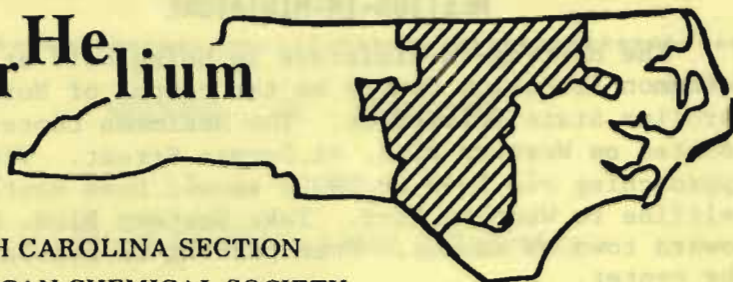


Tar Helium



NORTH CAROLINA SECTION  
AMERICAN CHEMICAL SOCIETY

Vol. 9, No. 8

Raleigh, N.C.

April 1979

MEETING-IN-MINIATURE

at

McKimmon Extension Education Center  
North Carolina State University

A P R I L 17, 1979

PLENARY LECTURE

by

DR. ROD O'CONNOR

Department of Chemistry  
Texas A&M University

## MEETING-IN-MINIATURE

The Meeting-in-Miniature is being held at the McKimmon Education Center on the campus of North Carolina State University. The McKimmon Center is located on Western Blvd. at Gorman Street. Visitors approaching *via* I-40 or US 70 should head south on the beltline to Western Blvd. Take Western Blvd. heading toward town to campus. Free parking is available at the center.

## SPRING SHORT COURSE

Details of the short course on CHEMICAL TOXICOLOGY are enclosed. This short course is being presented by faculty of the Occupational Safety and Health Education Resource Center, a consortium of the University of North Carolina-Chapel Hill, Duke University and North Carolina State University. This course can be offered only if the enrollment indicates sufficient interest. Your early response is appreciated. Proceeds from short courses support the scholarship and awards programs.

## DEMONSTRATOR IN CHEMISTRY SOUGHT

The Chemistry Department, N. C. State University, seeks applicants for the full-time faculty position (non-tenured) of Demonstrator in General Chemistry, starting Fall, 1979. As a minimum must have Master's degree in Chemistry or related field, or equivalent professional experience. Some teaching experience preferred. Address inquiries with resume enclosed to Dr. L. H. Bowen, Personnel Committee Chairman, Department of Chemistry, North Carolina State University, Raleigh, N. C. 27650. An equal opportunity/affirmative action employer.

## MISSING ARCHIVES COPIES

The TarHelium archives are missing copies of Vol.2, # 3; Vol.2, # 4; and Vol.6, # 5. Should anyone have copies of these issues, the Editor would appreciate receiving these. The mailing address is given on the address page of each current TarHelium.

PLANNED LECTURE

McIntyre Laboratory - Education Center

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MEETING - IN - MINIATURE

at

North Carolina State University

April 17, 1979



Sponsored by

The North Carolina Section

of

The American Chemical Society

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## PLENARY LECTURE

McKimmon Extension Education Center

4:30 p.m.

### "IT'S NOT THE BEE'S KNEES THAT GET YOU: THE CHEMISTRY OF INSECT STING"

by

Dr. Rod O'Connor

Physiological effects of a bee sting range from a mild, temporary irritation to death within 15 minutes. On the other side of the coin, venom components have potential therapeutic applications including radiation protection and treatment for rheumatoid arthritis. Research on bee venom is summarized with emphasis on analysis of the complex mixture and identification of physiologically active components.

\* \* \*

Dr. ROD O'CONNOR received his B.S. from Southeast Missouri State College and his Ph.D. in 1958 from the University of California at Berkeley. Before joining the Chemistry Department at Texas A&M University in 1973 as Professor and Director of First Year Programs, he held faculty positions at the University of Omaha, Montana State, Kent State, and the University of Arizona. He has held Visiting Professor appointments at the University of Oregon, Washington State, Florida State (with Project ISIS), Stanford University (with the Advisory Council on College Chemistry), and Burdwan University in West Bengal, India.

Dr. O'Connor's work in chemical education is widely known. He is the author of twelve books. He has produced 35 instructional motion pictures distributed by Harper & Row Publishers, a series of slide/tape programs on techniques of organic chemistry for the American Chemical Society, and a complete color television course which received the 1972 Best of West Award in instructional television. He is the recipient of a Tour Speaker of the Year Award from the American Chemical Society and of three teaching awards, including a 1978 Manufacturing Chemists Association national "Catalyst" Award.

Dr. O'Connor's research area is the chemistry of insect venoms. He developed a method for obtaining ultrapure venoms and he has made significant contributions to the study of venom composition and insect sting allergy. He has published more than forty technical papers, including the chapter on *Apidae* Venoms for the International Encyclopedia of Pharmacology.

Presentations:	1:00	See Program
Refreshments:	2:20	McKimmon Extension Education Center
Plenary Lecture:	4:30	Area 4, McKimmon Extension Education Center
Social Hour:	5:30	Area 2B, McKimmon Extension Education Center
Dinner:	*6:30	Area 2A, McKimmon Extension Education Center (\$6.00 - full members; students half price)

\* Please make reservations by Friday, April 13, 1979. Call Sue Hester at 966-1566 in Chapel Hill, Terry Laing at 684-2414 in Durham or Linda Archer at 737-2548 in Raleigh.

## ANALYTICAL CHEMISTRY

Area 8A, McKimmon Center  
Kenneth W. Hanck, Presiding

- 1:00 Interfacial Impedance Properties of Precipitate Based Ion Selective Electrodes. Rathbun K. Rhodes and Richard P. Buck, University of North Carolina, Chapel Hill.
- 1:20 Indirect Determination of Sulfate by Atomic Absorption Analysis. Donald A. Whitaker and Charles Boss, North Carolina State University.
- 1:40 Gas Chromatography and Catalysis Applied to Trace Determination of Cyanide Ions. Mauri Ditzler, Duke University and W. F. Gutknecht, Research Triangle Institute.
- 2:00 Comparison of Ion Exchange Electrode Response Time Constants Determined by Two Methods: Impedances and Activity Steps. F. S. Stover, T. R. Brumleve, and Richard P. Buck, University of North Carolina, Chapel Hill.
- 2:20 Quality Control/Quality Assurance in the Analytical Laboratory. W. F. Gutknecht, Research Triangle Institute.
- 2:40 Infrared Search System Based on Direct Comparison of Interferograms. Thomas Isenhour and Gary W. Small, University of North Carolina, Chapel Hill.

## PHYSICAL CHEMISTRY

Area 8A, McKimmon Center  
Halbert H. Carmichael, Presiding

- 3:00 Deviation From Second-Order Perturbation Theory as Experimentally Observed for Cyclopentanone Radical. Carolyn I. Weathers and Peter Smith, Duke University.
- 3:20 Radiolysis of 1,1,2-Trifluoroethane. Halbert Carmichael and Barry W. Vial, North Carolina State University.
- 3:40 INDO MO Study of Ethyl-Formate-Derived Radicals. Kerry K. Karukstis and Peter Smith, Duke University.
- 4:00 Surface Activity Coefficients for Components of Non-ideal Binary Liquid Systems. Forrest W. Getzen, North Carolina State University.
- 4:30 Plenary Lecture, Rod O'Connor

PLENARY LECTURE

BIOCHEMISTRY

Area 8B, McKimmon Center  
 William L. Miller, Presiding

- 1:00 Effects of Iron on Red Cell Ferritin Synthesis During Development. F. V. Schaefer and E. C. Theil, North Carolina State University.
- 1:20 Prothrombin Fragments and Intermediates. Their Susceptibility to Tryptophan Modification. David L. Straight and Roger L. Lundbad, University of North Carolina, Chapel Hill.
- 1:40 Interaction of Horseradish Peroxidase and Sulphydryl Oxidase and Its Implication for Catalytic Mechanism of Sulphydryl Oxidase, Philip Abraham, H. E. Swaisgood, and H. R. Horton, North Carolina State University.
- 2:00 5,5-Diphenylhydrantoin: Absolute Configurations of the Dihydrodiol Metabolites from Rat, Human and Dog Urines. James H. Maguire, Thomas C. Butler and Kenneth H. Dudley, University of North Carolina, School of Medicine.
- 2:20 Coffee Break
- 3:00 Triacylglycerol Synthesis in Mouse Mammary Tissue During Pregnancy and Lactation. Carol R. Kepler and S. B. Tove, North Carolina State University.
- 3:20 Peptide Hydrolases of the Brush Border of Human Intestinal Mucosa. Roger Yeh, Tai-In Huang, and William D. Heizer, University of North Carolina, School of Medicine.
- 4:30 Plenary Lecture, Rod O'Connor.

## ORGANIC CHEMISTRY

Area 4, McKimmon Center  
Carl L. Bumgardner, Presiding

- 1:00 Highly Stereoselective Reactions of 2- and 3-Acetyltetrahydropyrans. Timothy Fulton and Ernest L. Eliel, University of North Carolina, Chapel Hill.
- 1:20 Iodine-catalyzed Bromination of Adamantane and Its Derivatives. Ellen E. Casper and Max R. Peterson, Jr., Campbell College.
- 1:40 Chlorination of Adamantane and Its Derivatives Using Iodine Monochloride. Kathy D. Johnson and Max R. Peterson, Jr., Campbell College.
- 2:00 Synthetic and  $^{31}\text{P}$  NMR Aspects of the 7-Phosphabicyclo[2.2.1]heptene System, Keith A. Mesch and Louis D. Quin, Duke University.
- 2:20 Coffee Break
- 2:40 The Reductive Photoaddition of Amines to Palladium (II) Mesotetraphenylporphyrin. Carol R. Sutcliffe, Janet Mercu and David G. Whitten, University of North Carolina, Chapel Hill.
- 3:00 Synthesis and Photochemistry of 4,4-Dimethylspiro[4,5]deca-6-en-1-one. S. G. Levine and Roger McDaniel, North Carolina State University.
- 3:20 Anomalous Behavior of Tosylates in Elimination Reactions. C. L. Bumgardner, J. R. Lever, and S. T. Purrington, North Carolina State University.
- 3:40 Synthesis of Cyclohexenones *via* Oxidative Fragmentation of Oxa-Bicyclo[3.2.0]-Heptanols. S. W. Baldwin and H. R. Blonquist, Duke University.
- 4:30 Plenary Lecture, Rod O'Connor

## INORGANIC CHEMISTRY

Area 5, McKimmon Center  
Anton F. Schreiner, Presiding

- 1:00 Luminescence Quenching of bis(4,4'-bipyridyl)-4,4'-hexadecyl-4,4'-bipyridyl ruthenium (II) in Aqueous Detergent Solutions. R. H. Schmehl and David G. Whitten, University of North Carolina, Chapel Hill.
- 1:20 Dynamic Properties of Seven-Coordinate Tungsten (II) Complexes. Bennett C. Ward and Joseph L. Templeton, University of North Carolina, Chapel Hill.
- 1:40 Catalytic Oxidation of Organics with [(Terpy)(Bpy)Ru(II) O]<sup>2+</sup>. Thomas J. Meyer, Bruce A. Moyer, and Mark S. Thompson, University of North Carolina, Chapel Hill.
- 2:00 Precipitation of Ferric Oxides on Clay Studied by Mössbauer Spectroscopy and X-ray Diffraction. Marcie E. Jones, Sterling B. Weed, and Lawrence H. Bowen, North Carolina State University.
- 2:20 Electron Transfer Reactions of Fe(bpy)<sub>3</sub><sup>+2</sup> and Other Analogs. Thomas K. Foreman, Patricia J. Delaive, and David G. Whitten, University of North Carolina, Chapel Hill.
- 2:40 Metal-Olefin Bonding. D. W. Wertz and S. A. Wallin, North Carolina State University.
- 3:00 Preparation and Properties of Alkyl Nitrite Complexes of Ruthenium. Thomas J. Meyer, Jerry L. Walsh, and Morris Bullock, University of North Carolina, Chapel Hill.
- 3:20 An Electronic Structurally New Type Porphyrin: Magnetic CD, Optical, and Luminescence Spectra of Photoporphyrin Isomers. James A. Linn and Anton F. Schreiner, North Carolina State University.
- 3:40 Detection of Ion Pairing in Chiral Crown Ether Complexes by Circular Dichroism. Gerald D. Malpass, Jr., Richard A. Palmer, and Robert G. Chiradelli, Duke University.
- 4:00 Photo Induced Electron Transfer Reactions of Some Ru(II) Complexes; Applications to Solar Energy Conversion and Storage. Patricia J. Delaive, B. Patrick Sullivan, and David G. Whitten, University of North Carolina, Chapel Hill.
- 4:30 Plenary Lecture, Rod O'Connor.



Short Course  
on  
CHEMICAL TOXICOLOGY

Sponsored by  
North Carolina Section American Chemical Society

Dates: Friday, May 18, 1979 1:00-6:00 p.m. Place: Room 124 Dabney Hall  
Saturday, May 19, 1979 8:00-2:00 p.m. N. C. State University  
Raleigh, N. C.

Text: None required, handouts will be provided free to all students. Registration Deadline: May 10, 1979

The short course will be held during the period between the spring semester and summer school so parking at NCSU will not be a problem. All registrants will be sent a campus map showing the location of Dabney Hall and the parking areas to be used for the short course. Registrants will be notified by May 15 if it is necessary to cancel the course because of insufficient registration.

Housing: For those wishing to spend Friday night in Raleigh, please contact the John Yancey Motor Hotel, 2200 Hillsborough St., Raleigh, N. C. 27607, (919)829-9091 to obtain a reservation. The rates will be: single \$26.95 and double \$33.95. The motel is located across from N. C. State University.

Course Description. The chief objective of the course is the acquaint chemists with the terminology and methodology of toxicology as applied to chemical substances. To attain this goal the subject matter of the course has been organized into 4 groups: tactics of toxicological testing, the toxicology of selected chemicals, monitoring/control of toxic substances and resources for obtaining information on toxic substances. The format of the two five hour sessions will be similar to a symposium in that several scientists will lecture on topics from their field of expertise. Ample time is included for questions and discussion.

Tactics of toxicological testing. An overview of contemporary toxicology will be presented with the emphasis on the terms in vogue today (e.g. mutagenesis, teratogenesis, carcinogenesis). The types of experiments which must be performed to establish a link between a chemical and an observable toxic effect will be discussed. The interpretation of the data from these experiments is as critical as the experiments, consequently the correct use of statistics in reaching toxicological conclusions will be illustrated.

Toxicology of selected substances. Factual information and case histories will be presented in order to illustrate what is known or not known about the toxicity of chemicals. An example from each of the following four areas will be presented: heavy metals (e.g. Hg, Cd, Pb), solvents (e.g. benzene), polynuclear aromatics (e.g. benzpyrene, PCBs) and particulates (e.g. asbestos, cotton dust).

Monitoring/control of toxic substances. An entire course could easily be devoted to this area but consistent with the overall theme the distinction between "monitoring" and "control" will be made and the key methods employed in both areas discussed. The currently acceptable levels of several chemicals in the laboratory and industrial environment will be used in discussing "monitoring/control".

**Resources for obtaining information.** Where does one obtain up-to-date information on the toxicological effects of chemicals? The short course will conclude by answering that question; both national and Research Triangle sources will be provided.

**Instructors.** The faculty for this course have been recruited by the Occupational Safety and Health Educational Resource Center. The Center was established in October 1977 through funding provided by the National Institute for Occupational Safety and Health. The center provides graduate degree programs in safety, industrial hygiene, occupational health nursing, occupational medicine, epidemiology and biostatistics on the campus of the University of North Carolina-Chapel Hill, Duke University and North Carolina State University. In addition, continuing education courses are presented throughout the southeastern United States to interested groups. Faculty for these sessions are drawn from the three universities as well as consultants that are active in the field.

Enclose your check payable to the North Carolina Section of the American Chemical Society as registration fee for CHEMICAL TOXICOLOGY. A check must accompany the registration. Billing cannot be arranged. Non-members may contact the treasurer about joining the Society and receiving the members discount.

Include \$2.00 if continuing education credits are desired.

SEND Registration to:

Dr. Arthur C. Diesing  
Treasurer NC Section ACS  
Z Liggett & Meyers Tobacco Co.  
P. O. Box 1572  
Durham, N.C. 27702

For additional information contact:

Dr. Kenneth W. Hanck  
Chairman NC ACS Education Comm.  
Z Chemistry Department  
N. C. State University  
Raleigh, N.C. 27650  
(919) 737-2947

\_\_\_\_\_ \$2.00 Continuing Education Credit (Meredith College)

\_\_\_\_\_ \$40 - ACS Member;

\_\_\_\_\_ \$50 - Non ACS member

Name \_\_\_\_\_ Highest Degree: \_\_\_\_\_

Business Address \_\_\_\_\_

\_\_\_\_\_ Phone: \_\_\_\_\_

## AREA SEMINARS

- Apr 11 Dr. PETER C. FORD, University of California, Santa Barbara, "Homogeneous Catalysis of the Water Gas Shift Reaction," 11:00 am, Room 308 Venable Hall, UNC-CH.
- 17 Dr. ROD O'CONNOR, Texas A & M, "It is not the Bees Knees that Get You: the Chemistry of Insect Sting," Plenary Lecture:ACS Meeting-in-Miniature, 4:30 pm, McKimmon Extension Education Center, NCSU.
- 17 Dr. HAR GOBIND KHORANA, 1968 Nobel Laureate, Massachusetts Institute of Technology, Matrone Memorial Lecture, 8:00 pm, Room 222, Dabney Hall, NCSU.
- 18 Dr. GEORGE deSTEVENS, Ciba-Geigy Corporation, "Medicinal Control of Degenerative Vascular Diseases: Whence and Whither," 11th Annual Walter H. Hartung Memorial Lecture, 7:30 pm, 111 Beard Hall (School of Pharmacy), UNC-CH.
- 19 Dr. TERUAKI MUKAIYAMA, University of Tokyo, "Recent Advances in Asymmetric Synthesis," 11:00 am, Room 308, Venable Hall, UNC-CH.
- 23 Dr. F. GREEN, Massachusetts Institute of Technology, "Azo Compounds and Azo N-Oxides, Mechanisms of Decomposition," 4:00 pm, Room 124, Dabney Hall, NCSU.
- 24 Dr. A.F.M. BARTON, Murdock (Australia), "Recycling Chemical Resources," 4:00 pm, Room 124, Dabney Hall, NCSU.
- 25 Dr. E. L. MUETTERTIES, University of California, Berkeley, "Metal Cluster and Metal Surface Chemistry," Venable Lecture, 8:00 pm, Room 207 Venable Hall, UNC-CH.
- 26 Dr. H. A. MEINEMA, Utrecht University, The Netherlands, "Organoantimony Coordination Chemistry," 4:00 pm, Room 124, Dabney Hall, NCSU.
- 30 Dr. T. BRILL, University of Delaware, "Ground State Electronic Structure Studies in Organometallics by NQR Spectroscopy," 4:00 pm, Room 124, Dabney Hall, NCSU.

## THANKS AGAIN

Again this year the Editor wishes to thank Ms. Joyce Weatherspoon for her assistance in typing the TarHelium and Dr. Suzanne Purrington for her assistance in proofreading. Without their help this job would be considerably more difficult.

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