

THE

TarHelium



A Publication of the North Carolina Section of the American Chemical Society

Vol 20 No 2

October - November 1989

THE NORTH CAROLINA SECTION OF THE AMERICAN CHEMICAL SOCIETY

is pleased to announce

The Eleventh North Carolina Distinguished Speaker

Dr. Royce Murray
Kenan Professor of Chemistry
UNC-CH

*Cryoelectrochemistry and
Copper Ceramic Superconductor Electrodes*

Meredith College
Raleigh, North Carolina

December 5, 1989
(see page 4)

BALLOT INSIDE...

DON'T FORGET TO VOTE !!!

NOTES FROM THE EDITOR

Deadlines for the TarHelium

January 15, 1990

March 15, 1990

PRESIDENTIAL AWARDS FOR EXCELLENCE IN SCIENCE AND MATHEMATICS TEACHING

The Presidential Awards for Excellence in Science and Mathematics Teaching have been announced. The program, administered by the NSF, has been in existence since 1983. The North Carolina recipient of this award is Carolyn J. Morse, chemistry teacher at Chapel Hill High School. Congratulations, Carolyn!

EXCITING POSITION AVAILABLE !!!

ADVERTISING MANAGER

Dr. Jeff Wilson of Burroughs Wellcome (RTP) has decided to leave the TarHelium fast lane for the greener (and serener?) pastures within the halls of science. We need a person who is willing to contact local (and beyond!) potential advertisers and convince them of that we chemists are a good market for their products. This will be easier when our section's professional interest profile is completed (early 1990, eg. chromatographers, 30%, mad scientists and others, 16%). This will give our advertisers a targeted market (and a bargain besides!) Please contact me at the following number if you have any questions, interest or interesting questions — 839-8449. This is a painless way to get to know your local scientific instrument companies and suppliers and a great way to be involved with your local ACS. Let's hear from ya'll!!!! Thanks.

NATIONAL CHEMISTRY WEEK

National Chemistry Week will be celebrated October 29-November 4. A chemistry exhibition will be set up at Crabtree Valley Mall on Wednesday, November from 7:00p.m. to 8:00p.m. Interesting and entertaining chemistry demonstrations will be performed at that time. On the afternoon of Saturday, November 4, we will be sponsoring a similar activity at the Museum of Life and Science in Durham.

A special event has been planned for high school students and their teachers on Saturday morning, November 4. Nobel Laureates, Gertrude Elion and George Hitchings, have agreed to address students and their teachers in support of careers in chemistry. Registration will be held from 9:00 a.m. to 9:30 a.m. in Dabney 222 on the campus of North Carolina State University, Raleigh. Our speakers will open the meeting at 9:30. Refreshments will be served during a short break which will follow their presentations. Several fun activities will follow the break. Announcements have been sent to all high schools in the section, but if you have or know of any high school students, please encourage them to attend this activity which offers a rare opportunity to meet two Nobel Laureates in person. Please note, that this event is planned for high school students and their teachers only.

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Concepts in Magnetic Resonance

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Publisher

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FUTURE PROGRAMS (NC/ACS)

- Nov 13** **Professor Daniel T. Longone**
(Univ. of Michigan)
The History of Wine and Vine in America
Holiday Inn, Chapel Hill
Heavy Hors d'oeuvres at 6:30 pm
Lecture 7:30 pm at Holiday Inn
- Dec 5** **11th North Carolina Distinguished Speaker**
Dr. Royce W. Murray
(UNC-CH)
Cryoelectricity and Ceramic Superconductor Electrodes
Meredith College
Dinner 6:30 pm
Lecture 7:30 pm
- Jan 11** **Dr. Raymond Seymour**
(University of Southern Mississippi)
Chemistry of Commercial Polymers Joint with Polymer Society
NCSU Faculty Club
Social Hour 5:30 pm
Dinner 6:30 pm
Speaker 7:30 pm

NORTH CAROLINA ACS POLYMER GROUP 1989-90 SCHEDULE OF PROGRAMS

NCSU Faculty Club
Social Hour 5:30 pm
Dinner 6:30 pm
Speaker 7:30 pm

- Nov 9** **Dr. Jeffrey Hare, Biodesigns, Inc.** *The Application of
Molecular Simulations to Polymer Problems.*
- Dec 14** **Dr. Ray Fornes, North Carolina State University.** *Effects
of Atmospheric Pollutants on the Structure of the Base
Polymer of Latex Coatings.*
- Jan 17** **Dr. Raymond B. Seymour, University of Southern Mississippi.**
Chemistry of Commercial Polymers. Joint meeting with
ACS Local Section.
- Feb 8** **Dr. Ferdinand Rodriguez, Cornell University.** *Molecular
Weight Dependence of Electron-Beam Resist Sensitivity.*

BIOGRAPHY

Royce W. Murray received a B.S. degree in Chemistry from Birmingham Southern College in 1957 and Ph.D. in analytical chemistry from Northwestern University in 1960. He joined the University of North Carolina faculty in 1960, became Kenan Professor in 1980, Department Chairman from 1980-85, and was elected Chairman of the UNC Natural Science Division in 1987. He has published about 200 papers on topics in electroanalytical methods, the molecular design and analysis of electrode and molecular surfaces, electrochemically reactive polymers, mass and electron transport phenomena in thin films, electrocatalysis, macromolecular electronics, electrode-polymer film microstructures, solid state voltammetry, and electrochemistry at superconducting electrodes. Murray has received Sloan and Guggenheim Fellowships, the 1987 North Carolina Distinguished Chemistry Award of the North Carolina Institute of Chemists, the 1987 Carl Wagner Memorial Award of The Electrochemical Society, the 1988 Charles N. Reilley Award, and the 1989 Electrochemistry Group Medal of the Royal Society of Chemistry. He has been colleague to 62 Ph.D and post-graduate students, 21 of whom themselves now hold academic appointments.

CRYOELECTROCHEMISTRY AND COPPER CERAMIC SUPERCONDUCTOR ELECTRODES

Royce W. Murray, Department of Chemistry, University of North Carolina, Chapel Hill, NC 27599-3290

The new superconducting copper-based ceramics (i.e., $\text{YBa}_2\text{Cu}_3\text{O}_7$, $\text{Bi}_2\text{Sr}_{22}\text{CaO}_8\text{CuO}_8$ and $\text{Tl}_2\text{Ba}_2\text{Ca}_2\text{Cu}_3\text{O}_{10}$) have provoked considerable research, including electrochemical investigations of superconductor corrosion, deposition of films, and forming molecular film junctions, all at temperatures above T_c . Certain properties of the superconducting state make electrochemical reactions at superconducting interfaces, below T_c , extremely interesting, and we have begun to develop the necessary methodologies for electrochemical investigations below T_c . The lecture will describe a protocol for testing the electron transfer characteristics of the superconductor interface above the temperature T_c the invention of a fluid solvent that is ionically conductive in the 85-125K temperature range, and the fabrication of microelectrodes from $\text{YBa}_2\text{Cu}_3\text{O}_7$ and $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ ceramic superconductors. This research was supported by NSF and ONR.

UPCOMING MEETINGS

November 5 – 8, 1989

Ninth International Symposium on HPLC of Proteins, Peptides and Polynucleotides to be held at the Wyndham Franklin Plaza Hotel in Philadelphia, Pennsylvania USA (Alan P. Goldberg, chairman) — **Symposium and Poster Sessions — Send Abstract**

December 4 – 5, 1989

Modern Methods in the Analysis and Purification of Biopolymers: HPLC and Electrophoresis to be held at the Sheraton at Woodbridge Place and Towers in Iselin, New Jersey USA (Professors Barry Karger and Fred Regnier, chairmen)

January 16 – 18, 1990

6th International Symposium on Separation Science and Biotechnology, sponsored by Washington Chromatography Discussion Group (non-profit group), to be held at the Bahia Mar in Fort Lauderdale, Florida USA (Lois Ann Beaver, chairman) — **Symposium and Poster Session — Send Abstract**

March 26, 1990

CHROMOEXPO'90, sponsored by Washington Chromatography Discussion Group (non-profit group), to be held at the Sheraton Washington Hotel in Washington, DC USA — **Chromatography Exhibition, Educational Seminars, Poster Session — Send Abstract**

June 11 – 14, 1990

4th Annual Seminar on Analytical Biotechnology to be held at the Gateway Marriott Hotel in Crystal City (Arlington), Virginia USA (Professors Barry Karger and Fred Regnier, chairmen) — **Seminar and Poster Session — Send Abstract**

Contact for each meeting

Mrs. Janet Cunningham
Barr Enterprises
P.O. Box 279
Walkersville, Maryland 21793
Telephone: 301-898-3772
Fax: 301-898-5596

SECRETARY

Hannah O. Green

Hannah Green received her B.S. in chemistry from Carnegie-Mellon University and her M.S. and Ph.D. in biochemistry from Cornell University. After several years of postdoctoral research at the University of Hawaii and Duke University, she joined the staff of the North Carolina Science and Technology Research Center in Research Triangle Park. Since 1978, she has been employed at Burroughs Wellcome Co., first in the Technical Information Department and presently in the Patent Department, as a registered patent agent. Dr. Green served the N.C. Section of the ACS as TarHelium editor from 1986 to 1988.

SECRETARY

John A. Myers

John A. Myers received his B.S. and B.A. degrees from Carson-Newman College and his Ph.D. degree from the University of Florida. After a postdoctoral appointment at Michigan State University, he joined the faculty of North Carolina Central University in 1971 where he is now Professor. His research interests include synthesis of nitrogen heterocycles and 1,3-dipolar cycloaddition reactions. John has served on the Nominations, ad-hoc Awards, and SERM Development Committees and is currently on the Hospitality Committee and the Campaign for Chemistry.

COUNCILOR

William Little

William F. Little has been on the Chemistry faculty at UNC-Chapel Hill since 1956 and currently is University Distinguished Professor. He has served as Chairman of that Department, Dean for Research Administration, and Vice Chancellor for (Research) Development and Public Service at UNC. His research interests are in organometallic chemistry, and as one of the founding members, he served three terms on the steering committee of the International Conference on Organometallic Chemistry.

He has worked with the Research Triangle concept throughout his career, as Associate Director for Chemistry of the Research Triangle Foundation (RTF, 1957-8), Executive Committee of RTI (1965-present), founding Board and Executive Committee member of the Triangle Universities Center for Advanced Studies, Inc. (TUCASI, President, 1982-7) since 1975, and Chairman of the Executive Committee of RTF since 1988. He was a charter member of the Executive Committee of the N.C. Board of Science and Technology (1963-77) and in 1988 served as Chairman of the Governor's Task Force on the N.C. Supercomputer Center.

Little was Chair of the N.C. Section of ACS in 1965, chaired the 1984 ACS Southeastern Regional Meeting in Raleigh, and received one of the 1989 Marcus Hobbs Awards for service to the N.C. Section. He has represented the N.C. Section on the Southeastern Regional Meetings Steering Committee since 1984. An incumbent Councilor, Little serves on the Budget and Finance Committee and the Committee on Patents and Related Matters of the (national) ACS.

Richard Palmer

Richard Palmer is currently Professor of Chemistry at Duke University. He received the B.S. degree from the University of Texas at Austin and the Ph.D. degree from the University of Illinois and was an NIH Post-doctoral Fellow at the University of Copenhagen. He has held visiting appointments at University of Texas-Austin, University of Virginia and Ecole Supérieure de Physique et de Chimie, Paris while on sabbatical leave. His research interests are in the fields of spectroscopy and structure of coordination compounds. Dr. Palmer is a member of the Society for Applied Spectroscopy, The Coblenz Society, PLU, Phi Beta Kappa and Sigma Xi. He is an immediate past president of the local chapter of Sigma Xi. Dr. Palmer has been active in NC/ACS for over 20 years, serving in various capacities, including Chairman in 1978. It was under his leadership that the Section began the process of adopting an annual budget.

ALTERNATE COUNCILOR

Eric Bigham

Dr. Eric C. Bigham earned a B.S. degree in chemistry from N. C. State University in 1969. He attended Princeton University and received M.A. (1971) and Ph.D. degrees under Prof. E.C. Taylor. In 1973, he became a senior scientist at Pfizer Cemtra; Research Groton, CT. In 1987, Dr. Bigham moved to Burroughs Wellcome Co., Research Triangle Park where he is currently senior research scientist. His research interests include the design and synthesis of new drugs containing polyaza heterocycles for a variety of therapeutic targets. Dr. Bigham was an invited speaker at the 1982 ACS Conference on Cooperative Education and the 1983 N.C. Cooperative Education Assoc. Meeting. He has been a member of the ACS since 1970, and he has served the N.C. Section as treasurer 1980 through 1984, chairman-elect 1985, and chairman 1986. In addition, he has been a member of the N.C. Section executive committee since 1980, nominations committee, service awards committee, and he was financial chairman of the 1984 Southeastern Regional ACS Meeting.

William Gutknecht

William F. Gutknecht received his BS from the University of Wisconsin and his Ph.D. in Analytical Chemistry from Purdue University. Prior to joining RTI in June, 1978, he was a member of the faculty of the Chemistry Department at Duke University. His technical interests include measurement of trace levels of elements and molecular species using a variety of techniques. He also has considerable experience in the area of quality assurance and has prepared quality assurance plans for various programs.

The TarHelium is a publication of the North Carolina Section of the American Chemical Society. The views expressed herein are not necessarily those of the Section.

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