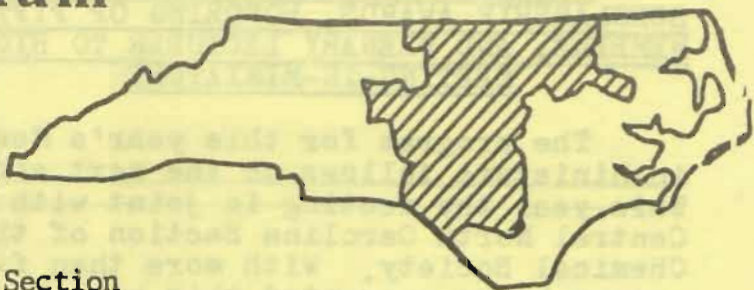


Tar Helium



North Carolina Section
AMERICAN CHEMICAL SOCIETY

Vol. 6, No. 8 Raleigh, N.C. April, 1976

MEETING-IN-MINIATURE

AT

NORTH CAROLINA STATE UNIVERSITY

ON

APRIL 22, 1976

WITH

DR. TED BENFEY

AS

PLENARY LECTURER

SEE ENCLOSED PROGRAM FOR DETAILS

PRESENTATION OF PAPERS, CENTENNIAL
SCHOLARSHIP AWARDS, HONORING OF FIFTY YEAR
MEMBERS, AND PLENARY LECTURER TO HIGHLIGHT
MEETING-IN-MINIATURE

The program for this year's Meeting-in-Miniature follows on the next eight pages. This year the meeting is joint with the Central North Carolina Section of the American Chemical Society. With more than fifty-five papers being presented this will be the largest Meeting-in-Miniature program since its inception.

In addition to the wide variety of papers being presented several other items will highlight the meeting.

First, the winners of the Centennial Scholarship Award will be announced. That's right winner-s! There will be two \$750 awards made to graduate or professional students.

A second feature of the meeting will be the honoring of two fifty year members of the ACS. Those to be honored are Mr. Richard Bright of Raleigh and Mr. T. M. Andrews of Chapel Hill.

The Plenary Lecture this year will be presented by Dr. Ted Benfey of Guilford College. For a summary of his numerous accomplishments and the text of his lecture see page two of the program.

FALL SHORTCOURSE

The tremendous success of the first two short course programs (over 50 participants for the Mass Spectrometry course and 72 registrants for the Biochemistry for Organic Chemists course) sponsored by the North Carolina Section of the ACS has prompted the Section's officers to plan to continue the program next year.

In the fall, Dr. Charles Lochmuller of

* * * * *

THIS IS THE LAST MEETING OF THE YEAR UNTIL SEPTEMBER
UNTIL NEXT FALL. WE WOULD LIKE TO START THE FALL
IF YOU KNOW OF ANYONE NOT ON THE MAILING LIST PRO

MEMORIAL TRIBUTE

THANKS ALL

MEMORIAL TRIBUTE

MEMORIAL TRIBUTE TO AN OUTSTANDING SCIENTIST

MEMORIAL TRIBUTE

MEETING - IN - MINIATURE

A T

NORTH CAROLINA STATE UNIVERSITY

THURSDAY APRIL 22, 1976

jointly sponsored by the North Carolina Section
and
The Central North Carolina Section
of
The American Chemical Society

PLENARY LECTURE

124 Dabney

4:30 P.M.

CHEMICAL DERIVATIVES OF AN EIGHTH-CENTURY
CHINESE INCENSE BURNER

OTTO THEODOR BENFEY

GUILFORD COLLEGE

Dr. Benfey was born in Berlin, Germany in 1925 and became a naturalized United States citizen in 1952. He attended the University College in London, England from 1942-46. Here he obtained the B.Sc. degree in chemistry in 1945 and a Ph.D. under C. K. Ingold in 1947. His professional experience includes a position on the faculty of Haverford College in Pennsylvania from 1948-56, being a research fellow at Harvard University from 1955-56 and a faculty member of Earlham College from 1956-72, during which time he was Chairman of the Chemistry Department in 1971-72. Presently, he is Dana Professor of Chemistry and History of Science at Guilford College, Greensboro, North Carolina.

Dr. Benfey has been the recipient of various awards including the Doan Distinguished Teacher Travel Award, Earlham College (1961), Danforth Foundation E. Harris Harbison Award for Distinguished Teaching (1967--68), the Manufacturing Chemists' Association Chemistry Teaching Award (1967) and a Fulbright-Hays Faculty Research and Study Award (1970-71). He has also held positions in various chemical and science related organizations including being the Program Chairman for the Division of Chemical Education, ACS; a U. S. delegate to two different international conferences on chemistry and chemical education; and a position on the advisory boards of several chemical publications and organizations.

A list of his publications is quite extensive and includes at least eight complete books, numerous chapters in additional books, and well over forty articles and reviews in Chemistry and History of Science. He is currently the editor of Chemistry.

As background information for his plenary lecture, Dr. Ted Benfey offers the follows:

"A Chinese incense burner found in the Japanese Imperial Treasure House in Nara unexpectedly exhibited the geometric pattern of a dodecahedron. That geometry had been believed only to have reached China from the West around 1600 - eight centuries later. The history of the regular solids, of which cube, dodecahedron and tetrahedron are three examples, will be described from Greek times to their appearance in modern structural chemistry. Their earlier appearance in Oriental basketry will be explored. The incense burner is spherical, supporting its burner pan by means of gimbals - an ancient Chinese invention - and carries a Persian floral design. Joseph Needham has recently proposed that the incense burner is the precursor of the alchemist's crucible, encouraging the study of combustion and other chemical change."

Refreshments will be served in the lobby of Dabney during the afternoon.

Social Hour - 6:00 P.M. - North Carolina State University
Faculty Club

INORGANIC CHEMISTRY
330 Dabney

A. F. Schreiner, Presiding

- 1:20 P.M. Reactions of Lithium Bis(trimethylsilyl)amide with Fluorophosphoranes. R. H. Neilson, P. Wisian-Neilson and A. H. Cowley, Duke University and University of Texas at Austin.
- 1:40 P.M. The Electrochemistry of $[\text{Ir}(\text{bpy})_2\text{Cl}_2]\text{ClO}_4$ in Acetonitrile. K. Hanck, M. K. DeArmond and J. L. Kahl, North Carolina State University.
- 2:00 P.M. Spectroscopic Investigation of the Conformations of Crown Ethers and Their Metal Complexes. R. R. Hendrixson, M. P. Mack, D. R. Whitcomb, R. G. Ghirardelli and R. A. Palmer, Duke University.
- 2:20 P.M. Magnetic Exchange Interactions in Extended π -Systems. H. W. Richardson, J. R. Wasson and W. E. Hatfield, University of North Carolina at Chapel Hill.
- 2:40 P.M. Electronic Influences on Proton Chemical Shifts in Alkylcobaloximes. J. M. Ciskowski and A. L. Crumbliss, Duke University.
- 3:00 P.M. MCD and Laser Magnetic Circular Emission of Chlorophyll and Cu and Zn Analogs. J. D. Gunter and A. F. Schreiner, North Carolina State University.
- 3:20 P.M. Luminescence of Transition Metal Sulfur Chelates. J. Merrill and M. K. DeArmond, North Carolina State University.
- 3:40 P.M. Photoselection Emission Studies for Iridium Chelates. C. Carlin, W. L. Huang, and M. K. DeArmond, North Carolina State University.
- 4:00 P.M. Study of Iron (III) Specific Chelating Agents for Use in the Treatment of Cooley's Anemia. D. R. Whitcomb, A. L. Crumbliss, R. A. Palmer, K. A. Sprinkle, K. W. Nordquest, Duke University.

PHYSICAL AND POLYMER CHEMISTRY
623 Dabney

H. Carmichael, Presiding

- 1:20 P.M. Crystal and Molecular Structure of the Cembranolide Diterpene Ovatodiolide and Its Cyclization Product Ovatodiolic Acid. A. T. McPhail, R. Toubiana, K. Tori and R. W. Miller, Duke University.
- 1:40 P.M. X-ray Diffraction Study of Microleolin, a Novel Antitumor Dimeric Sesquiterpene Lactone. A. T. McPhail and K. D. Onan, Duke University.
- 2:00 P.M. Radiolysis of 1,2-Difluoroethane. H. Carmichael and J. Nystrom, North Carolina State University.
- 2:20 P.M. Auger Electron Transitions in Small Molecules. R. W. Shaw, Duke University.
- 2:40 P.M. Molecular Orbital Calculations on the Sites of Protonation in Ambident Lewis Bases. R. S. Greenberg, M. M. Bursey and L. G. Pedersen, University of North Carolina at Chapel Hill.
- 3:00 P.M. ESR Study of Addition Radicals from Vinyl Formate. L. M. Dominguez and P. Smith, Duke University.
- 3:20 P.M. Estimation of Unperturbed Chain Dimension of ANY Polymer from Glass Transition Temperature. A. K. Chatterji and O. Hamzah, Shaw University.
- 3:40 P.M. DTA and Pressure-DTA Studies of Novel Metal-Aromatic Polymers. A. K. Chatterji, H. Brown and O. Hamzah, Shaw University.
- 4:00 P.M. Development of Paintable Piezoelectric Polymers. D. E. Gilbert and K. W. Robbins, Research Triangle Institute.

ORGANIC CHEMISTRY
220 Dabney

D. B. Knight, Presiding

- 1:00 P.M. Conformational Distortion in Organosulfur Compounds. S. A. Evans and P. Hughes, University of North Carolina at Chapel Hill.
- 1:20 P.M. Effective Leaving Groups in Competitive B- and δ - Elimination Reactions. H. Hanson, N. Tove, S. Hudson, G. Kenion and C. Bumgardner, North Carolina State University.
- 1:40 P.M. The Kinetics of the Decarboxylation of Malonic Acid Homologues and Aromatic Amines. L. W. Clark, Western Carolina University.
- 2:00 P.M. Preparation and Conformational Mobility of Several 7,8-Dihydro-5H-dibenz[d,f][1,2]oxazocines. R. P. Rooney and G. H. Wahl, Jr., North Carolina State University.
- 2:20 P.M. An ESR Study of the Radical Anion of 7,8-Dimethylene-1,3,5-Cyclooctatriene. R. L. Blankespoor and C. M. Snavelly, Wake Forest University.
- 2:40 P.M. Use of Chemical Shift Reagents in Amineolysis. G. Morris, Western Carolina University.
- 3:00 P.M. Measurements of 1,3-Iron Shifts by Spin Saturation Transfer in Cycloheptatrieneiron Tricarbonyl Derivatives. K. Karel and M. S. Brookhart, University of North Carolina at Chapel Hill.
- 3:20 P.M. Structure of Protonated Butadieneiron Tricarbonyl and Its Derivatives. J. Crockett and M. S. Brookhart, University of North Carolina at Chapel Hill.
- 3:40 P.M. Stereochemistry of Protonation of Troponeiron Tricarbonyl and Its Derivatives. C. P. Lewis and M. S. Brookhart, University of North Carolina at Chapel Hill.
- 4:00 P.M. Mechanism of Formation of Dieneiron Tricarbonyl Complexes from Benzylideneacetoneiron Tricarbonyl. C. R. Graham and M. S. Brookhart, University of North Carolina at Chapel Hill.

ORGANIC AND BIOCHEMISTRY
210 Dabney

J. L. Coke, Presiding

- 1:00 P.M. Synthesis and Chemistry of Bicyclo(4.2.0)octa-2,4-dien-7-oneiron tricarbonyl. G. O. Nelson and M. S. Brookhart, University of North Carolina at Chapel Hill.
- 1:20 P.M. Decomposition Studies of *cis*-Diacyl Diimides. R. A. Izydore, North Carolina Central University.
- 1:40 P.M. Catalytic Transfer Hydrogenation - Olefin Reductions. D. C. Tabor and S. A. Evans, University of North Carolina at Chapel Hill.
- 2:00 P.M. Oxidation of Amines and Imines. Syntheses of 5-Membered Nitrogen Heterocycles. H. J. Young, H. J. Bluhm, F. N. Wendelboe, and J. C. Leffingwell, R. J. Reynolds Tobacco Company.
- 2:20 P.M. A New Synthesis of the Pyrazolo[1,2-a] Indazole Ring System. W. Y. Rice, Jr., R. J. Reynolds Tobacco Company.
- 2:40 P.M. Use of Epoxides for Synthesis of Optically Active Natural Products. A. B. Richon and J. L. Coke, University of North Carolina at Chapel Hill.
- 3:00 P.M. A New Synthesis of the Douglas Fir Tussock Moth Sex Attractant. H. J. Williams, J. L. Coke and B. Hill, University of North Carolina at Chapel Hill.
- 3:20 P.M. Nucleic Acid-Protein Interactions in the Cell Nucleus: Subunit Structure of Chromatin. B. R. Shaw, Duke University.
- 3:40 P.M. Dynamics of in Vitro RNA Liberation from a Simple Virus. S. Merrill and R. W. Henkens, Duke University.
- 4:00 P.M. Metabolism of Supracide (Methodathion) in the Cow Based on Milk and Tissue Analysis. J. E. Cassidy, Ciba Geigy.

ANALYTICAL CHEMISTRY
Section A
124 Dabney

R. J. Thompson, Presiding

- 1:00 P.M. Evaluation of Derivative Normal Pulse Polarography as an Analytical Tool. K. Hanck and O. Evans, North Carolina State University.
- 1:20 P.M. Purity Determination of Pesticides Used as Reference Standards. M. Wolf, Ciba Geigy.
- 1:40 P.M. Analytical Ion Cyclotron Resonance Spectrometry. Stereochemical Factors and a Functional Group Interaction in Some Norbornyl Systems. J. Kao, C. A. Simonton, III, and M. M. Bursey, University of North Carolina at Chapel Hill.
- 2:00 P.M. Analytical Determination of Hexavalent Chromium in Organic Matrices at Trace Levels. J. A. Baugham, Jr., and J. Schulze, Ciba Geigy.
- 2:20 P.M. The Analysis of Trace Quantities of Detergent Fluorescent Whitening Agents in Environmental and Biological Samples. C. Ganz, J. Schulze and D. Parks, Ciba Geigy.
- 2:40 P.M. A New Method for the Rapid Determination of Gas-Liquid Diffusion Coefficients by Gas Chromatography. C. H. Lochmuller and B. M. Gordon, Duke University.
- 3:00 P.M. Chlordene Chlorination Products: The Expected and the Unexpected. G. W. Sovocol and N. K. Wilson, Health Effects Research Laboratory, EPA.
- 3:20 P.M. Thermal History of Melt Spinnable Fibers: Use of the Thermo-Mechanical Analyzer. J. C. Tucker, Fiber Industries.
- 3:40 P.M. Metallurgical Applications of Thermal Analysis. W. H. Hildebrandt, RJR Archer, Inc.
- 4:00 P.M. Analytical Characteristics of Surfactants. J. E. Spradling and J. Schulze, Ciba Geigy.

ANALYTICAL CHEMISTRY
Section B
113 Harrelson

W. Switzer, Presiding

- 3:00 P.M. Analysis of Trace Organics in Air. D. Parks and J. Schulze, Ciba Geigy.
- 3:20 P.M. Direct Determination of Sulfuric Acid Aerosol. K. Hanck and J. K. McGaughey, North Carolina State University.
- 3:40 P.M. Potentiometric Measurement of the Sulfite Ion Using the $\text{HgS}/\text{Hg}_2\text{Cl}_2$ Membrane Selective Electrode. P. K. C. Tseng and W. F. Gutknecht, Duke University.
- 4:00 P.M. The Effect of Micellar Systems on the Spectrophotometric Determination of Cyanide Ion Using Organic Disulfides. W. Hinze, Wake Forest University.

CHEMICAL EDUCATION
207 Harrelson

J. McKenzie, Presiding

- 3:20 P.M. Creating Successful Open-Ended Experiments. D. MacInnes, Jr., Guilford College.
- 3:40 P.M. Chemistry and the Public: A Symposium Case Study. J. McKenzie, R. J. Reynolds Tobacco Company.

*
BY
OF
PI

Duke will be teaching a short course in the Park entitled "Chemical Separation By Chromatographic Methods". It is to be basically a problem-oriented course stressing practical considerations. Theory will be introduced insofar as necessary to show application to day-to-day work. Stress will be placed on qualitative and quantitative analysis. Methods for selecting columns and their preparation, the use of retention index systems and the characteristics of various detectors will be discussed. In HPLC emphasis will be placed on adsorption vs. liquid-bonded phase partition. The nature of bonded phases, their synthesis and the packing of microparticulate columns will be discussed. Wherever possible, examples of actual separations will be presented with critical comment.

HILL MEMORIAL LECTURE

Dr. Harold Scheraga, who is Todd Professor of Chemistry at Cornell, will be the speaker for the Hill Memorial Lecture at Duke on April 23 at 7:30 pm in Rm. 103 of Gross Chem. Laboratory. Dr. Scheraga will speak on the "Prediction of Protein Conformations". Some of Dr. Scheraga's research interests which have contributed to his more than 400 publications include physical chemistry of proteins and other macromolecules, the chemistry of blood clotting and the structure of molecules in aqueous solutions.

NOMINATING COMMITTEE ANNOUNCED

The nominating committee who will draw up a slate of nominations for next year's election of officers includes Halbert Carmichael, chairman (NCSU), George Wyman (ARO), Bill Gutknecht (DUKE), Colon Pitt (RTI) and Art Diesing (L&M). The offices to be filled are Chair-elect, Councilor for 3 yrs., and Alternate Councilor. Contact a member of the committee if you have suggestions for these positions.

* * * * *

BER. THIS IS ALSO THE LAST ISSUE OF TARHELIUM
OFF WITH A COMPLETE AND ACCURATE MAILING LIST
PERLY, HAVE THEM CONTACT THE EDITOR...

EXECUTIVE COMMITTEE

Monica R. Nees (NC/STRC), Chair
Suzanne T. Purrington (Peace), Ch.-Elect
Howard G. Clark (Duke), Sec.-Treas.
Marcus Hobbs (Duke), Councilor
Maurice M. Bursey (UNC), Councilor
Ernest L. Eliel (UNC), Councilor
Keith Lawson (Monsanto), Alt. Councilor
Sally M. Horner (Meredith), Alt. Councilor
Maurice M. Bursey (UNC), Past Chairman
Richard J. Thompson (EPA), Alt. Councilor
and Past Chairman
Halbert Carmichael (NCSU), Past Chairman

COMMITTEE CHAIRMEN

Awards- Forrest Getzen (NCSU)
Centennial- Marcus Hobbs (Duke)
Certification- Richard J. Thompson (EPA)
Education- Maurice M. Bursey (UNC)
Hospitality- William Gutknecht (Duke)
Membership- Lawrence Bowen (NCSU)
Program- Suzanne T. Purrington (Peace)
Publication- Halbert Carmichael (NCSU)
Public Relations- Arthur Diesing (L&M)
Safety- Nash Collier (UNC)
Scholarship- Robert G. Lewis (EPA)

TARHELIUM is published by the North Carolina Section of the American Chemical Society. The views expressed herein are not necessarily those of the Section. Direct all correspondence to Dr. Eric Wiechert, Editor, c/o Chemistry Department, Meredith College, Raleigh, N.C. 27611

NON-PROFIT ORG.
U.S. POSTAGE PAID
RALEIGH, N. C.
PERMIT NO. 491