



THE

# CHESAPEAKE CHEMIST

MARYLAND SECTION  
AMERICAN CHEMICAL SOCIETY

VOL. XL

SEPTEMBER, 1984

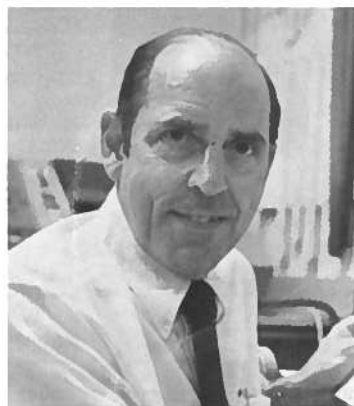
NUMBER 9



FOIL A. MILLER



CARMEN J. PEREIRA



DAVID H. FREEMAN

WELCOME BACK

A new season of lecture meetings begins this month under the direction of program chairman Harold Klapper. Harold's program features more talks of a general-interest nature than has been the case in recent years. The program, almost complete, is printed elsewhere in this issue.

The September meeting, at the W. R. Grace Research Center, features three speakers, and marks the return of Professor Foil Miller on the fifth anniversary of his "Great Mistakes in Science" lecture at the Maryland Science Center.

#### FACSS ANNUAL MEETING

The eleventh annual meeting of the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) will be held September 16-21, 1984 at the Philadelphia Marriott Hotel in Philadelphia.

The sponsoring organizations for the meeting are: the Society for Applied Spectroscopy; the Analysis Instrumentation Division of the Instrument Society of America; the Association of Analytical Chemists, Inc. (Anachem); the ACS Division of Analytical Chemistry; and the Chromatography Forum of the Delaware Valley.

The meeting will feature about forty symposia with 350 papers covering all areas of analytical chemistry. Further information can be obtained from Publicity Chairman Richard J. Knauer, Armco, Inc., PO Box 1697, Baltimore, Maryland 21203.

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David H. Freeman received his bachelor's training at the University of Rochester, followed by an MS at Carnegie-Mellon. Doctoral and post-doctoral studies of ion exchange physical chemistry were carried out at MIT. He taught at Washington State University. He came to the National Bureau of Standards in 1965 as Chief of the Separation and Purification Section. He is presently professor of chemistry at the University of Maryland at College Park, and is a member of the faculty at Chesapeake Biological Laboratory at Solomons, Maryland. He is a short course lecturer on liquid chromatography for the American Chemical Society. He is a past-president of the Chemical Society of Washington, past editor of the *Capital Chemist*, and a member of the editorial board of the Journal of Liquid Chromatography. His research interests are in structure-property relationships of sorptive materials, and in the systematics of applying trace organic analytical chemistry to problems in geochemistry and in the environment. His hobby is Chesapeake Bay and ocean sailing.

ORGANIC INDICATORS IN ESTUARINE SEDIMENT AND SEDIMENTARY  
ROCK...GIVING CLUES ON HOW TO CLEAN-UP CHESAPEAKE BAY,  
DISCOVER OIL, AND LAND A HIGH PAYING JOB

Non-chemical problems often have chemical answers. Measurements of organic indicator compounds provide the two examples that will be discussed: chemical evidence for population pressures that contribute to the potential demise of our local estuary, and biomarkers that assist the search for new energy sources. Both types of study are supported by the advancing frontier in trace organic analytical chemistry.

Modern chemical analysis impinges on many areas such as ecology, energy, law, and economics. The expanding scope has brought new ways to achieve ultra-selective chemical analysis, an improved basis for accuracy in trace analytical measurement, and an improved sense of discipline at the chemistry/non-chemistry interface. Those trained in these areas are growing in number, although the demands are rising even faster in rapidly growing areas, such as biotechnology.

CARMO JOSEPH PEREIRA

Carmo Joseph Pereira received a B.Tech degree from the Indian Institute of Technology, Bombay, and a Ph.D. in Chemical Engineering from the University of Notre Dame, Indiana. He then joined Mobil Research and Development Corporation in Paulsboro, New Jersey, and worked in the areas of fluid catalytic cracking and catalytic dewaxing. He is currently a Senior Research Engineer at the Research Division of W. R. Grace and Co. in Columbia, Maryland, and is involved with hydroprocessing catalyst research and development. He has recently received an M.B.A. from Drexel University, Philadelphia.

DIFFUSION AND REACTION OF CHLORIDE IONS IN  
POROUS CONCRETE

The chloride-induced corrosion of steel reinforcing bars in concrete represents a problem of major economic significance.

Reaction engineering techniques have been applied to describe the diffusion and reaction of chloride ions in porous concrete. All model parameters were extracted from appropriately designed experiments, and excellent agreement was found between model predictions and experimentally determined chloride penetration patterns.

The utility of the model is illustrated by simulating a variety of complex, dynamic salting scenarios, with interesting implications to the practitioner.

# SEPTEMBER MEETING

DATE AND PLACE

September 19, 1984  
W. R. Grace Research Center  
Rte. 32 west of rte. 29  
Clarksville, Maryland

COCKTAILS AND DINNER:

Cocktails 6:30  
Sponsored by W. R. Grace  
Dinner 7:00

Dinner price \$10.00 per person, but retired chemists, students and wives may attend the dinner for \$8.00.

SPEAKERS AND TOPICS:

5:30 David H. Freeman  
University of Maryland  
'Organic Indicators in  
Estuarine Sediment and  
Sedimentary Rock ....  
Giving Clues on How to  
Clean Up Chesapeake Bay,  
Discover Oil, and Land  
a High Paying Job'

Dinner reservations should be made by mailing checks, payable to Maryland Section of ACS, to

John Corliss  
P.O. Box 20899  
Baltimore, MD 21209

Carmo J. Pereira  
W. R. Grace & Co.  
'Diffusion and Reaction  
of Chloride Ions in  
Porous Concrete'

by September 10. Late reservations may be made by calling John Corliss at (301) 235-6612 or Nolan Phillips at (301) 385-0159 by September 14.

8:00 Foil A. Miller  
University of Pittsburgh  
'After-dinner Stories  
of Science'

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

When did YOU last attend  
a Maryland Section meeting?

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1984-1985 MARYLAND SECTION PROGRAM

DATE AND LOCATION	SPEAKER	TOPIC
September 19, 1984 W. R. Grace Research Center	David H. Freeman U. of Maryland	Organic Indicators in Estuarine Sediment and Sedimentary Rock
	Carmo J. Pereira W. R. Grace & Co.	Diffusion and Reaction of Chloride Ions in Porous Concrete
	Foil A. Miller U. of Pittsburgh	After-dinner Stories of Science
October 17, 1984 College of Notre Dame	Samuel Gerber Retired	Sherlock Holmes the Chemist
	Ned D. Heindel Lehigh U.	Folk Medicine in the Nine- teenth Century
November 14, 1984 Edgewood	David W. Young	Antonio Stradivari - the Artist and the Chemist
December 12, 1984 College of Notre Dame	Maryland Chemist of the Year	
January, 1985	Tentative - Planetarium In Landover, MD	
February 20, 1985 College of Notre Dame	Vince Guercio	Independent Consulting
	Additional Speaker	
March 20, 1985 College of Notre Dame	Dr. Conkling Washington College	The Chemistry of Fireworks
	Additional Speaker	
April 17, 1985 U.S. Naval Academy	Joseph and Celia Bona- ventura Duke U. Marine Lab	Hemosponge
May 1985	Remsen Award	

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FOIL A. MILLER

Dr. Foil A. Miller is University Professor of Chemistry Emeritus and Director of the Spectroscopy Laboratory Emeritus at the University of Pittsburgh. He was raised in Wisconsin, did his undergraduate work at Hamline University in St. Paul, and earned his Ph.D. at Johns Hopkins. The next six years were spent in research and teaching at the Universities of Minnesota and Illinois. He joined the staff of Mellon Institute in 1948 as head of the Spectroscopy Division, and in 1967 he assumed his present post at the University of Pittsburgh.

His research, which has been primarily in infrared and Raman spectroscopy, has been described in about 100 publications. He has been an editor of *Spectrochimica Acta* and Secretary of the IUPAC Commission on Molecular Spectroscopy. In 1957 he held a Guggenheim Fellowship for study in Zurich. He was a Visiting Professor in Sendai, Japan in 1977, and in Araraquara, Brazil in 1980. Since 1950 he has helped present the annual summer courses on infrared spectroscopy that are now given at Bowdoin College. He has received the 1964 Pittsburgh Spectroscopy Award and the 1973 Hasler Award of the Society for Applied Spectroscopy.

### AFTER-DINNER STORIES OF SCIENCE

This will be a light-hearted, and hopefully entertaining, account of some true episodes in the modern history of chemistry and physics. It is intended to be a popular, non-technical talk for a mixed audience of both scientists and non-scientists.

The talk will begin with three stories concerning Nobel Prizes. The first involves Franck, von Laue, and Bohr. The second concerns Dorothy Hodgkin, and the third Gerhard Herzberg. They will be followed by three more stories concerning lucky accidents: the discovery of the crystallinity of stretched rubber, the confirmation of the wave nature of electrons, and Randall's large mirror. After several other topics, the talk will close with an account of two unpublished but exceptionally interesting episodes.

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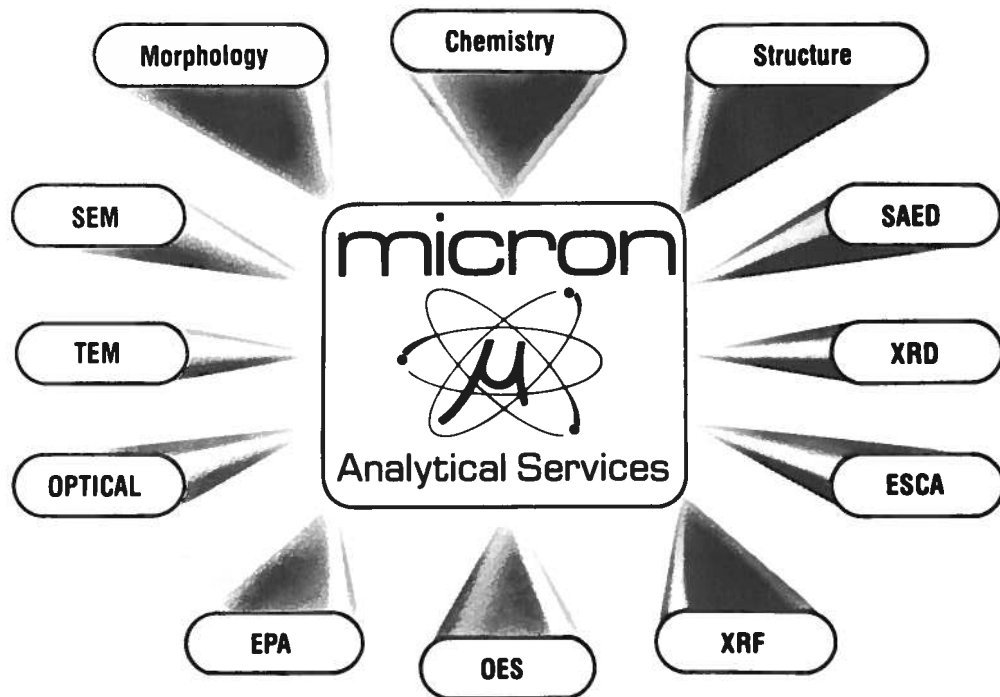
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