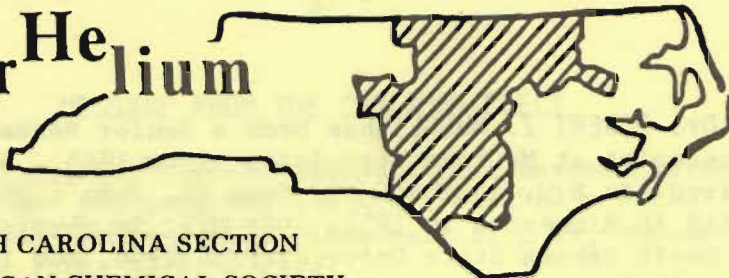


Tar Helium



NORTH CAROLINA SECTION
AMERICAN CHEMICAL SOCIETY

Vol. 11, No. 6

Raleigh, N.C.

February 1981

"SLEUTHING WITH A MICROSCOPE"

Speaker: Dr. Robert Z. Muggli
McCrone Associates

Date: Tuesday, February 10, 1981

Place: North Carolina Central University
Durham, North Carolina

Time: 5:30 Happy Hour
Downtowner Motor Inn
309 W. Chapel Hill Street
Durham, N. C.

6:30 Dinner*
Downtowner Motor Inn
(\$7.00 for members/\$3.50 for
student members)

8:00 Lecture
112 Hubbard Chemistry Building
North Carolina Central University

* Please make reservations no later than Monday noon,
February 9, 1981. Call Barbara Hannah at 966-1566
in Chapel Hill, Terry Laing at 684-2414 in Durham
or Linda Archer at 737-2548 in Raleigh.

Dr. ROBERT Z. MUGGLI has been a Senior Research Microscopist at McCrone Associates since 1965. He received his B.S. in Chemistry from St. John's University in Minnesota in 1951, his M.S. in chemistry from North Dakota State University in 1956, and in 1960 a Ph.D. in chemistry from Kansas State University. He has been an officer in technical societies and taught courses in the use of the polarizing light microscope. Prior to joining McCrone Associates he worked as a research chemist for Sinclair Research in Harvey, Illinois from 1960 to 1965. This position involved research in various aspects of petroleum chemistry. Since 1965 most of his work has involved analysis utilizing techniques such as optical microscopy, x-ray diffraction, infrared spectroscopy, mass spectroscopy and micro Raman analyses. He is currently a member of the American Chemical Society, the State Microscopical Society of Illinois, and the Midwest Society of Electron Microscopists.

* * *

More and more often in modern technology small particles replace the proverbial "wrench in the works". They cause abrasion, clog filters and human blood vessels and lungs. Particles discolor surfaces, reduce visibility, prevent good bonding, weaken plastics and metals, and cause explosions or allergies. They can be used to trap criminals or to date paintings and art objects. The study of small particles involves an understanding of particle behavior as well as a determination of their physical and chemical properties. By means of modern techniques such as optical microscopy and its ancillary tools for example the electron microprobe, the gas chromatograph, the microinfrared spectrometer (the "Mole") and electron microscopes, microscopists can identify small bits of material from many sources and thereby solve many problems. The techniques used for this technical sleuthing will be described and illustrated.

MESSAGE FROM THE CHAIRMAN-ELECT

Ms. Kathryn MacLeod requests that anyone having suggestions for programs for the 1981-1982 program year please contact her: USEPA-Mail Drop 69, Research Triangle Park, N. C. 27711.

MEETING-IN-MINIATURE - FIRST CALL FOR PAPERS

On the afternoon of Friday, April 17, 1981, the Meeting-in-Miniature will be held on the campus of Duke University. An application form is enclosed and the deadline for receiving titles is Friday, March 13, 1981. Please respond early to facilitate preparing the complete program for the April TarHelium.

Contributions are encouraged from both academic and nonacademic laboratories. Participation by industrial and government laboratories was somewhat greater in 1980; however, the Editor again hopes that scientists from these laboratories will participate this year. The meeting is an excellent opportunity for the academic and nonacademic scientific communities to interact and to share ideas that might prove mutually interesting.

HIGH SCHOOL CHEMISTRY TEACHERS AWARD

Letters have been sent to the principals of all high schools within the Section announcing the 1981 High School Chemistry Teachers Award. The award is a grant of up to \$400 for tuition and fees for any course or courses in the chemical sciences. Eligible candidates must teach within the Section which includes the following counties: Bladen, Caswell, Chatham, Cumberland, Durham, Edgecomb, Franklin, Granville, Halifax, Harnett, Hoke, Johnston, Lee, Martin, Moore, Nash, Northampton, Orange, Person, Randolph, Robeson, Sampson, Scotland, Vance, Wake,

and Warren. Teachers who have interest should obtain further details from their principal or from the Award's Committee Chairman, Dr. Pelham Wilder, Jr., Department of Chemistry, Duke University, Durham, N. C. 27706 (phone 684-6029). Members who know of high school chemistry teachers having interest should please bring this award announcement to their attention.

CENTENNIAL SCHOLARSHIP AWARD

The North Carolina Section of the ACS announces its sixth annual CENTENNIAL SCHOLARSHIP AWARD for the Summer of 1981. It carries a stipend of \$1000 (tax free).

Eligibility Requirements:

- (1) Membership or Associate Membership in the American Chemical Society.
- (2) Attendance at a Graduate or Professional School within the geographic boundaries of the North Carolina Section of the ACS.
- (3) Successful completion of at least one year of graduate or professional study toward an advanced degree by the end of the academic year.
- (4) Must have no other obligations for which income is earned during the tenure of the scholarship.

DEADLINE FOR RECEIPT OF APPLICATION IS MARCH 13, 1981.

Send application to: Dr. Charles M. Sparacino
Analytical Science
Research Triangle Institute
P. O. Box 12194
Research Triangle Park,
N. C. 27709

Application must be accompanied with:

- (1) One copy of each of both the undergraduate and graduate (or professional school) transcripts (listing of courses and grades will be acceptable).
- (2) Two letters of recommendation: One from the research director and one from another graduate professor.
- (3) No more than a 1000 word written summary by the applicant of the research project, which must be in a chemically related area.
- (4) An outline of the portion of the work planned for the period of the award (Summer 1981).

The Scholarship will be awarded on the basis of excellence of academic record, superior performance as a teaching assistant (where applicable), and promise in research and quality of application. It will be given *primarily* on the basis of past performance, rather than the quality of the actual research proposed. The award, which is not subject to renewal, will be announced at the Meeting-in-Miniature on April 17, 1981. The recipient is expected to give a 5-minute presentation on this work at one of the fall meetings of the Section.

ELECTION RESULTS

Chairman Elect:	KATHRYN MacLEOD	<u>99</u>
	David Yeowell	<u>98</u>
Treasurer:	ERIC BIGHAM	<u>97</u>
	John Myers	<u>92</u>
Councilor:	ERNEST ELIEL	<u>119</u>
	Peter Smith	<u>80</u>
Alternate Councilor:	HALBERT CARMICHAEL	<u>114</u>
	Jack Preston	<u>76</u>

PROPOSED BUDGET FOR 1981

<u>Income</u>	<u>1980 Proposed</u>	<u>Actual</u>	<u>1981 Proposed</u>
ACS Allotment	4803	4803	5025
New Members	150	167.50	150
Savings Interest	500	704.26	850
Short Courses	2500	1480	3000
Tarhelium Advertisements	400	701.56	200
Donation		106.75	
ACS Rebate for Travel		106.75	
Total Awards	<u>8353</u>	<u>8069.82</u>	<u>9225</u>
<u>Expenses</u>			
Awards			
Centennial Scholarship	800	800	1000
High School Students	100	67.65	100
High School Teacher	400	400	400
Total Income	<u>1300</u>	<u>1267.65</u>	<u>1500</u>
Donations			
Polymer Group	100	100	100
N.C. Academy of Sciences	100	100	100
Total Donations	<u>200</u>	<u>200</u>	<u>200</u>
Short Courses			
Honoraria	1000	200	1400
Teaching Aids	200	95.05	200
C. E. Certificates	25	-	-
Total Short Courses	<u>1225</u>	<u>295.05</u>	<u>1600</u>
Meetings			
Honoraria	525	375	525
Travel and Expenses	1000	1322.82	1500
Social hours and Meals	1000	1356.75	1000
Meeting-in-Miniature	200	-	-
Total Meetings	<u>2725</u>	<u>3054.57</u>	<u>3025</u>
Tarhelium	2125	1847.50	2000
Administrative			
Travel	400	614.50	600
Miscellaneous	200	65.28	200
Contingency	178	119.39	100
Total Administrative	<u>778</u>	<u>799.17</u>	<u>900</u>
Total Expenses	<u>8353</u>	<u>7463.94</u>	<u>9225</u>

LOCAL SECTION DUES--COMMENTS INVITED

The Local Section expenses are increasing rapidly for many reasons: 1) rising travel and housing costs have increased the speaker's cost at Local Section meetings, 2) rising banquet fees make subsidizing student dinners at Section meetings more expensive, and 3) the cost of presenting short courses has cut profits which support the ACS Centennial Scholarship Fund (furthermore it is becoming more difficult to find short course topics having widespread interest.) Also organizing the 1984 Regional Meeting will require investing Section funds, although in all probability, this meeting will become a major source of income for the Section.

The Section has managed to remain solvent in recent years, but the Executive Committee feels that our financial situation requires seeking an additional source of continuing income. The Committee notes that our Section is one of the few sections of its size which does not collect local dues. For this reason, the Committee is considering advocating Local Section dues for the first time. These dues, which would initially not exceed \$5.00 annually, would be collected along with the National dues. Local Section dues are optional, but the Committee hopes that membership would widely support this collection.

The Executive Committee invites comments from the membership. If possible, please send these remarks in writing; they may be anonymous. Any of the Officers who are listed on the back outside cover of the TarHelium may be contacted, but the Editor, will gladly collect comments for review by the entire Committee. The Editor's address is given as the return address on the TarHelium.

The Executive Committee hopes that the majority of those comments will be constructive. We wish to point to actions that have been taken in recent years to delay the advent of Local Section dues: 1) Many of the speakers are either local or come from industries that pay their costs. 2) The expenses for most other speakers are shared with sponsors of other talks given by the speaker. 3) The cost of publishing the TarHelium has been significantly decreased by using a printer with more automated printing equipment, by using computer printed address labels supplied by the National Office and by including advertising on a small scale. 4) The high school awards program, which recognizes an outstanding chemistry student in each high school and which recognizes an outstanding teacher, has been curtailed such that further cuts would be equivalent to eliminating the awards. 5) The Committee plans to adopt a policy in the near future which will force the social hour preceding each Section meeting to be self supporting. Each of these steps to tighten control of the budget were necessary before requesting additional income, but the Officers feel that the budget cannot be trimmed further without eliminating some of the modest activities of the Section.

ADVANCED HPLC SHORT COURSE - April 8-9

The Section will sponsor an advanced level short course on HPLC on April 8-9, 1981. This course, which is intended for scientists who are familiar with the principles and practices of HPLC, will focus on the state-of-the-art technology and applications in HPLC. Dr. Steven Benezra, Burroughs Wellcome, is organizing the short course and has arranged the following speakers and topics: 1) Dr. Charles Lochmuller - review of concepts/separation of optical isomers, 2) Waters representative-gel permeation chromatography/preparative separations, 3) Dr. David Brent - determination of partition coefficients, 4) Dr. Peter Kissinger - solvent/column switching, 5) Dr. R. Shoup - biochemical applications of electrochemical detectors, 6) Dr. A. Goldberg - stationary phases/mobile phases, 7) Dr. Charles Sparacino - environmental applications, 8) Dr. Steve Benezra - detectors/automation/procedure development. Application information will be included in the March issue of the TarHelium.

APPLICATION
 Meeting-in-Miniature
 Friday, April 17, 1981
 Gross Chemical Laboratory
 Duke University

Author(s): _____

Position(s): _____

Presented by: _____

Institution: _____

Title of Paper: _____

Section: Analytical Inorganic
 Biochemical Organic
 Chemical Education Physical
 Polymer

Type: Regular Session Only: _____
 *Either Regular or Poster Session: _____
 *Poster Session Only: _____

Type of Projector (if any): _____

*If sufficient interest is shown, a poster session will be added to this year's program.

Application Deadline: Friday, March 13, 1981

Mail to: Ms. Kathryn MacLeod
 USEPA-Mail Drop 69
 Research Triangle Park, N.C. 27711

- Feb 10 Dr. ROBERT Z. MUGGLI, "Sleuthing with a Microscope," ACS Lecture, 8:00 pm, Room 112 Hubbard Chemistry Building, NCCU.
- 12 Dr. ROBERT A. STEVENS, University of California, Los Angeles, "Recent Studies on the Total Synthesis of Natural Products," 11:00 am, Room 308 Venable Hall, UNC-CH.
- 13 Dr. D. ALLAN BUTTERFIELD, University of Kentucky, "ESR and Biochemical Studies of Erythrocyte Membranes in Huntington's Disease," 3:30 pm, Room 103 Gross Chemical Laboratory, Duke.
- 16 Dr. HENRY BLOUNT, University of Delaware, "Linear Sweep and Cyclic Derivative Voltabsorptometry," 3:30 pm, Room 124 Dabney, NCSU.
- 20 Dr. RALPH N. ADAMS, University of Kansas, "Electrochemical Measurements in Living-Brain Tissue," 3:30 pm, Room 103 Gross Chemical Lab, Duke.
- 26 Dr. MILOS V. NOVOTNY, "Capillary Chromatography The Methods and Applications," 11:00 am, Room 308 Venable Hall, UNC-CH.
- 27 Dr. FELIX SEBBA, Virginia Polytechnic and State University, "Is Life Just a Manifestation of Surface Energy," 3:30 pm, Room 103 Gross Chemical Lab, Duke.
- Mar 2 Dr. WILLIAM HATFIELD, University of North Carolina, "Magnetic Studies on Uniformly Spaced, Alternately Spaced and Ladder-like Copper(II) Linear Chain Compounds," 3:30 pm, Room 124 Dabney, NCSU.
- 4 Dr. DANIEL E. MARTIRE, Georgetown University, "Statistical Mechanics of Weak Organic Complexes: Implications as Regards Association Constants," 3:30 pm, Room 103 Gross Chemical Lab, Duke.

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. WILLIAM L. SWITZER, EDITOR, C/O CHEMISTRY DEPARTMENT, NORTH CAROLINA STATE UNIVERSITY, RALEIGH, N. C. 27650.

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