



THE

# CHESAPEAKE CHEMIST

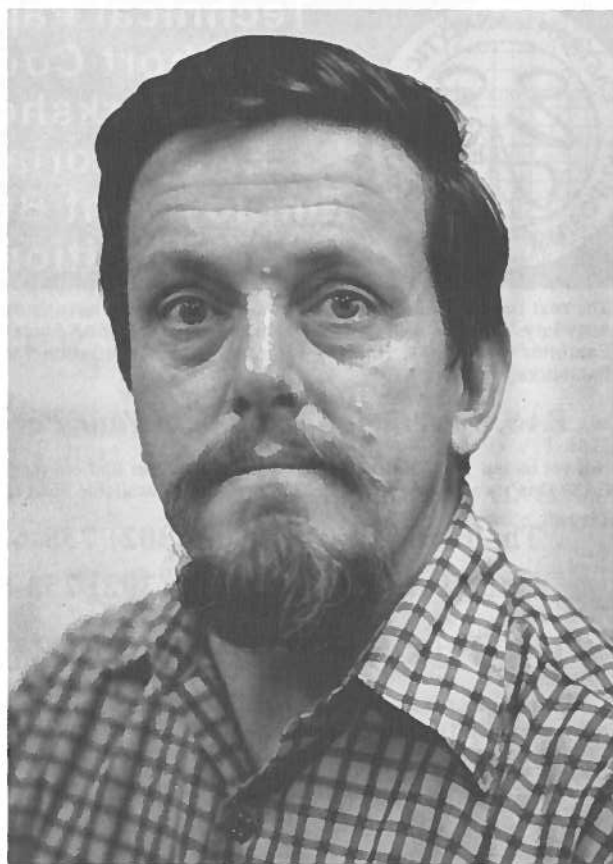
MARYLAND SECTION  
AMERICAN CHEMICAL SOCIETY

VOL. LI

MAY, 1995

NUMBER 5

## 1995 REMSEN AWARD



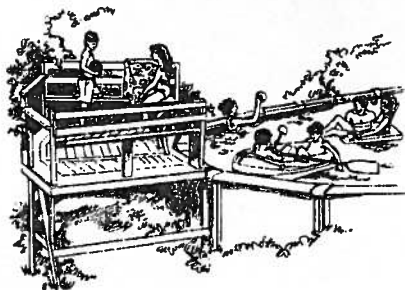
**ALFRED G. REDFIELD**

Garden  
State  
Convention  
Center

34<sup>th</sup> Annual Eastern Analytical Symposium  
Somerset, New Jersey - November 12 - 17, 1995

While you are  
enjoying summer,

We are already  
working on the  
1995 EAS!



The 70 women and men who comprise the volunteer organization behind EAS are enjoying summer with their families, and we hope that you are also. We are *also* working to prepare the best Eastern Analytical Symposium ever! We hope that you are planning to return with us to the Garden State Convention Center and the Radisson Somerset Hotel in November 1995 as we grow beyond the 1994 tally of 270 Exhibit booths, over 4600 conferees, and 450 technical papers.



Technical Papers  
EAS Short Courses  
EAS Workshops  
EAS Tutorials  
Employment Bureau  
Exposition

The next issue of *The EAS Retort* newsletter will reach those on our mailing list in early July. There you will find 65 Technical Sessions, 25 EAS Short Courses, 35 EAS Exhibitor Workshops, Housing information, a Registration form, a listing of Exhibitors, and more.

***EAS: Practical Solutions to Your Problems!***

Not yet on our mailing list? You simply can't wait to find out more about the 1995 EAS? Don't worry, be happy! More information is available now! Simply contact:

The EAS HOTLINE at (302) 738-6218,  
or the EAS FAXLINE at (302) 738-5275.

**EAS *is* SIMPLY THE BEST!**

Are you interested in being an Exhibitor at EAS? There are still a few booths available, but the time to act is now! Don't wait until it is too late! Simply contact: Bob Baudoux at (412) 372-8965 or by FAX at (412) 372-6748.



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## THE REMSEN AWARD

The annual Remsen Memorial Lectures were inaugurated in May, 1946 by the Maryland Section of the ACS to honor Ira Remsen, first Professor of Chemistry and second President of the Johns Hopkins University. The Remsen Memorial Lecturers are chemists of outstanding achievement, in keeping with Ira Remsen's long and devoted career as an exponent of the highest standards in teaching and research in chemistry.

### PREVIOUS REMSEN AWARD WINNERS

1994 Edward I. Solomon	1969 Albert L. Lehninger
1993 Christopher T. Walsh	1968 Har G. Khorana
1992 William Klemperer	1967 Marshall W. Nirenberg
1991 Rudolph A. Marcus	1966 Paul H. Emmett
1990 Robert G. Bergman	1965 James R. Arnold
1989 K. Barry Sharpless	1964 Paul D. Bartlett
1988 Mildred Cohn	1963 Harold C. Urey
1987 Stephen J. Lippard	1962 George Porter
1986 Gilbert Stork	1961 Herbert C. Brown
1985 Richard N. Zare	1960 Henry Eyring
1984 Earl L. Muetterties	1959 Edward Teller
1983 George M. Whitesides	1958 Robert B. Woodward
1982 Harden McConnell	1957 Melvin Calvin
1981 Koji Nakanishi	1956 Farrington Daniels
1980 Roald Hoffman	1955 Willard F. Libby
1979 Harry B. Gray	1954 Vincent du Vigneaud
1978 John Charles Polanyi	1953 Edward L. Tatum
1977 Ronald Breslow	1952 W. Mansfield Clark
1976 William N. Lipsomb, Jr.	1951 Hugh S. Taylor
1975 Henry Taube	1950 Edward C. Kendall
1974 Elias J. Corey	1949 Joel H. Hildebrand
1973 Frank H. Westheimer	1948 Elmer V. McCollum
1972 Charles H. Townes	1947 Samuel C. Lind
1971 George C. Pimentel	1946 Roger Adams
1970 George S. Hammond	

### REMSSEN AWARD NOMINATIONS

Please send nominations for the Remsen Award to one of the following members of the Remsen Award Selection Committee. The nomination should be accompanied by a curriculum vitae and publication list of the nominee, as well as any other information that will help the Selection Committee.

### REMSSEN AWARD SELECTION COMMITTEE

Timothy J. McNeese, Chairman Department of Chemistry Loyola College 4501 North Charles Street Baltimore, MD 21210 (410) 617-2237	David E. Draper Department of Chemistry Johns Hopkins University Charles and 34th Streets Baltimore, MD 21218 (410) 516-7432
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### PICNIC

A summer picnic is again being planned this year, but details have not yet been finalized. We think you can count on it being held at the Belmont Conference Center in Elkridge and to be joint with the Chemical Society of Washington. In recent past years it has been held on a Sunday in late July or early August.

## THE 50th REMSEN AWARD

### DATE:

Wednesday, May 17, 1995

### PLACE:

Remsen Hall, Room 101  
Homewood Campus of The  
Johns Hopkins University

### SPEAKER AND TOPIC:

8:00 pm  
THE REMSEN MEMORIAL LECTURE  
Alfred G. Redfield  
Brandeis University  
"Looking at Individual Atoms  
in Big Molecules: NMR of  
Biopolymers"

Dinner price is \$16.00 per person,  
but spouses and retired chemists  
may attend for \$14.00; students  
may attend for \$8.00.

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

### COCKTAILS AND DINNER:

The Johns Hopkins University  
Glass Pavilion

Social Hour 6:00 pm

Dinner 7:00 pm

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

Dr. Shirish Shah  
College of Notre Dame  
4701 North Charles Street  
Baltimore, MD 21210

by May 10. Late reservations may  
be made by calling

(410) 532-5712

by May 12. An answering machine  
is available at this number.



### IR SAMPLING WORKSHOP

Mr. BRIAN BREWER conducted a workshop on infrared sampling devices for students and members prior to our March meeting at Goucher College. Our thanks to Mr. Brewer and also to ATI Instruments for their assistance and for the equipment used in conducting this workshop.

### E-MAIL ADDRESSES

Members who wish to have their E-mail addresses registered with the Section should contact Diane Schmidt at the address given below. We may find this system useful for notification about events and Society matters. For the initial contact, please use the following scheme: line 1 - E-mail address; line 2 - name; and line 3 - any other note.

Contact: DM1@VM.CFSAN.FDA.GOV on Internet or DM1@BFD on Bitnet.

## ALFRED G. REDFIELD

Alfred Redfield's Ph.D. research at Illinois, with R.J. Maurer, was on the photoconductive Hall effect in alkali halides doped with color centers, and in naturally doped diamond. For his postdoc with N. Bloembergen he accidentally discovered quenching of transverse nuclear spin relaxation in rigid solids by radio frequency fields, and worked out its explanation in terms of spin temperature in the rotating frame. As a by-product he developed a version of general nuclear spin relaxation formalism in the weak perturbation limit. He then moved to the IBM Watson Lab at Columbia University, where his group studied a variety of problems, many involving field-cycling NMR in normal and superconducting metals. These included relaxation studies done to 0.2 K in aluminum, which helped confirm the BCS theory of superconductivity; and detailed study of vortexes in type II superconductors. His students and postdocs also performed studies of diffusion at high temperature in alkali halides, magnetic susceptibility of proteins, and they first observed the Doppler-shifted cyclotron resonance in Bi. In 1969 he started work on protein NMR, building his own spectrometer for the purpose before commercial instruments were available. This spectrometer demonstrated many tricks in FT NMR that are now taken for granted, such as selective pulses, and NOE and study of chemical exchange in proteins. At Brandeis he has continued this work, starting with hemoglobin and transfer RNA, and continuing with the proteins which will be the main topic of his talk.

### LOOKING AT INDIVIDUAL ATOMS IN BIG MOLECULES: NMR OF BIOPOLYMERS

The study of biological macromolecules has developed by leaps and bounds over the past thirty years. When I started work in this field, a few pioneers had shown that unique information about limited aspects of these molecules could be obtained. Now the results of NMR structural studies above supplement those of X-ray crystallography, at least for smaller biopolymers. And, of course, NMR can give unique information about electronic structure and dynamics. I will describe aspects of my lab's work in this field, with emphasis on our recent studies on signal transduction proteins. These include N-ras P21, and the ras binding domain of its downstream effector raf. If appropriate, I'll mention work on related proteins and also collaborations involving pulsed EPR and X-ray crystallography. Finally, I'll mention possible ways, as yet untried, to study these systems.

### ELWIN PENSKI

Elwin Penski, a native of Catonsville, MD, was an Air Force Officer at Wright Paterson Air Force Base and a Research Chemist at the University of Dayton Research Institute in the early 1960s. Since returning to Maryland in 1964, he has worked in the Edgewood Area of Aberdeen Proving Ground. He has written over 100 publications mainly in the area of physical chemistry and has had a life long interest in history. Mr. Penski serves on the Board of Directors of The Historical Society of Harford County and is a member of several historical groups, including The Civil War Roundtable.

### JAN KOLAKOWSKI

Jan Kolakowski, originally from Schenectady, NY, is a 1975 graduate of Clarkson University having also obtained a Master's degree in Chemistry from the Institute of Colloid and Surface Science at Clarkson. Since his arrival at the Edgewood Area of Aberdeen Proving Ground in 1977, Mr. Kolakowski has served in the active army as a chemical officer and later as a Department of the Army civilian on the chemical weapons stockpile disposal program and most recently as a research chemist at the U.S. Army Chemical and Biological Defense Command. His current research interest is in enzyme catalysis. As a Command and General Staff Officer's Course instructor in the Army Reserve, Major Kolakowski has taught courses in war gaming, tactics, military history, and nuclear, biological and chemical operations.

## GETTYSBURG BATTLEFIELD TOUR AND CHEMISTRY IN THE CIVIL WAR

Following the tactical draw at Antietam during the previous year, General Robert E. Lee, Commander of the Army of Northern Virginia, needed a decisive victory over the Union forces on northern soil. In addition to a morale boost for the Confederacy, this would likely achieve diplomatic recognition of the Confederacy by Britain and France along with their possible intervention on the side of the Southern cause. An optimistic scenario saw the Union even suing for peace to bring an end to the war. Lee's plan during his second invasion of the north during the summer of 1863 was to draw the Army of the Potomac away from their fortifications around Washington and defeat them in open country. What happened was a three-day battle at Gettysburg, the bloodiest in the Civil War and a turning point for the Confederacy. Actions which occurred at various locations on the battlefield will be described and compared to the principles and tactics of modern warfare.

Without the chemical natural resources required to carry on a war and in spite of being under a blockade, the South tried to withdraw from the Union. During the Civil War, not only did the resourcefulness of southern chemists make it possible for the South to carry on a four-year war, but a noted southern chemist fired the first shot of the war. Meanwhile, in the north, chemists with greater resources advanced many novel ideas that found use in the Civil War and in latter years. Civil War medicines, gunpowder, rockets, Greek fire, stink bombs, liquid damnation, and other noxious subjects will be discussed.

### DATE & PLACE:

Sunday, May 21, 1995  
Gettysburg National Military Park  
Gettysburg, Pennsylvania

### SCHEDULE:

9:30 am - Meet at Maryland Memorial and form car pool.  
Noon - Picnic lunch  
3:00 pm - End of tour.

Picnic (box) lunch reservations should be made by mailing checks, payable to Maryland Section of ACS, to

Mr. Jan Kolakowski  
2610 Stanley Drive  
Baldwin, MD 21013

by May 17. Late reservations may be made by calling (410) 836-6712 or (410) 877-2923 by May 19. Answering machines are available at both numbers. Price of picnic lunch is \$6.00.

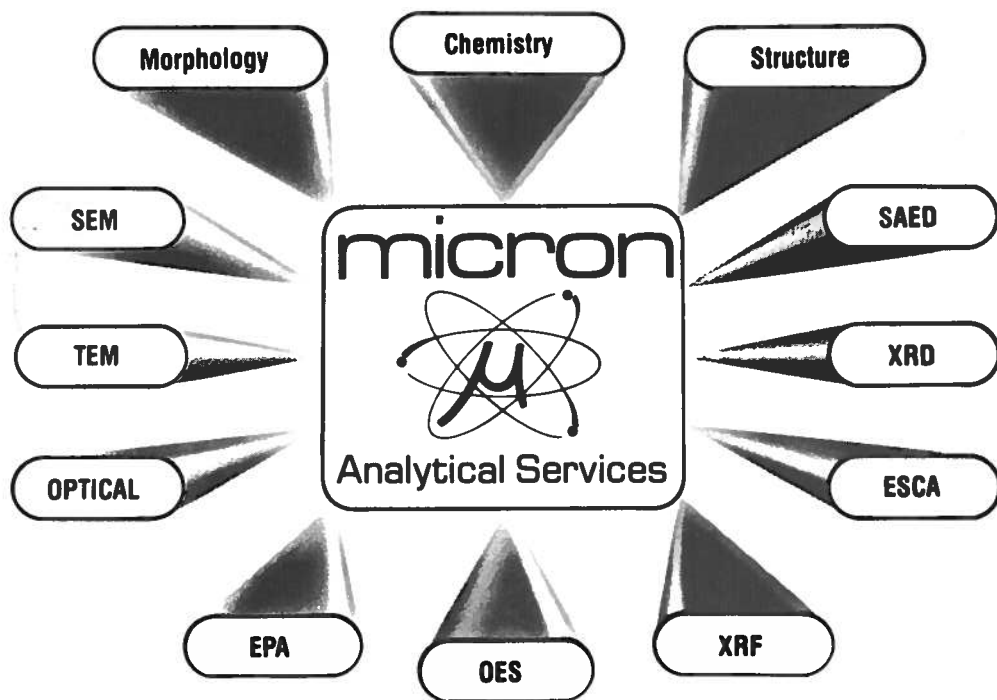
Hiking clothes, suitable for walking on rocks and in tall grass, are recommended. It is not necessary to be a member of the American Chemical Society to attend. You may attend the tour and bring your own picnic lunch or go to any one of a variety of restaurants in the area if you desire.

**DIRECTIONS:** From Baltimore beltway take exit 19 (I-795) north to Rte. 140 to Westminster. Go through town, past Rte. 27 to Rte. 97. Take 97 all the way to Gettysburg. At first light in town, turn left onto Business Route 15 (this is Steinwehr Avenue) and turn left at next light onto Taneytown Road. Go past the Visitors Center to Maryland Memorial site on the right, near the Cyclorama Center parking lot. Allow 1.5 hours driving time from the Baltimore beltway.

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