
15 Ridge Road
Severna Park, MD 21146
647-4023

Membership.....Maria Kristine Kirk
4000 Mayberry Avenue
Baltimore, MD 21206
435-0100

Publicity.....Donald Jones
Western Maryland College

Student Awards.....Donald Hoster
Community College of Baltimore
396-7991

Remsen Award.....Dean Robinson
The Johns Hopkins University
338-7430

Finance.....Alvin Bober
655-5254

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Cheryl Manger William Zeiger
John Roach

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Linda Sweeting Timothy J. McNeese
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The Chesapeake Chemist is published monthly September through May by the Maryland Section of the American Chemical Society. Address editorial comments to the Editor. Send advertising copy and inquiries to the Business Manager. The Maryland Section is not responsible for opinions expressed herein. Editorials express the opinions only of their authors. The Editor is responsible

Doris Warren is Professor in Chemistry at Houston Baptist University. She received B.S. and M.S. degrees from Baylor University and a Ph.D. in chemistry (analytical) from the University of Houston. She has served as a summer Faculty Research Associate at the Universities of Colorado and Georgia as well as at NASA-JSC.

Dr. Warren has been National Editor of Iota Sigma Pi since 1975 and has served as Chairman of the Society for Applied Spectroscopy. She is also a member of Alpha Chi Sigma, the American Institute of Chemists and ACS, in which she has been a Director and Newsletter Editor for the Southeast Texas Section.

BLOOD SELENIUM LEVELS AND GLUTATHIONE-PEROXIDASE ACTIVITIES AS MEASURES OF HUMAN SELENIUM STATUS

Selenium has been known to be an essential element for humans since the 1950's. In 1980 the National Research Council recommended an "adequate and safe range" for selenium intake of 50 to 200 $\mu\text{g Se/day}$. Since the differences between a therapeutic and toxic level is small, the selenium status in a healthy population must be carefully determined prior to any routine selenium supplementation of humans. Many symptoms, which occur with selenium deficiency in various species of animals, and the elusive role of selenium's relationship to vitamin E deficiency can now be explained in part by the discovery that selenium is essential for glutathione-peroxidase activity in animals and humans. Today the most accepted function of glutathione-peroxidase is to detoxify peroxides.

We wish to report results of experiments designed to evaluate the selenium status in a healthy human population. The population evaluated in this study include college age, middle age, elderly, industrial, smoking and non-smoking subjects. The selenium levels in erythrocytes and plasma were compared to glutathione-peroxidase activity in erythrocytes for all populations.

Although no clear selenium deficiency has been determined, three clinical selenium responsive pathological conditions have been described. Among these, Keshan disease, a congestive cardiomyopathy in Chinese children, was prevented and treated with selenium supplementation. Continued evaluation of dietary selenium intake is necessary to determine if there are relationships between pathological conditions and dietary selenium. We have calculated the dietary intake of selenium for the elderly population and compared these values to the blood selenium measures. In addition, the selenium content of sixty-two foods, with selenium levels not previously determined, were quantitated in our laboratories.

MICROANALYSES

Analysis for all elements
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MARCH MEETING

DATE:

Wednesday, March 17, 1982

PLACE:

Knott Science Center
The College of Notre Dame
of Maryland
North Charles Street
Baltimore

SPEAKERS AND TOPICS:

5:45 pm
Doris Warren
Houston Baptist University
"Blood Selenium Levels and Glutathione-Peroxidase Activities as Measures of Human Selenium Status"

8:30 pm
Yale Caplan
Medical Examiner's Office
"Drugs, Chemicals and Death"



DR. YALE CAPLAN

COCKTAILS AND DINNER:

Doyle Building Dining Room

Social Hour 6:45 - 7:30 pm

Hot buffet dinner (7:30) \$9.00 per person, except retired chemists and students may attend for \$7.00

Dinner reservations are necessary and should be made by mailing checks to

Merle Eiss
McCormick & Co., Inc.
Hunt Valley, MD 21031

by March 10. Checks should be payable to Maryland Section of ACS. Late reservations may be made by calling

667-7485

before March 12.

It is not necessary to be a member of the American Chemical Society to attend. You may attend the lectures without attending the dinner.

When did YOU
last attend a Maryland Section meeting?

Yale H. Caplan was born in Baltimore, and attended the University of Maryland at Baltimore, receiving the B.S. degree in Pharmacy (1963) and the Ph.D. degree in Medicinal Chemistry (1968). He subsequently spent a year as Research Associate and Supervisor of the Department of Research Oncology and Cell Biology at Sinai Hospital studying the toxicologic aspects of new cancer chemotherapeutic agents. In 1969, he joined the Office of the Chief Medical Examiner for the State of Maryland as Assistant Toxicologist and in 1974 was promoted to Chief Toxicologist.

He is Director of Toxicology for Maryland Medical Laboratories, Inc. and serves as Scientific Director for the Maryland State Alcohol Testing Program for Drunk Driving. He holds the position of Clinical Associate Professor and Director of Forensic Toxicology with the University of Maryland Department of Pathology and Lecturer at the Johns Hopkins University School of Hygiene and Public Health, Division of Forensic Pathology. He has served as a consultant for the Johns Hopkins University Applied Physics Laboratory, the Allied Chemical Company and the University of Utah Center for Human Toxicology.

Dr. Caplan has been active in many professional organizations, having served as Chairman of the Maryland Section of the ACS and Business Manager for *The Chesapeake Chemist*. He is a Life Fellow of the American Institute of Chemists and a Fellow of the American Academy of Forensic Sciences, having served as Chairman, Secretary and Fellow-at-Large for the Toxicology Section. He is a member of the Society of Forensic Toxicologists and has served as its President, Vice-President and Secretary. He is also a member of the International Association of Forensic Toxicologists, the Mid-Atlantic Association of Forensic Scientists and the American Association for Clinical Chemistry. He is on the Editorial Advisory Board for the Journal of Analytical Toxicology.

Dr. Caplan is a Diplomate of the American Board of Forensic Toxicology, a Certified Professional Chemist and a Registered Pharmacist (Maryland). He has authored over 40 abstracts and publications as well as several chapters on various aspects of toxicology including alcohol, carbon monoxide and drug testing.

DRUGS, CHEMICALS AND DEATH

In today's modern society, many drugs have become available through both prescription and illicit sources while people are regularly exposed to commercial and environmental chemicals. In addition, the impact of the use of alcohol on our everyday lives continues to be paramount. These substances may cause toxicity or death directly by accidental or suicidal means or they may indirectly be involved in trauma leading to injury or death. In order to assess the role these substances play in a given situation, the analytical toxicologist performs qualitative and quantitative tests using biological fluids and must interpret the significance of his findings. Chemical and other scientific principles will demonstrate the approach to toxicologic analysis used to produce forensically significant findings and case histories from the Office of the Chief Medical Examiner will illustrate problems associated with alcohol, such drugs as barbiturates, narcotics, phencyclidine, propoxyphene and the tricyclic antidepressants and such chemicals as carbon monoxide, cyanide and trichloroethane.

COVER PHOTO

Not from 1957, our cover photo this month is a reprint from the March, 1975 cover. Photo by Fred L. Appel.

We have already suggested that these are austere times for *The Chesapeake Chemist*, and we have described the large decline in advertising over the past twenty years. Advertising revenues in 1980 were \$1778.65, while revenues in 1961 were \$4332.02; interestingly, total production and mailing costs were \$4150.19 in 1961, but in 1980 the total was only \$4103.84. Our average charge per page for advertising increased 44% over this period.

Given the enormous inflation over the past twenty years, it is evident that the Editors and Business Managers have proven very resourceful in holding costs to a minimum. It still means, however, that the Section must now subsidize a publication which was once self supporting, and this trend is not likely to be reversed in the near future.

TWENTY-FIVE YEARS AGO

The Chesapeake Chemist of March, 1957 announced a symposium, co-sponsored by the Glenn L. Martin Company and the Office of Naval Research at the Johns Hopkins University, on "Radiation Effects on Materials".

The speaker at the Section's March meeting in 1957, at the U.S. Army Chemical Center, was Dr. Roger J. Williams, then President of the ACS.

AAAS ELECTS HARRISON

Professor Emeritus Anna J. Harrison of Mt. Holyoke College has become President-elect of the American Association for the Advancement of Science. Harrison, who received A.B., B.S.Ed., M.A. and Ph.D. degrees from the University of Missouri and honorary degrees from several institutions, has been associated with the chemistry department of Mt. Holyoke since 1945, and was Chairman from 1960-1966. She has served in a number of positions with organizations such as the National Science Foundation, National Research Council, Phi Beta Kappa and AAAS, and has held several academic visiting appointments, including Distinguished Visiting Professor at the U.S. Naval Academy in 1980.

She has long been active in ACS affairs, having served as Chairman of the Board of Publications of the *Journal of Chemical Education*, 1964-1965, Chairman of the Division of Chemical Education, 1971, member of the Editorial Board of *Chemical and Engineering News*, 1976-1978, member of the Board of Directors, 1976-1979, Councilor from 1964-1969 and 1973 to the present, and ACS President in 1978.

Dr. Harrison was a speaker at the Maryland Section's September, 1976 meeting, and she also attended the September, 1980 meeting of the Section.

DIVISION OF THE HISTORY OF CHEMISTRY

Dr. Robert H. Goldsmith, Professor of Chemistry at St. Mary's College of Maryland, is the new Membership Chairman of the Division of the History of Chemistry. Dr. Goldsmith informs us that the Division is conducting an aggressive campaign to increase its membership.

The Division of the History of Chemistry is concerned with all aspects of the history of chemistry and is working to preserve and to increase our knowledge of the historical basis of chemistry by means of a variety of projects, programs and publications.

Annual dues are \$3.00 for ACS members and non-member affiliates. Membership information may be obtained from Dr. Robert H. Goldsmith, St. Mary's College of Maryland, St. Mary's City, MD 20686.

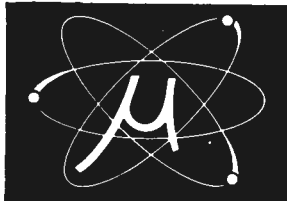
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- ☐ **Electron Spectroscopy for Chemical Analysis**
Analysis of thin (25-50Å) surface films
- ☐ **Optical Emission Spectroscopy**
Semi quantitative and quantitative analysis of trace elements
- ☐ **X-Ray and Electron Diffraction**
Identification of crystalline compounds
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- ☐ **Micro-Hardness Testing (KNH & DPH)**
- ☐ **Differential Scanning Calorimetry**
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For solutions to big problems think small

For Further Information Contact

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302-998-1184.