The
TarHelium

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

Vol. 16, No. 7 March, 1986

JOINT MEETING

Sponsored by
North Carolina Section and
Triangle Chromatography Discussion Group

Monday, March 17, 1986

To Be Held at

North Carolina Central University
Room 112, Hubbard Chemistry Building
(Please see map on Page 3.)

Guest Speaker

Dr. RAYMOND P. W. SCOTT
Perkin-Elmer Corporation
Norwalk, Connecticut

Topic

"General Application of Microbore Columns"

Please see Pages 2 and 3 for biographical information and an abstract of the lecture.

Lecture: 7:30 pm

Reception: 8:30 pm

Note that there will be no dinner at this meeting. Please plan to attend the reception held in honor of Dr. Scott immediately following the lecture.

RAYMOND PETER WILLIAM SCOTT was born in 1925 in Erith, Kent United Kingdom. He studied at the University of London, obtaining his B.Sc. degree in 1946 and his D.Sc. degree in 1958. After spending more than a decade at Benzole Producers, Ltd., at which he became head of the Physical Chemistry Laboratory, he joined W.G. Pye in 1960. In 1961, he moved to Unilever Research laboratories as Manager of the Physical Chemistry Department. In 1969, he immigrated to the United States, and at that time became the Director of the Physical Chemistry Department at Hoffman-La Roche, Inc., Nutley, New Jersey. In 1981, he accepted a position as Director of the Applied Research Department at the Perkin-Elmer Corporation, Norwalk, Connecticut.

Dr. Scott is the author and coauthor of over 150 scientific papers, largely involving the theory and practice of both gas and liquid chromatography. He edited the proceedings of the 1960 Edinburgh Symposium and is the author of two books, Contemporary Liquid Chromatography and Liquid Chromatography Detectors.

Dr. Scott was a founding member of the Gas Chromatography Discussion Group and exhibited high-speed columns at the Royal Society Tercentary Exhibition in 1961. He received the American Chemical Society Award for Chromatography (1977), the M. S. Tswett Chromatography Medal (1978), the Russian Tswett Medal (1979), and the Martin Award in Chromatography in 1982.

Dr. Scott's activities in chromatography commenced in 1954 at the inception of the technique of gas chromatography. He designed the flame thermocouple detector, which was the forerunner of the FID detector. In the late 1950's, he developed high efficiency packed columns giving over 40,000 theoretical plates and separated all of the isomeric heptanes and 15 of the isomeric octanes. This is a record efficiency for packed columns and stands even today. He adopted the capillary columns developed by Golay at their first disclosure and was the first to produce a million theoretical plates from nylon capillary columns a thousand feet long. Later, he worked in the areas of gas chromatography/mass spectroscopy/infrared spectroscopy and developed stop-start GC-MS-IR systems. In general, he has worked extensively in the development of high resolution columns, high sensitivity detectors and presented fundamental discussions on the relationship between the theory and practice of the technique.

In the early 1960's, Dr. Scott turned his attention to liquid chromatography and developed the moving wire (transport) detector. Subsequently, he extended this concept to the wire transport detector; then he extended the detector concept to the wire transport liquid chromatography/mass spectroscopy interface. The American Chemical Society recognized the mass spectroscopy

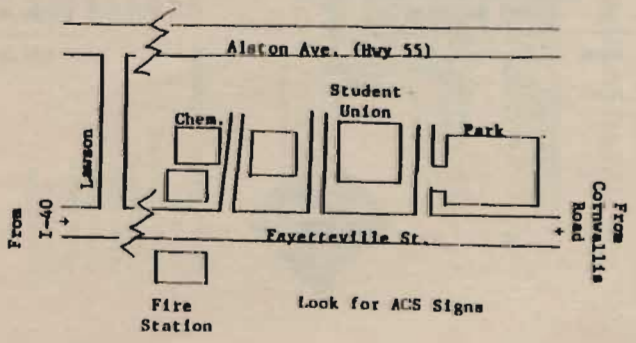
Interface transport system with the Supelco award in chromatography. Later, Dr. Scott developed various gradient systems for liquid chromatography and in the late 1970's, introduced microbore columns providing efficiencies of three quarters of a million theoretical plates, a record which still stands in liquid chromatography. Also, he used microbore columns to provide rapid separations of the order of two and a half seconds, the fastest liquid chromatography separations at the time so far obtained.

More recently, he has turned his attention to the design of liquid chromatography instrumentation, having small extra column dispersion which can be used with columns which have minimum solvent consumption and maximum mass sensitivity. He also has worked extensively in the area of molecular interactions in liquid and on solid surfaces and has produced novel, albeit controversial, theories on retention. More recently extending his work on high speed liquid chromatography, he has separated up to eight components by liquid chromatography in three and one half seconds and developed rapid gradient elution systems separating twelve components of wide polarity range in 25 seconds.

Abstract

"Interactions on the Surface of Silica Gel in Liquid Chromatography"

The impact of column dimensions on chromatographic performance will be considered broadly and the importance of solvent economy emphasized. The concept of mass sensitivity will be introduced and explained and a packing procedure for microbore columns given. The effect of the choice of particle size and column radius on column performance will be discussed and an example of high speed liquid chromatography obtained with microbore columns given. The use of microbore columns to obtain ultrahigh efficiencies will be described and examples of the use of microbore columns for the analysis of samples of biological origin will be discussed in detail.



North Carolina Section, American Chemical Society
Operating Budget for 1986

Income	1986 Proposed
ACS Allotment	6402.00
New Members	100.00
Savings Interest	770.00
CD Interest	1930.00
Short Courses	3000.00
Tarhelium Advertisements	1600.00
Other	400.00
Total Income	14202.00
Expenses	
Awards	
Centennial Scholarship	1500.00
High School Chemistry	1000.00
Total Awards	2500.00
Committee Expenses	
High School Chemistry	300.00
Safety Committee	150.00
Publicity	250.00
Archives	200.00
Total Committee Expenses	900.00
Donations	
Polymer Group	100.00
Total Donations	100.00
Short Courses	
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Total Short Courses	1350.00
Meetings	
Honoraria	300.00
Travel and Expenses	1100.00
Social Hours and Meals	1000.00
Miscellaneous	200.00
Meeting-in-Minature	600.00
Planning Retreat	0.00
Total Meetings	3200.00
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Printing	3000.00
Postage	2550.00
Total Tarhelium	5550.00
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Travel	1000.00
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Total Expenses	14750.00
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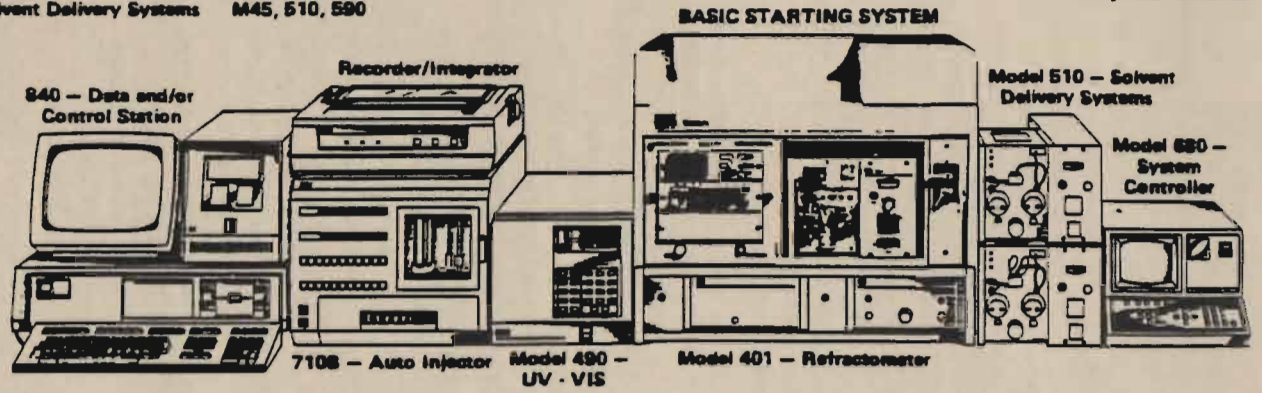

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THE CENTENNIAL SCHOLARSHIP AWARD

The North Carolina Section of the ACS announces its CENTENNIAL SCHOLARSHIP AWARDS for 1986. Up to three awards of $500 each will be made; normally, two will be awarded to graduate students from doctoral-granting institutions and one to a student from an institution offering the master's degree or significant opportunities in research to undergraduate students. These awards will recognize achievement and potential in chemistry research and should be used to help the student further that potential.

AWARD CRITERIA: research accomplishments, excellence of academic record, quality of the application.

ELIGIBILITY: attendance at a college or university within the NC Section territory and research in a department of chemistry, biochemistry, or chemical engineering.

APPLICATION MUST INCLUDE:

1. a summary, no more than 1000 words, written by the applicant describing research accomplishments or progress;
2. a letter of recommendation from the student's research director;
3. a copy or, copies, or the appropriate transcript(s) (graduate or undergraduate); and
4. a description of how the award will be used.

RESTRICTIONS FOR USE OF AWARD:

The student chosen for an award should consult with the research advisor about how to use it. Travel to a national ACS meeting, tuition for an ACS short course, purchase of technical books, or support of research would all be suitable uses. The award must not be used to support research already funded by other sources.

DEADLINE: Applications must be submitted by April 1, 1986, to:

Dr. Robert W. Shaw
US Army Research Office
Post Office Box 12211
Research Triangle Park, NC 27709-2211

The awards will be announced at the Meeting-in-Minature on April 19, 1986.

SOUTHEASTERN ASSOCIATION OF ANALYTICAL CHEMISTS (SEAAC)

Spring Meeting
April 24 - 26, 1986

Hosted By

Eastern North Carolina American Chemical Society (ENCACS)

All events will be held at the Holiday Inn in Greenville, NC.

Agenda

April 24 (Thursday)	8:00 PM--mixer
April 25 (Friday)	AM hours--educational papers PM hours--educational papers 7:00 PM--banquet
April 26 (Saturday)	AM hours--research papers

ENCACS would like to ask analytical chemists from colleges and universities within its jurisdiction to contribute papers. There will be a $25 registration fee which will help defray the costs of drinks and Friday night dinner. For additional information, please contact:

Chia-yu-Li
Department of Chemistry
East Carolina University
Greenville, NC 27834-4353
Telephone: 919-757-6711

KNOW YOUR EXECUTIVE COMMITTEE

This month's issue of the TarHellum features BILL SWITZER, 1986 Chairman Elect of the NC Section. Following is a brief summary of Dr. Switzer's educational and work experiences and a telephone interview with him on Wednesday, February 12.

WILLIAM L. SWITZER, Ph.D., is a native of Baton Rouge, Louisiana, where he lived until receiving his B.S. degree in chemistry from Louisiana State University in 1964. He spent a summer as a National Science Foundation researcher at the University of Arkansas while still an undergraduate and worked for EXXON (then ESSO) in Baton Rouge during the summer following graduation.

In the fall of 1964, Dr. Switzer entered graduate school at the University of Illinois, Urbana, where he studied under Dr. John P. Hummel, a nuclear chemist. For his thesis, Dr. Switzer studied chemical reactions of positronium, a hydrogen-like bound state between an electron and a positron (a positively charged electron which is emitted during certain types of nuclear decay). During his early years as a graduate student, he became acquainted with a new research tool--the computer. As his research progressed, Dr. Switzer also worked with the equally new tools (at least, new to the chemistry field) of electronics and instrumentation. His fascination with computers and electronics has dominated his career ever since.

While in Illinois, Dr. Switzer met and married Mary Ellen Phelan. After receiving M.S. and Ph.D. degrees from the University of Illinois in 1966 and 1970, respectively, Dr. Switzer and his family moved to southern California, where he worked for Beckman Instruments, Inc., and where Mary Ellen finished her doctorate in chemistry from Illinois in absentia at the University of California, Riverside. While in California, Dr. Switzer became active in the local section of the American Chemical Society (ACS), serving on the education committee.

In 1973, the Switzers moved to North Carolina, where Dr. Switzer joined the analytical chemistry faculty at North Carolina State University. Not long after arriving, Dr. Switzer became active with North Carolina Section of the ACS, serving on the education and hospitality committees. However, his first serious commitment to the section came when he served as the editor of the TarHellum, a position he held for five years. Subsequently, he served as secretary to the section and as chairman of the publicity and printing on the Steering Committee for the 1984 Southeastern Regional Meeting. In 1985, Dr. Switzer served as

KNOW YOUR EXECUTIVE COMMITTEE (Continued)

councilor to fill part of the unexpired term vacated by Ernest Eliel when Dr. Eliel became a member of the Board of Directors of the ACS.

Dr. Switzer's research and teaching continues to be influenced by his fascination with computers and electronic instrumentation. He and his colleagues introduced electronics and computers into analytical laboratories at NCSU as soon as funds were found to support those efforts. Dr. Switzer's research interests include computer-aided molecular structure determination, automated optimization in chromatography and modeling in the theory of chromatography, and he is active with both the Apple and the Macintosh user groups on the NCSU campus.

Following are highlights of a February 12 telephone interview with Dr. Switzer:

Question: What are some of the personal "rewards" of an academic career?

Dr. Switzer: I have gained much insight from teaching. In a typical class of 30 students, I usually find at least 30 ways of misunderstanding a single concept. Seriously, though, I get satisfaction helping students understand points of view different from their own.

Question: What are your area(s) of research? Why do you find these important and/or stimulating?

Dr. Switzer: My research is primarily chromatographic modeling, using computers. I enjoy working with computers very much, but I am not altogether sure why. Perhaps it's seeing results which look polished, with clean output. That is, I am able to visualize, in a refined and understandable format, ideas, calculations, and trends which occur. There are hidden dangers, however. The use of computers and/or word processors tends to reinforce the perfectionist. It is so easy to edit, to keep refining ad infinitum. Nevertheless, I do have more control of information, even though I sometimes sacrifice time.

Question: Do you have any special concerns about the chemistry profession?

KNOW YOUR EXECUTIVE COMMITTEE (Continued)

Dr. Switzer: My biggest concern is the image of today's chemist. We are no longer the good guys. Rather, in the minds of the public, we are the fellows behind all of the disasters. I wish that today's media would focus more on the positive contributions and not so much on the spectacular. Let me quickly add, though, that I appreciate the important role the press plays in getting information to the public. But, there is no area of life which is not touched by chemistry in some way. Without chemistry, we would find the quality of life pretty much as it was in the Dark Ages.

Question: Why have you been so involved in the ACS?

Dr. Switzer: I find that my interest in the ACS is primarily at the local level. I do feel that the national organization is important to the field of chemistry in that they disseminate information. I frequently use their publications and chemical abstracts. Also, I am able to keep abreast of national and regional meetings through their publications. But, I think it is necessary for me to work at the "grass roots" level. I feel I have found my "niche" in our local section. I truly believe that what we do locally is an essential part of the larger national organization. Like most groups which are manned by volunteers, however, there is never enough time to do what needs to be done. There is always the full-time job which must come first. It is especially frustrating for me, for I believe that if I had an opportunity to take a year off from teaching and work full-time for local section concerns, I could really be a powerful force in the scientific community as a whole. Given my limitations, I keep striving for a good balance between my job and my section activities. In these middle years of my life, I find myself questioning my career choice. While I am happy teaching (although not ecstatic at times), I believe that it's probably healthy to question what I am doing with my time. Actually, proper balance is what I am looking for in every area of my life.

1986 SYMPOSIUM ON MEASUREMENT OF TOXIC AIR POLLUTANTS

Raleigh, North Carolina
April 27 - 30, 1986

Session Topics

Two sessions each on the measurement of:

- *Indoor Toxic Air Contaminants
- *Volatile Organic Pollutants in Ambient Air
- *Semi-Volatile Organic Pollutants in Ambient Air

Additional sessions on the measurement of:

- *Hazardous Waste Emissions
- *Wood-Stove Emissions
- *Acidic Deposition

Other sessions on:

- *Source Monitoring
- *Chemometrics and Environmental Data Analyses
- *Quality Assurance and Data Analysis

Sponsored by:

- *US Environmental Protection Agency's (EPA) Environmental Monitoring Systems Laboratory
- *Air Pollution Control Association's (APCA) TP-6 Ambient Measurements Committee and TT-9 Toxic Air Pollutants Committee

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Research Triangle Park, NC

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1985 ACS LOCAL SECTION ANNUAL NARRATIVE REPORT

The membership of the North Carolina Section continued to increase in 1985. At the end of the year the Section had 1,406 members as compared to 1,333 members at the end of 1984. Because the makeup of the Section is rapidly changing, a one-day planning retreat, which was open to all members, was held at the Pineview Conference Center near Chapel Hill on January 26 in order to set goals and develop direction for the Section. Twenty members, including one graduate student, participated. Four general topic areas were discussed. These included member services, section meetings, educational activities, and public affairs and public relations. A full report of the discussions was prepared and distributed to the members of the Executive Committee and was published in the January, 1986, issue of the TarHellum.

All of the committees of the section were active. The Archives Committee was established as a new section committee. The Program Committee was reactivated after being inoperative for several years. The Ad Hoc Committee for Awards completed its work in January. Its recommendations for restructuring the Centennial Scholarship and High School Chemistry awards, selecting North Carolina Distinguished Lecturers, and nominating members for various national and regional awards were approved by the Executive Committee and implemented by the appropriate section committees. The Education Committee sponsored a successful short course in June on the topic, "Modern Multinuclear Magnetic Resonance," and was led by Dr. Pierre Laszlo of the University of Leige, Belgium. Forty-five members and students took the short course. The Safety Committee began to distrubute the ACS publication, "Safety in Academic Chemistry Laboratories," to all high schools in the Section. The Scholarship Committee awarded four Centennial Scholarship Awards of $500 each. The recipients were Stephen V. Frye and James L. Buckner of the University of North Carolina at Chapel Hill and Andrew D. Brown and Manik Lal Debnath of North Carolina Central University. The Budget, Hospitality, Nominating, and Membership committees continued to function well.

The High School Chemistry Committee significantly expanded its activities. The committee sponsored the participation of our high school students in the ACS International Chemistry Olympiad Program. Thirty-nine students took an exam as the first phase of the competition at their respective high schools on March 16. Eight finalists competed in the second phase of the Olympiad on April 27 at the North Carolina School of Science and Mathmatics in Durham. None qualified for the national team, but all scored well in the competition. The committee published a newsletter

for high school teachers as a new activity. Two High School Chemistry Teacher Professional Development Awards were awarded. The winners were Ms. Peggy Davis and Ms. Jami Inman, who teach in Hope Mills and Fayetteville, respectively. High school teachers and students participated in our annual Meeting-In-Miniature for the first time. Another successful activity matched the critical equipment needs of high schools with surplus or unused equipment of academic and industrial laboratories. Summer workshops available for high school teachers were publicized.

The Public Relations Committee was expanded from one to four members. The committee made efforts to improve the Section's public relations. At the January monthly meeting Vince Tocci, Head of the ACS Office of Public Relations, spoke about communicating science to the public. The meeting was well attended, and at least one media representative was present. News releases to publicize our meetings and activities were regularly submitted to the news media across the section. These efforts proved encouraging in that a significant number of articles appeared in the local press.

The Archives Committee was formed to determine which section records should be saved and where they should be saved, to locate our past records, and to identify which relevant records, if any, are missing. The efforts of the committee led to the establishment of a permanent section archives. The archives are located in the Kenan Chemistry Laboratories at the University of North Carolina at Chapel Hill. They will be under the care of the Archives Committee.

The Executive Committee completed two projects to enhance the efficiency of its operation. A list of motions passed by the Executive Committee since 1978 and still in effect was compiled as a policies manual, and the Section's "Job Manual of Officers" was revised.

The publication and distribution of the TarHellum, our newsletter, was improved. The newsletter was mailed to the membership by first-class mail beginning in February to correct the delay encountered by third-class mailing. Photocopying instead of offset printing was implemented to decrease publication costs, more advertising income was generated, and more feature articles were published.

The financial operation of the Section was strengthened. The membership approved by mail ballot in November the institution of local section dues in the amount of $3.00 beginning in 1987. The dues collected are to be used to help finance the publication and distribution of the TarHellum. The Section received $17,788.61

as the major portion of the profit earned by hosting the Southeastern ACS Regional Meeting (SERM) in Raleigh in 1984. An amount of $20,000, which included the SERM profit plus a portion of our savings assets, was used to purchase a thirty-six month certificate of deposit in November. The interest which it produces will be used as earned to finance the special educational programs of the Section.

A successful program of monthly meetings was presented. A balanced agenda of technical, general interest, and purely social events was offered in the eight scheduled meetings. In February a joint meeting of the North Carolina Section, the Eastern North Carolina Section, and the Central North Carolina Section was held at Burroughs Wellcome Company, Research Triangle Park. The occasion marked the first time that the three sections had met in a joint meeting. An elegant social hour sponsored by the Fisher Scientific Company preceded the dinner. The speaker was Dr. James A. Ibers of Northwestern University. Approximately 125 members and students were in attendance at the annual Meeting-in- Miniature at North Carolina State University in April. A total of 42 papers were presented in five technical sessions. Following the meeting, a luncheon and the presentation of Section awards were held at the North Carolina Museum of Art. Four Fifty-Year ACS Membership Certificate Awards were announced. Two of the fifty-year members were in attendance. The November meeting was a very special program at Morehead Planetarium at the University of North Carolina at Chapel Hill. Dinner was served to 130 members and guests in the exquisite State Dining Room. This was followed by the presentation of Morehead's production, "Return of the Comet," which was viewed in the planetarium by approximately 150 attendees. The annual pig-picking at Duke in September was again a popular event. The North Carolina Distinguished Chemist Lecture Series also continued to be popular. Two distinguished lecturers were recognized in 1985. They were Professor Vivian T. Stannett of North Carolina State University in March and Dr. Gertrude B. Elion of Burroughs Wellcome Company in December. At the December meeting a plaque was presented to the outgoing Chairman.

Respectfully submitted,
Robert Izydore

Correction to February TarHellum

The NC Section's Job Manual of Officers was compiled by Robert Izydore and not Eric Bigham. The editors' apologies to Dr. Izydore.

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