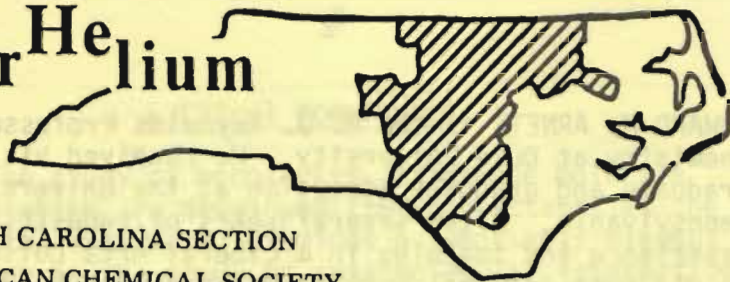


Tar Helium



NORTH CAROLINA SECTION
AMERICAN CHEMICAL SOCIETY

Vol. 13, No. 4

December, 1982

The North Carolina Distinguished Chemist Lecture Series

Presents

CHIRAL MONOLAYERS

by

Professor Edward M. Arnett
Duke University

Wednesday, December 15, 1982

Holiday "Social": 5:30, NCSU Faculty Club*

Holiday Dinner: 6:45, President's Dining Room,
Belk Hall, Meredith College
(\$6.75 full members, \$3.50 for
students)

Lecture: 8:00, Cate Center
Meredith College

*Social hour sponsored by Section Treasury. For
reservations, please call one of the following by
December 10: In Durham, call Ms. Nancy Kearns at
684-3010; in Chapel Hill, call Ms. Barbara Haddock
at 966-1566; and in Raleigh, call Ms. Tana Taylor
at 737-2548.

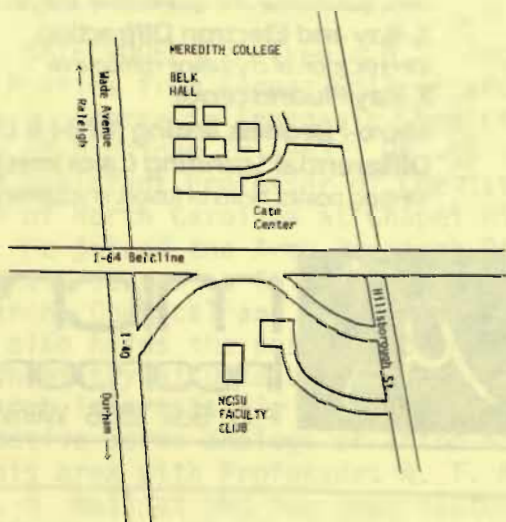
EDWARD M. ARNETT is the R. J. Reynolds Professor of Chemistry at Duke University. He received his undergraduate and graduate education at the University of Pennsylvania. After several years of industrial experience and teaching in a Liberal Arts College, he did post-doctoral work at Harvard with Paul Bartlett before moving to the University of Pittsburgh where he taught before coming to Duke in 1980.

Dr. Arnett's research activities have centered primarily on physical aspects of solvent effects in organic chemistry, particularly with regard to acid-base reactions. By correlating solution phase behavior in acid-base reactions with recently obtained data for corresponding processes in the gas phase, his work has led to the experimental evaluation of solvation energies of organic cations and anions. Other research interests include the effect of ion-pairing on substitution reactions and the stereochemistry of molecular aggregation in heterogeneous systems which will be the subject of the evening's lecture.

In 1967, he initiated the Pittsburgh Chemical Information Center with support from the National Science Foundation to study the implementation and use of computer-based chemical information. He has been a Guggenheim Fellow and was recipient of the Pittsburgh Award in 1976 and the James Flack Norris Award of the American Chemical Society in 1977. He has been an Adjunct Senior Fellow of Mellon Institute and is currently a Senior Fellow of the Hydrocarbon Research Institute of the University of Southern California and has served as visiting Professor at the University of Illinois, Colorado, New Hampshire, Canterbury (England), the University of Ottawa. He has been the Kelly Lecturer at Purdue and the Summer Organic Lecturer at Northwestern. He and his students have published 130 articles.

Chiral Monolayers

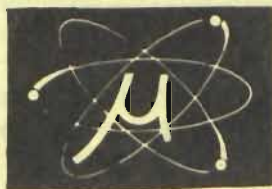
The study of monolayers (films one molecule thick) which are developed from surfactants at the air-water interface, provides a remarkably elegant approach to the study of intermolecular interactions under readily controllable conditions. Although most of the components of biomembranes and bilayers are chiral surfactants, there have been only a handful of scattered reports of experiments where the stereochemical consequences of molecular packing in monolayers has been considered. The work to be described is the first systematic attempt to use chiral monolayers to investigate stereoselective packing at interfaces. It turns out that even within the small number of systems studied to date, chiral discrimination is found in practically every observed property.



DECEMBER MEETING PLACES

SPECIALISTS IN MICROSTRUCTURAL ANALYSIS...

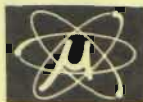
- Scanning Electron Microscopy**
 High resolution (100A) 3 dimensional microscopy
- Transmission Electron Microscopy**
 High resolution (10A) microscopy of replicas and thin films
- Optical Microscopy**
 Reflection, transmission, polarized, phase contrast
- Quantitative Image Analysis (Stereology)**
 Particle or feature size and size distribution analysis
- Electron Probe X-Ray Microanalysis**
 Qualitative and quantitative elemental (μ -Be) microanalysis
- Electron Spectroscopy for Chemical Analysis**
 Analysis of thin (25-50A) surface films
- Optical Emission Spectroscopy**
 Semi quantitative and quantitative analysis of trace elements
- X-Ray and Electron Diffraction**
 Identification of crystalline compounds
- X-Ray Fluorescence**
- Micro-Hardness Testing (KNH & DPH)**
- Differential Scanning Calorimetry**
 Melting points, heats of fusion, crystallinity



micron
Incorporated
 P.O. Box 3536 Wilm. DE 19807

For solutions to big problems think small

For Further Information Contact
 J. F. Ficca
 302-998-1184.



RESUMES OF CANDIDATES
FOR ELECTION

FOR CHAIRMAN ELECT:

DR. JOHN A. MYERS received his B.S. degree in Chemistry and B.A. degree in Mathematics from Carson-Newman College in 1965 and his Ph.D. degree in Organic Chemistry from the University of Florida in 1970. After a year of postdoctoral study with Prof. Harold Hart at Michigan State University, he joined the Faculty of North Carolina Central University. He was promoted to Professor in 1980. His research interests include 1,3-dipolar cycloaddition reactions and the synthesis of nitrogen heterocycles. He has been invited to participate in a Symposium on Radiation Chemistry, Radioprotectors, and Radiosensitizers during the XV Latin American Chemical Congress in October. He has served on the Hospitality and Nominating Committees of the local section.

DR. BERNARD F. SPIELVOGEL received a B.S. degree in Chemistry and Physics from Geneva College and was awarded the Ph.D. degree in Inorganic Chemistry from the University of Michigan in 1963. He was an Instructor and Assistant Professor of Chemistry at the University of North Carolina at Chapel Hill from 1963 to 1967. He joined the Army Research Office in 1967 and currently serves as Chief, Inorganic and Analytical Branch, Chemical and Biological Sciences Division. He also holds the position of Adjunct Professor of Chemistry at Duke University. His personal research interests lie in the synthesis of biologically active boron analogs of amino acids and his work in this area with Professors A. T. McPhail at Duke and I. H. Hall at UNC has been featured several times in C&EN News in the last several years. He has contributed to the organization of numerous workshops and symposia at the Army Research Office. He has been a seminar speaker and Hospitality Chairman for the ACS local section.

FOR TREASURER:

DR. ERIC C. BIGHAM received a B.S. degree in Chemistry, Magna Cum Laude, from N.C. State University in 1969. He received M.S. and Ph.D. degrees from Princeton University in 1971 and 1973, respectively. From 1973 to 1978, Dr. Bigham served as Senior Scientist at Pfizer Inc. where his efforts included synthesis of β -lactams and ansamycins. Dr. Bigham joined Burroughs Wellcome Company in 1978 where he is now Senior Scientist involved in drug design and synthesis. He was president of the ACS Student Affiliate at NCSU in 1968 and has been a member since 1970. Dr. Bigham is presently serving as the Section Treasurer and will serve as the Financial Chairman of the 1984 South-eastern Regional ACS Meeting in Raleigh.

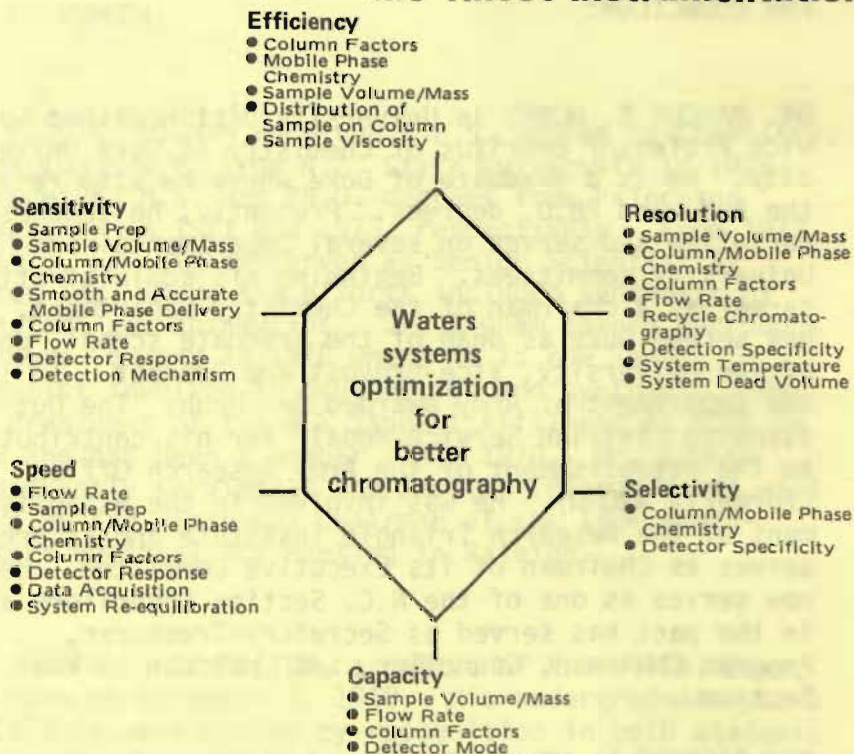
DR. JOSEPH L. TEMPLETON, a native of Knoxville, Iowa, was born on November 3, 1948. His undergraduate years at Caltech were marked by recognition in both academic and extracurricular endeavors. Caltech Freshman of the Year and the Royal Society of the Arts Award for graduating seniors reflected classroom achievements while an NCAA Postgraduate Fellowship resulted from participation in intercollegiate soccer. With support as an NCAA, NDEA and Shell Oil Fellow he proceeded to a Ph.D. degree at Iowa State University in 1975 under the guidance of Professor R. E. McCarley. A NATO Postdoctoral year was spent in the laboratories of Sir G. Wilkinson prior to joining the faculty at UNC-Chapel Hill in 1976. Since coming to the Triangle area Dr. Templeton has served as Program Committee representative for local ACS section activities in Chapel Hill, has coordinated the Meeting-in-Miniature facilities at UNC, and has participated as a member of the local ACS High School Awards Committee.

FOR COUNCILOR:

DR. MARCUS E. HOBBS is University Distinguished Service Professor Emeritus of Chemistry at Duke University. He is a graduate of Duke where he also received the A.M. and Ph.D. degrees. Presently, he teaches part-time and serves on several Departmental and University committees. Beginning his administrative career as a chairman of the Chemistry Department, he has served Duke as dean of the graduate school, dean of the University, Vice-provost and Provost. In 1959 the Department of Army awarded Dr. Hobbs "The Outstanding Civilian Service Medal" for his contribution to the establishment of the Army Research Office (formerly ARO-D). He was involved in the establishment of the Research Triangle Institute and at present serves as Chairman of its Executive Committee. He now serves as one of the N.C. Section Councilors and in the past has served as Secretary-Treasurer, Program Chairman, Councilor, and Chairman of the Section.

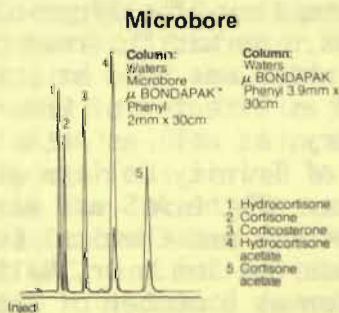
DR. RICHARD L. WELLS, Professor of Chemistry and Director of Graduate Studies in Chemistry at Duke University, received his B.S. degree from Wisconsin State College-River Falls and earned his Ph.D. degree in inorganic chemistry at Indiana University. During his twenty years at Duke his research program has focused primarily on the chemistry of silicon-nitrogen and boron-nitrogen compounds. He was Chairman of the XV Organosilicon Symposium which was held at Duke in 1981. Dr. Wells has served as Director of Undergraduate Studies in Chemistry, as well as Assistant Provost and Associate Dean of Trinity College of Arts and Sciences. He is a member of the ACS and its Divisions of Inorganic Chemistry and Chemical Education, Sigma Xi and Phi Lambda Upsilon. Dr. Wells has previously served the Section as a member of the Nominating and Membership Committees.

A Waters™ system is more than the finest instrumentation.

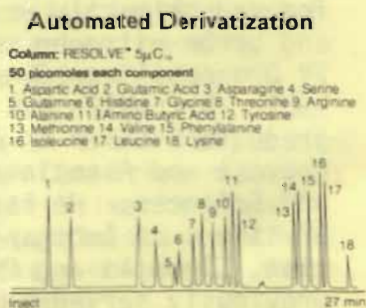


Cyclohexane symbolizes the Waters approach.

Rather than focusing on single component capability, we concentrate on the very best solution to a customer's specific chromatographic needs. For example, sample prep chemistry, proper column selection, and smooth solvent delivery can have as much influence on sensitivity as your detector.

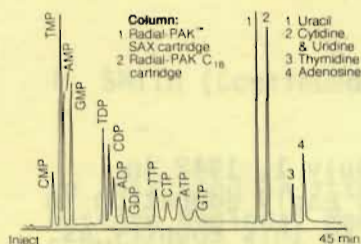


Example: this microbore separation of steroids shows a fourfold increase in sensitivity with a Waters system.



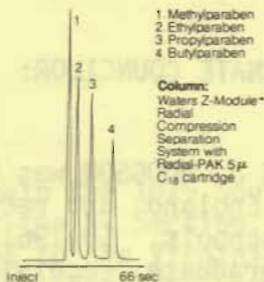
Example: high-speed pre-column derivatization and analysis of primary amino acids with unparalleled sensitivity.

Multidimensional Chromatography



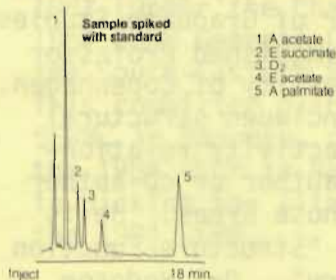
Example: fully automated high resolution separation of nucleotides, nucleosides and bases in a single chromatographic analysis.

High Speed HPLC



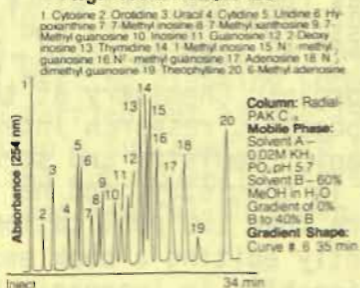
Example: a 66-second separation of parabens.

Automated Peak Identification



Example: automatic sample spiking with Vitamin A acetate to verify retention time and elution order.

High Resolution LC



Example: superior resolution of low molecular weight biological compounds from serum.

--- Clip and send to Waters Associates, P. O. Box 1070, Pittsboro, N.C. 27312 ---

How can Waters systems optimize performance on the criteria most critical to our application?

Name _____

Company _____

Address _____

City _____ State _____ ZIP _____

Phone _____

or call

Dick Schreiber, Pete Talarico, or George Young at
919/832-6612

or Joanne Costanza at 617/478-2000



Waters, the Liquid Chromatography People

FOR ALTERNATE COUNCILOR:

DR. DEREK J. HODGSON was born on July 1, 1942 in Watford, England, and received his early education in English schools. In 1961 he came to this country as an undergraduate, receiving the AB in Chemistry at Harvard University in 1965 and the MS (1967) and Ph.D. (1969) at Northwestern University. In 1969 he came to North Carolina as Assistant Professor at UNC, and has remained here since then. He is presently Professor of Chemistry and Director of Graduate Studies at UNC. In 1980 he served as Distinguished Professor of Inorganic Chemistry at the University of Copenhagen. Dr. Hodgson's research interests included structural inorganic chemistry and structure-activity relationships in chemistry, and he is the author or co-author of more than 150 publications in those areas. He is currently editing a book entitled, "Structure-Function Relationships in Inorganic Chemistry". Dr. Hodgson has served the Section as Chapel Hill Social Chairman and as a member of the Nominating Committee; in addition, he served for several years on the Awards Committee, and was Chairman of that committee in 1978 and 1979.

DR. PETER SMITH, A.B., A.M., Ph.D. (in physical chemistry, 1954) Cambridge University, came to the U.S. as a postdoctoral fellow at Harvard with P.D. Bartlett, following which, after a spell on the faculty at Purdue, in 1959, he joined Duke's Chemistry Department, where he is now Professor. His research interests include the application of ESR spectroscopy to chemical and biological systems. He was NC Section Chairman in 1972 and has served our section as member or chairman of several standing committees (e.g., Education, Membership, Nominations, and Program) as well as on the Executive Committee of the Polymer Group. It was during his Section Chairmanship that

P. SMITH (Continued)

he initiated an attempt to gain the 1979 South-Eastern Regional Meeting for the NC Section, this SERM being eventually awarded to the Virginia Blue Ridge Section at the 1974 SERM, Norfolk. At the next appropriate time, in 1977, he revived this project and, as a consequence, from its formation in January, 1978 until its reconstruction in November, 1981 (under the chairmanship of the newly appointed 1984 SERM General Chairman, Bill Little), he chaired the South-Eastern Regional Meeting Planning Committee. This committee planned and carried out at the 1979 SERM, in Roanoke, our section's successful bid to host the 1984 SERM in Raleigh, and subsequently assisted in picking the site, time, and General Chairman of the 1984 SERM.

MICROANALYSES

**Analysis for all elements
Trace Analysis and Molecular Weights**

GALBRAITH LABORATORIES, INC.

P.O. Box 4187 • Knoxville, TN 37921

(615) 546-1335

"Since 1950"

B A L L O T

Election of Officers for 1983
 North Carolina Section-American Chemical Society

Please indicate your choice for each of the offices below and mail ballots to:

Dr. William F. Gutknecht, Research Triangle
 Institute, PO Box 12194, Research Triangle Park,
 North Carolina 27709

Please sign the outside of the envelope to validate your ballot and print your name legibly if there might be any misinterpretation of your signature. Ballots cannot be counted unless your membership can be verified and your signature is given on the ballot envelope. Deadline for receipt of ballots is Friday, December 31, 1982.

Chairman Elect: John A. Myers
 N.C. Central University

Bernard F. Spielvogel
 Army Research Office

Treasurer: Eric C. Bigham
 Burroughs Wellcome Co.

Joseph L. Templeton
 Univ. of North Carolina-CH

Councilor: Marcus E. Hobbs
 Duke University

Richard L. Wells
 Duke University

Alternate Councilor: Derek J. Hodgson
 Univ. of North Carolina-CH

Peter Smith
 Duke University

NO MEETING IN JANUARY

Due to the possibilities of adverse weather and low attendance in recent years, there will be no section meeting in January. Meetings will be held in February and March as usual, and the Meeting-in-Miniature will take place in April. The February meeting will be a joint meeting with the Triangle Chromatography Group and the March meeting will be at Pembroke College.

LETTERS AND ARTICLES
WELCOME

The editor will be pleased to consider for publication in the TarHelium announcements of meetings, courses, etc., of general interest, feature articles, and letters to the editor. Please send materials to the editor using the address provided on the back of this issue.

Thank you.



PROTECT
Your Expensive
Lab Work with

Stock Notebooks: ®B50D—
 Fifty original and fifty duplicates.
 Instructions ¼" Squares, Brown
 Covers. 11x8½.

\$85.00 per doz.

®B100P—100 Workpages.
 (No duplicates.) Instructions,
 Brown waterproof covers.

B200P—200 Workpages.
 ¼" Squares on Right and
 Left pages.

\$85.00 per dozen

Prices FOB Chicago

CUSTOM MADE TO ORDER
LAB BOOKS

SCIENTIFIC BINDERY
PRODUCTIONS

732 SOUTH SHERMAN STREET
CHICAGO, ILLINOIS 60605

Phone: (312) 939-3449

AREA SEMINARS

- Nov. 29 JOSEPH AND CELIA BONAVENTURA, Duke Univ., "Structure, Function and Assembly of Hemocyanin", 11:00 a.m., 528 Kenan, UNC-CH.
- Nov. 30 GEORGIA FISANICK, Bell Labs, Murray Hill, "Multiphoton Absorption Spectroscopy of Very Highly Excited Molecules", 11:00 a.m., 308 Venable, UNC-CH.
- Dec. 3 PROF. STEVEN D. BURKE, Univ. of S. Carolina, "New Methods and Strategies in Organic Synthesis", 3:30 p.m., 103 Gross Chemical Laboratory, Duke.
- Dec. 6 FRANK DISALVO, Bell Labs, "Physics and Chemistry of Layered Compounds", 124 Dabney, NCSU.
- Feb. 10 EDWARD E. DAVID, JR., Exxon Research and Engineering Company, "Public Interest and Private Curiosity: A Paradigm for Innovation", 8:00 a.m., 207 Venable Hall, UNC-CH.
- Feb. 17 JOHN W. FALLER, Yale Univ., "Electronic Control of Regiochemistry in Organometallic Reactions", 11:00 a.m., 308 Venable Hall, UNC-CH.
- Feb. 24 JOHN T. GROVES, Univ. of Michigan, "Models of Metalloenzymes", 11:00 a.m., 308 Venable Hall, UNC-CH.
- Mar. 3 EUGENE C. ASHBY, Georgia Institute of Technology, "Single Electron Transfer, A Major Reaction Pathway", 11:00 a.m., 308 Venable, UNC-CH.

Chromatographers. . .

We have instruments and supplies from over fifty leading manufacturers on our shelves, ready to be shipped. Call us for catalogs and prices.

TLC HPLC GC

Call Toll Free: 800-521-1720

 **ANSPEC**
Company, Inc.

122 Enterprise Drive P. O. Box 7730
Ann Arbor, Michigan 48107 313/665-9666

ALLTECH ASSOCIATES, INC.

1982

CHROMATOGRAPHY**Catalog No. 45**

*Send now
for your
new FREE
Catalog*

**ALLTECH ASSOCIATES, INC.**

P.O. Box 1568 • Norcross, GA 30091
404-448-0611

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 F. GUTKNECHT, EDITOR, ENVIRONMENTAL CHEMISTRY DEPARTMENT, RESEARCH TRIANGLE INSTITUTE, P.O. BOX 12194, RESEARCH TRIANGLE PARK, N.C. 27709.

NON-PROFIT
ORGANIZATION
U.S. POSTAGE
RALEIGH, N. C.

PERMIT NO. 491

0137835L 11/82 ZB 426 1
DR ROBERT GEORGE GHIRARDELLI
US ARMY RES OFFICE
POB 12211
RES TRIANGLE PARK NC 27709

EXECUTIVE COMMITTEE

Kathryn MacLeod (*Mallinckrodt*), Chairman
Louis Quin (*Duke*), Chairman Elect
William L. Switzer (*NCSU*), Secretary
Eric Bigham (*BW*), Treasurer
William F. Gutknecht (*RTI*), Editor
Marcus Hobbs (*Duke*), Councilor
Ernest Eliel (*UNC*), Councilor
Maurice Burse (*UNC*), Councilor
Steve Benzra (*BW*), Alternate Councilor
Halbert Carmichael (*NCSU*), Alternate Councilor
Colin Pitt (*RTI*), Alternate Councilor
Eric Wiechert (*Cutter*), Past Chairman
Forrest W. Getzen (*NCSU*), Past Chairman
William F. Gutknecht (*RTI*), Past Chairman

Call Toll Free 800-523-1750

ANSPEC

Environmental Section of the American Chemical Society