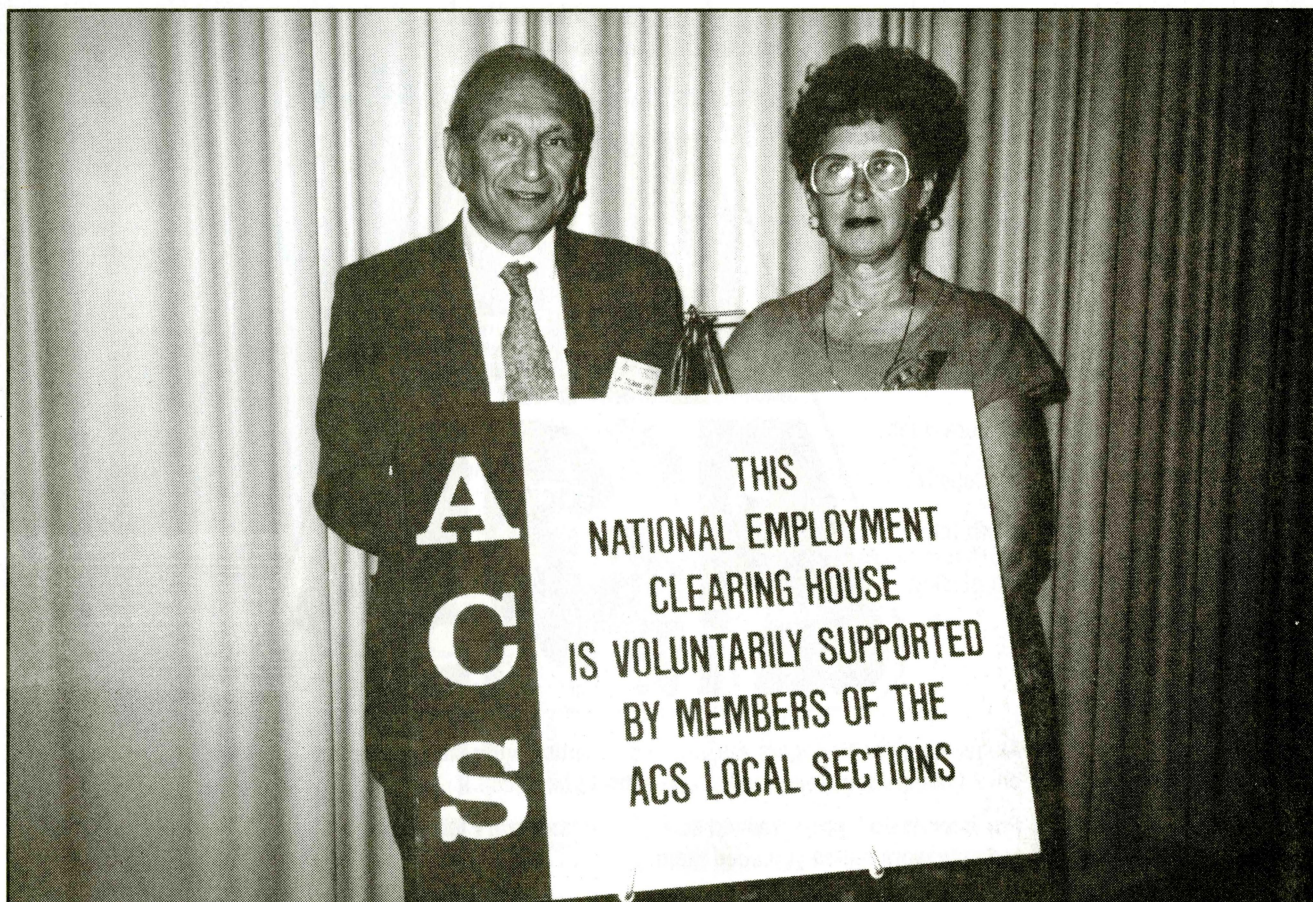


THE NUCLEUS

October 1993

Of the Northeastern Section of the American Chemical Society

Vol. LXXII, No. 2



Nerm 23 – Summerthing

Accounts and pictures of these successful events

Environmental Column

New approaches to hazardous waste disposal by reaction with supercritical water

Monthly Meeting

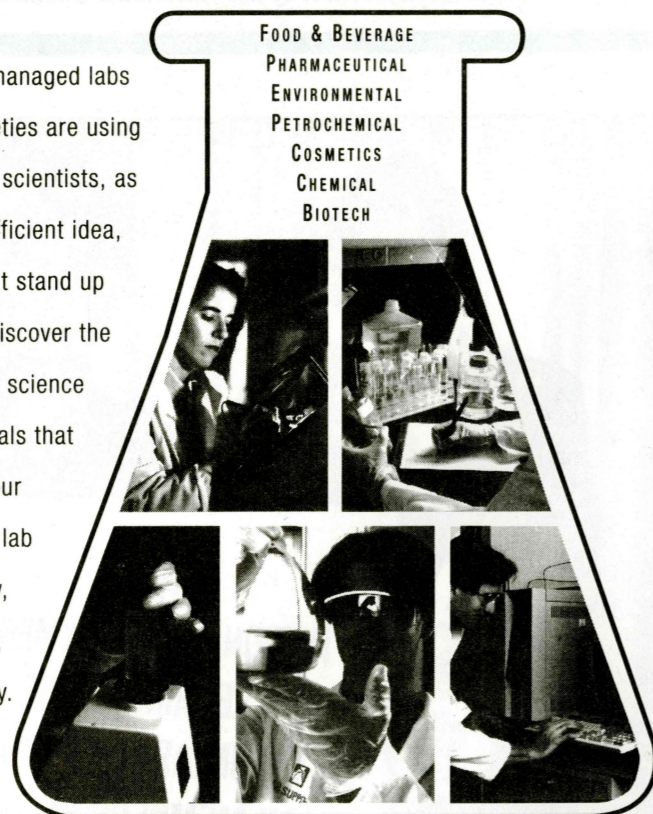
Hill Award to the Lights. Donald J. Berets discusses employment security

Historical Notes

More bios of recently deceased members

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Cover: Arlene and Truman Light at the Employment Clearing House, Chicago ACS Meeting (photo: Beverly Harrison, ACS staff)

Deadlines: December issue: October 22, 1993.

THE NUCLEUS

Dedicated to the Memory of James Flack Norris
Published monthly from October to May by the Northeastern Section of the American Chemical Society, Inc.



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David C. O'Donnell

On August 3, 1993 Dr. David C. O'Donnell died at his home in Needham at the age of 92. He had been a professor of organic chemistry at Boston College for forty years, where he was affectionately known as "Doc" by his colleagues and students.

David O'Donnell was born in Upper Sandusky, Ohio and graduated from the local high school in 1919. He received a BS degree from Miami University in 1923 and a Ph.D. from Ohio State University in 1927 on research in carbohydrate chemistry under Prof. W.L. Evans.

In 1928 he joined the faculty at Boston College where he was the first professor in the chemistry department with a doctorate. His reputation as a gifted teacher was soon established. Over the years he taught a host of students. He encouraged many of the chemistry majors to obtain advanced degrees, several of whom were inspired to become college professors as well as successful industrial chemists. He is remembered with gratitude and affection by many of the medical profession in the Boston area for his ability to present organic chemistry in a clear manner.

When he arrived at the chemistry department, the M.S. degree was the highest degree offered, but Doc O'Donnell raised the standards and introduced a successful research program that attracted many students. During the war years 1942-45, B.C. along with the other universities and colleges in the area, participated in War Training Courses. Dr. O'Donnell introduced one of the first courses in polymer chemistry. Several of the students who took it found successful careers in this field.

He received several honors: When he had completed 25 years of teaching at B.C. and one of the 200 Boston College Presidential Bicentennial Awards. He was a member, and later, an emeritus member of the ACS.

He was instrumental in developing the chemistry department at B.C. through his extraordinary ability as a teacher and as a wise and congenial colleague. His sage advice was sought not only by his fellow faculty members, but also by the administrators under whom he served. Throughout his professional career he was always open to new ideas—a quality for which he is especially remembered. ◇

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Member News

Elizabeth Sorrell of the Stoneham Middle School is the regional recipient, Middle Schools, Eastern Region of the Catalyst Award of the Chemical Manufacturers Association. A total of 24 teachers of science, chemistry or chemical engineering have received recognition. To qualify for an award, teachers will have inspired students to pursue careers in chemistry or other sciences. These awards are given to teachers in four-year colleges, two-year colleges, high schools, middle schools and elementary schools.

Paul H. Weinreb, a graduate student at MIT working for Prof. Peter Lansbury, is the recipient of an Eli Lilly Fellowship. His research is on the structural mimetics of beta amyloid peptides. Congratulations, Paul Weinreb and Dr. Lansbury.

From a notice in C&EN, July 26, 1993. ◇

Monthly Meeting

Professional Relations Meeting
The Henry A. Hill Award
The 755th Meeting of the Northeastern Section
of the American Chemical Society

Thursday, October 14, 1993
Faculty Dining Room, McElroy Commons
Boston College, Chestnut Hill, MA

5:30 Social Hour, Dinner (6:30)

7:45 Evening Meeting, Dr. Dorothy Phillips presiding
The Henry A. Hill Awards—William O. Foye, Ph.D.
Henry A. Hill—Clarence Tucker, Ph.D.
Truman Light, Arlene Light—Leon Rubin, Ph.D. Presentation of the Henry A. Hill Awards—Dorothy Phillips, Ph.D.
Lecture: *Job Security: It Ain't What it Used to Be!*—Donald J. Berets, *The Chemists Group, Inc., Stamford, CT*

Members of the Employment Services Committee will be available for consultation during the social hour. Those desiring committee services may call Leon Rubin: 332-5785 or Truman/Arlene Light: 862-3048.

Dinner reservations no later than October, (800) 872-2054. Reservations not cancelled at least 24 hours in advance must be paid. Members, \$21.00; Non-members, \$23.00; Retirees, \$12.50; Students, \$8.00. THE PUBLIC IS INVITED.

Anyone who needs special services, please call a few days in advance.

Free Parking is available in the garage under the BC stadium. Enter from Beacon St. Shuttle bus service will be available for transportation between the garage and McElroy Commons.

Next meeting: November 11, 1993, Norris Award to be presented to Arthur C. Breyer of Beaver College, Glenside, PA. 5:30, Reception and dinner in the Shay Room, Conte Forum, Award Meeting at 8 in Rm. 130, Chemistry Building.



Biography

Donald J. Berets

After obtaining his chemical education at Harvard (A.B., Ph.D.) Don Berets joined American Cyanamid Co. at Stamford, Conn. for a 37 year career, the last third as Manager, Catalyst Research. He accepted early retirement in 1986. Since then, he has operated The Chemists Group, Inc., an organization that offers the services of some 200 experienced chemists and chemical engineers as consultants or temporary employees.

Berets is a long time ACS Councilor from the Western Connecticut Section and has served for more than two decades on the various Council Committees involved with the welfare of chemists, including Economic Status, Professional Relations, and, currently, Membership Affairs. For the past three years he has also been Chairman of the Subcommittee on Employment Services. ◇

Abstract

Job Security: It Ain't What it Used to Be

Job security in America, as we once knew it, is a notion of the past—if it ever really existed, except in a few companies and in academia. Chemists no longer work for one company for 25 years, or even for one segment of industry. Chemists must be prepared to be flexible, mobile, and able to change with the demands of the marketplace. This presentation will offer recommendations on how chemists can take responsibility for their own career development, briefly discuss what one has to do if unemployed, and outline ACS career services. ◇

The Conference is sponsored by The Society for Technical Communications (Boston and Northern New England chapters) and the University of Massachusetts Lowell. ◇

Call For Papers

Environmental Division

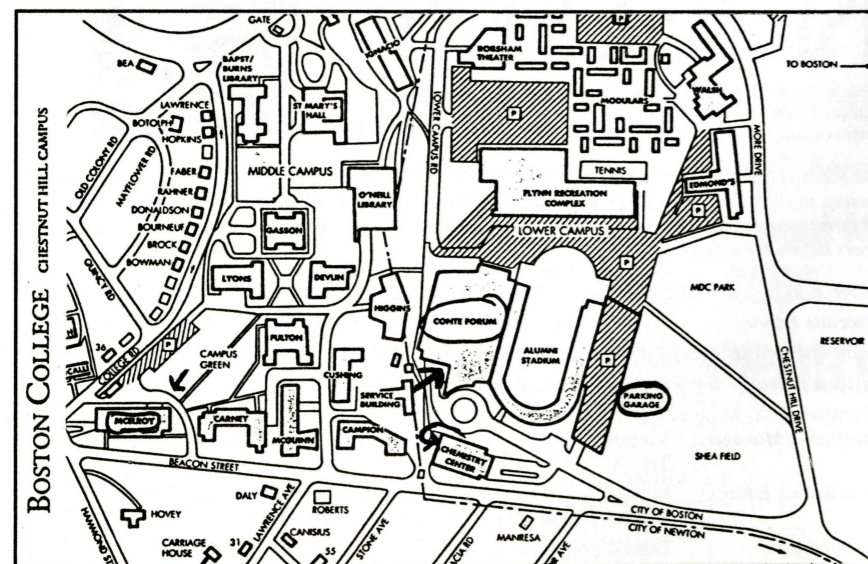
For a Symposium on *Environmental Successes in the Chemical Industry* for the March 1994 national meeting at San Diego, CA.

Short and extended abstracts (original and 3 copies) must be submitted by November 1, 1993 to Dr. Michael Cook, Morton International, 150 Andover St., Danvers, MA 01923; Tel.: (508) 774-3100; FAX: (508) 927-6752.

Obtain format specifications from Dr. Cook.

Scientific Writing Conference

The 6th Annual InterChange Conference in Technical Writing, to be held 4-5 April, 1994 at the Ramada Rolling Green in Andover, MA invites proposals for presentations, symposia, workshops, etc. in all aspects of scientific, technical and medical writing. Send by November 1, 1993 to Dirk Merselaar, Office of Continuing Education, University of Massachusetts Lowell, 1 University Ave., Lowell, MA 01854, phone (508) 934-2405 and for details and a brochure about the conference.



Section News

National Microscale Chemistry Center

You may have seen the one-page article in the August 9, 1993 issue of *C&EN* about the new National Microscale Chemistry Center at Merrimack College, North Andover, MA. The Center is funded by the EPA, the Toxics Use Reduction Institute of the Commonwealth of Massachusetts and the National Science Foundation. Ronald M. Pike, 1988 Norris Award for Excellence in Teaching co-recipient, is the executive director. "The goal of the center is ...to effect a cultural change in the way that chemists use chemicals," says the *C&EN* article. The purpose is to lessen environmental impact, lower costs and decrease exposures. Workshops collaboration with teachers is being planned, also demonstration projects: the first of these at Roxbury Community College. Workshops for industrial chemists are

planned for the future. For additional information, call (508) 837-5000 x4386.

Project SEED at Boston University

Project SEED, established by the American Chemical Society, provided seven \$1,500 grants to economically disadvantaged high school students to participate in summer research at Boston University.

The Chemistry Department has been involved with Project SEED for the past two years. This summer's students are working under the guidance of Professors Warren Giering, Morton Hoffman, Guilford Jones, James Panek, John Snyder and Pericles Stavropoulos. Participating students came from high schools in Brookline, Cambridge, Rindge & Latin, Charlestown, Chelsea and Somerville.

NESACs wins Phoenix Award

For its student affiliate Programs. Announced at the Chicago Meeting. ◇

Consulting Chemists' Meeting

Insurance Coverage for the Technical Entrepreneur

Thursday, October 21, 1993, 7 p.m.

Days Inn Hotel
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Washington St. opposite
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Brian Carroll

Small Business Insurance
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Discussion of Liability, Workman's
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Nominations

Gustavus John Esselen Award

The Northeastern Section is seeking nominations for its Esselen Award for Chemistry in the Public Interest.

The Award, consisting of a bronze medal and a sum of \$5,000, recognizes a chemist whose scientific work has contributed to the public well-being and has thereby communicated positive values of the chemical profession. The significance of this work should have become apparent within the five years preceding nomination and the Awardee shall be a living resident of the United States or Canada at the time of nomination. There is no limitation to the field within chemistry: Thus, past awardees have worked in environmental chemistry, radiochemistry, steroid chemistry, photosensitive drugs, ecological chemistry and biochemistry.

Nomination deadline is **November 1, 1993**. Nominations and inquiries should be directed to Dr. William O. Foye, 7 Winchester Drive, Lexington, MA 02173. The award recipient will be notified by February 1, 1994.

Theodore William Richards Medal

Nominations are invited for the 1994 Theodore William Richards Medal Award for conspicuous achievement in chemistry. The Richards Medal, first presented in 1932, is awarded every two years by the Northeastern Section. The next presentation will be in March, 1994.

Nomination documents should include a brief curriculum vitae of the person nominated and a clear and concise statement outlining the "conspicuous achievement in chemistry" on which the nomination is based. Send to Frederick D. Greene, Department of Chemistry: 18-297, Massachusetts Institute of Technology, Cambridge, MA 02139. Nominations must be received by **November 1, 1993**. ◇

ACS Short Course:

Molecular Biology and Recombinant DNA Technology

A Two-Day Short Course Sponsored by the Northeastern Section, ACS, Committee on Continuing Education

National ACS is making top-rated ACS Short Courses available to local sections at tuition fees greatly reduced from the normal \$785. The NESACS Committee on Continuing Education is pleased to present this course, which has been offered successfully at ACS national meetings for the past eight years.

Dates and Time: Thursday, Oct. 28, 1993, 8:30 a.m. - 5:00 p.m.

and Friday, Oct. 29, 1993, 8:30 a.m. - 5:00 p.m.

Place: Frost Lounge, Ell Building, Northeastern University, 360 Huntington Ave., Boston, MA

Program Agenda:

Basic Molecular Genetics: Replication and coding functions of DNA; the code; gene regulation; regulatory signals in DNA and RNA sequences.

Nucleic Acid Biochemistry: DNA and RNA structure; properties of some enzymes active on nucleic acids.

Basic DNA Technology: Cutting and cloning of DNA sequences into "vehicles"; analyzing the structure of recombinant DNA molecules; polymerase chain reaction.

Expression Vehicles: Construction of recombinant DNA vehicles to yield high level and/or required expression of cloned DNA.

Specialized Techniques and Problems: Targeted mutagenesis; the value of knowing an amino acid sequence.

DNA/RNA Probe Technology and its Use in Identifying Organisms and Genetic Diseases.

"Classical" Genetic Manipulation of Organisms.

Case Studies of Genetic Engineering in the Production of Foreign Proteins in Microorganisms.

Instructor: William S. Reznikoff, Professor of Biochemistry, University of Wisconsin-Madison. Professor Reznikoff is one of the most highly praised instructors in the ACS continuing education program.

Registration Fees:

ACS Members if mailed before Oct. 14.....\$250; after Oct. 14.....\$300
non-ACS Members if mailed before Oct. 14.....\$350; after Oct. 14.....\$400

Parking Fee \$3.00/day University cafeterias will be available for lunches.

For further information contact: Prof. Alfred Viola - (617) 373 2809

Registration form for Short Course: Molecular Biology and Recombinant DNA Technology

Name: _____ Affiliation: _____

Address: _____ Telephone: _____

Mail with remittance to:
(Please make checks payable to NESACS)

Prof. Alfred Viola, Chair
NESACS Committee on Cont. Ed.
Department of Chemistry
Northeastern University
Boston, MA 02115

NERM 23/ Summerthing 1993

46th Annual Symposium on Analytical Chemistry
June 22-25 at Northeastern University

Under the chairmanship of Thomas R. Gilbert, Northeastern Section, and Ira S. Krull, Analytical Symposium, assisted by a large group of Section members the combined NERM/Summer Conference was held at Northeastern University. Including exhibitors and volunteers, 833 attended. A total of 287 papers were given in the 22 symposia and in general sessions. There were 28 booths showing exhibits by manufacturers, publishers and other organizations.

The symposia attracted capacity audiences. A Laboratory Safety Workshop organized by E. Becker was well received. The dinner cruise and clam-bake attracted 98 attendees and guests, occupying the 3rd. deck on The Spirit of Boston in fine weather.

continued on page 9

The program had been arranged by Valerie Wilcox with the help of Phyllis Brauner.

Sixty-four members, spouses and kids gathered on Saturday, August 14 in Clinton, MA at the Nypro plastics plant for the first of the three Summerthing events. After donuts or Danish and coffee (thank you, Nypro!) we received a briefing about the history and doings of Nypro: Started in 1955, it now specializes in injection molding of plastics of many kinds. It makes plastic disk covers for 3½" diskettes, ball-pens including the caps, pipette tips for automatic pipettes, holders for Gillette Sensor lady's razors and many other products. Groups, after donning hair caps and safety glasses, were given a tour where we could observe the injection molding of these products on the large computer controlled injection molding machines, some of them located in clean rooms. The temperatures and timing cycles

can be selected appropriate for each product. Many items are molded in multiplicate, held together by a web of plastic strands which are fed back into the molding machine together with the raw plastic pellets. Since the presses work around the clock, we could see the production process even on the weekend. Periodically, a gloved worker would take samples for quality control inspection.

Nypro, a privately-owned company, employs about 1800 world-wide with plants in Central America, Asia, Europe and branches to open in Moscow (Russia) and Chicago, Ill. next year. The Clinton plant is located in the rehabbed former Bigelow Carpet Mill buildings, beautifully restored to their early 1900 brick appearance.

After the plant tour we proceeded to Bolton to the orchards of the Nashoba Valley Winery. After our bring-along picnic lunch, we received a tour of this family-owned fruit winery. After seeing how fruit is pressed, the juice fermented, aged and bottled, the adults were given samples of several of the fruit wines. Meanwhile, the young ones were entertained by a magic show.

Our last stop was in Leominster at the new National Plastics Museum where Valerie Wilcox, the Director of the Museum gave some demonstrations of the property and formation of plastics. The museum itself has displays showing the various ways of manufacturing plastics by molding, techniques; a non-automatic injection molding machine was operated, converting the granular resin to key-chain pendants; recycling of plastics is explained in detail; a display shows the historical development of plastics from horn articles to celluloid, Nylon and modern plastics; an Alcove of Fame honors chemists and engineers who have advanced the knowledge of plastics and the practice of plastics manufacturing.

By 5 p.m. we departed after a very successful Summerthing 93. ♦

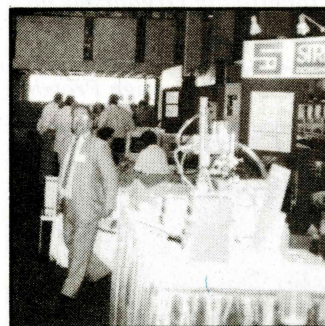


Exhibit area at NERM-23



Happy group at the Clambake on board the Spirit of Boston; ACS President Helen M. Free at extreme right.

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NERM 23/

continued from p. 8

Thank you, Tom Gilbert, Ira Krull and the many volunteers.

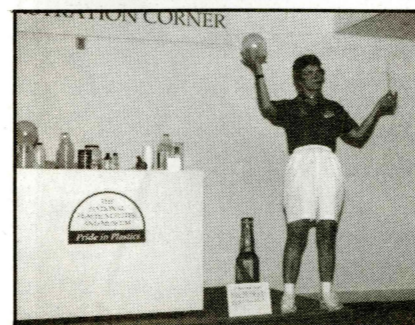
Walter J. Szymanski of Bristol-Myers Squibb, New Brunswick, NJ won the Raffle sponsored by the Integrated Chemical Sensors Corp. at their exhibit booth. The prize is a copy of Arthur Adamson, *Physical Chemistry of Surfaces* (5th ed.). Congratulations, Walter. ♦



At Nypro: Michaeline Chen, Truman Light and Valerie Wilcox with dust-caps, ready for the plant-trip (Ted, where are your safety goggles?)



At the Nashoba Valley Winery at Bolton, MA ready for the wine-tasting. Oak aging barrels in the rear.



Valerie Wilcox, Director of the National Plastics Museum, during the demonstration

THE SECOND ANNUAL ACS NORTHEAST REGIONAL UNDERGRADUATE DAY

November 6, 1993

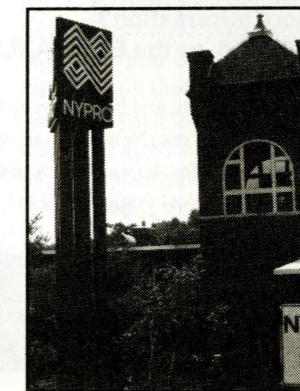
Sponsored by the Northeastern Section of the American Chemical Society
In Celebration of National Chemistry Week

- 9:00** Registration
- 9:30** Welcoming Remarks
Prof. Standish Hartman, Chairman, Chemistry Department, Boston University
Matthew Russell, President, Chemia (ACS Student Affiliates Chapter at B.U.)
Dr. Dorothy Phillips, Millipore Corp., Chairman, NESACS
- 9:45** Keynote Address
Prof. James Kaufman, Curry College, Chairman-Elect, NESACS
- 10:30** Workshop I: Making a Career in Chemistry
- 11:00** Coffee Break
- 11:15** Workshop II: Choosing a Graduate School
- 11:45** Workshop III: Interviewing Skills
- 12:15** Lunch
- 12:45** Graduate School and Industry Fair
- 2:00** Workshops and Tours
Resume Consultation: Bring your resume and have it reviewed by a professional
Mock Interviews: Learn proper interviewing skills
Tours of the Chemistry Department research facilities (2:00, 2:30, and 3:00 pm)

There will be a \$5 registration fee to cover lunch and workshop materials.

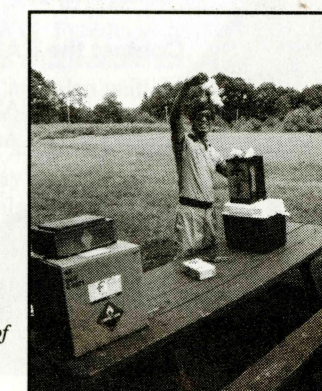
If you would like more information or if your school or company is interested in sending a representative to the Graduate School and Industry Fair, please contact Stephen Doherty at 617-353-2503 (fax: 617-353-6466; internet: doherty@chem.bu.edu)

Hosted By: Boston University, Department of Chemistry
Metcalf Center for Science and Engineering
590 Commonwealth Avenue, Boston, MA 02215



Entrance tower to Nypro, Inc., in the former Bigelow Carpet Mill, Clinton, MA.

Dr. Timothy Su, U. of Massachusetts-Dartmouth giving a magic show to the young ones. Not in the picture: An audience of two dozen onlookers. Photos by M. Simon





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ENVIRONMENTAL COLUMN

Supercritical Solutions for Critical Waste Problems

Kathleen C. Swallow and David Ham; Merrimack College, Envirochem, Inc.

The destruction and clean-up of hazardous waste have become critical problems as public reactions against landfills and waste incinerators gain ground. Public awareness of the problems of improper disposal of hazardous wastes as well as the regulations imposed by the Resource Conservation and Recovery Act (RCRA) have limited the options available for proper disposal of hazardous wastes. Two types of processes are being developed using supercritical fluids to provide environmentally preferred solutions to some of these problems. Supercritical water oxidation (SCWO) can be used to completely oxidize wastes to innocuous products. Supercritical fluid extraction (SCFE) can separate pollutants from contaminated soils for subsequent destruction. Both technologies employ fluids at temperatures and pressures above their critical points where solubilities and destruction kinetics change substantially.

Incineration is widely used for waste disposal but is encountering public resistance due to stack gas emissions and other problems. For economic reasons, incineration of organic wastes is mostly used for waste streams with relatively high concentrations of waste. Waste streams with less than about 25% organic waste require expensive supplemental fuels to maintain incineration temperatures above 1000 deg. C where high destruction efficiencies are achieved. Waste streams with less than about 1% organics can be treated by several technologies currently available or under development, including activated carbon adsorption, biological oxidation, and photochemically enhanced oxidation discussed in the Summer 1993 issue of the NUCLEUS.

The intermediate range of organic waste solutions, in the 1-20% range, are difficult to treat by conventional methods such as incineration and land-filling. The practice of letting aqueous

wastes evaporate in pits, ponds, or lagoons is no longer acceptable. The need for adequate, environmentally sound disposal methods for these dilute aqueous wastes has driven the development of SCWO. Initial developments of SCWO have demonstrated successful treatment of aqueous wastes in the dilute range of 1-20 weight percent organic content.

Supercritical water oxidation (SCWO) is a promising technology applicable to a broad spectrum of organic wastes, especially in dilute aqueous solutions. SCWO makes use of the unique properties of water above its critical point, 374 deg. C and 221 bars for pure water. Under these conditions water is a fluid with properties intermediate between those of a liquid and those of a gas. The density of supercritical water is in the range of 0.05-0.3 g/cm³, and the hydrogen bonding, normal in water at room temperature and pressure, is essentially eliminated. Therefore, supercritical water has a dielectric constant of about 2, making it a solvent with a polarity comparable to that of benzene or hexane. So, organic compounds are readily soluble in supercritical water.

Above the critical points of aqueous waste mixtures, only a single phase exists and all organic components of the mixture are miscible in all proportions. In addition, gases such as oxygen or air, are completely miscible with the fluid. This single phase reaction system is not limited by most of the transport phenomena that limit multi-phase contacting systems, so SCWO reactions can be rapid and complete. When organic compounds and oxygen are introduced into a supercritical aqueous fluid they are brought into contact at the molecular level at a high enough temperature to lead to rapid oxidation. The exothermic oxidation reactions produce enough heat to sustain further

reaction without external heating.

The oxidation reactions convert hydrocarbon compounds completely into CO₂ and H₂O; above 550 deg. C organics are oxidized with conversion greater than 99.99% in less than 1 minute. Organic heteroatoms are oxidized to organic acids, salts, or oxides: phosphorus to PO₄⁻³, sulfur to SO₄⁻², halogens to haloacids. Nitrogen is oxidized to N₂ and N₂O but not to NO_x because of the relatively low reactor temperatures.

As the dielectric constant falls approaching the supercritical region with increases in the solubilities of organic substances, the ionic dissociation constant falls from 10⁻¹⁴ at room temperature to 10⁻²³ or less at supercritical conditions. These changes cause inorganic salts that dissolve readily at normal conditions to be extremely insoluble in supercritical aqueous fluids. Above 450 deg. C inorganic solids precipitate from the fluid stream. Acids can be neutralized in situ to produce insoluble salts. Thus, the effluent from a SCWO process consists of three parts: a gas phase, water, and inorganic solids. If air is used as the oxidant, the gas phase consists of air depleted in oxygen and enriched in CO₂.

SCWO has been successfully tested on wastes ranging from industrial waste to human waste to nerve gas analogues. Almost any organic waste stream can be destroyed by adding water or fuel to provide optimum conditions for SCWO. Reaction conditions are flexible and can be optimized to completely destroy the organic components of the waste.

Several problems need to be solved prior to commercial applications of SCWO. Problems associated with the high temperature and pressure conditions and also wall corrosion require that vessels be made from high nickel alloys, such as Hastelloy or Inconel, and may require even more resistant materials. Removal of salt precipitates from continuously operating systems can prove challenging. Limiting the cost of these new technologies is also necessary for them to be economically competitive.

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Supercritical fluid extraction (SCFE) is currently used in the petroleum industry for separation and purification and in the coffee industry for caffeine removal. In waste disposal processing, SCFE may provide a preferred method for isolating toxic organic wastes such as diesel oil or PCB's from contaminated soils. SCFE processes use carbon dioxide as the supercritical solvent to dissolve the organic pollutants; pure CO₂ is supercritical above 31 deg.C and 74 bars. When the solution is returned to normal conditions, the contaminants precipitate from the gas which can be recycled in the process.

Several companies and academic research groups in the Northeastern Section are involved in developing supercritical fluid processes. MODAR, Inc. of Natick, Mass. was founded in 1980 to develop SCWO for commercial use as a waste treatment process. In 1985 MODAR successfully completed a pilot scale demonstration of the process. At MIT, Dr. J. W. Tester's research group has been studying the fundamental reaction kinetics and phase equilibria critical to understanding the chemistry of the oxidation reactions in supercritical water.

Phasex Corp. of Lawrence, Mass. has collaborated with the Westinghouse Hanford Laboratories in Richland, Wash. to conduct pilot scale extractions of various chemicals from contaminated soils using SCFE. In this work sponsored by the Department of Energy, diesel oil, PCB's, and bis(2-ethylhexyl) phthalate were removed from soils. Under Defense Department funding, Phasex extracted nitroglycerin from aqueous waste down to non-detectable levels and also cleaned gyroscopes, eliminating the need to use CFC solvents that contribute to stratospheric ozone destruction. Both of these processes use CO₂-based SCFE processes.

Many details on supercritical fluid processes are available in two ACS Symposium Series publications within the last two years: No. 488 edited by F. V. Bright and M. E. McNelly and No. 514 edited by E. Kiran and J.F. Brennecke. ◇

Historical Notes

by Edward R. Atkinson, Amherst, MA

Continuation of the biographies of recently deceased members which began in the September issue.

Daniel P. Corbett, 58, died on September 12, 1992. After graduating from Brockton High School in 1951 he served with the U.S. Marines during the Korean War. He received the B.S. in chemistry from Suffolk University and took graduate courses in biochemistry and microbiology at the University of New Hampshire and Harvard. He was employed as a senior development chemist at the Acushnet Co. in New Bedford. He served as a member and chairman of the Boston Rubber Group and was active in ACS affairs.

George Gibson, 83, died on June 7, 1992. He was a native of Yonkers, N.Y. who received the B.S. (1932), M.S. (1935), and Ph.D. (1942) degrees from Brooklyn Polytechnic Institute. He was a member of the chemistry

faculty at the Illinois Institute of Technology (1943-1960) and at Brooklyn College (1960-1975) where he was chairman of the department in 1961-1974. After retiring to Cape Cod in 1975 he was active in the affairs of the Cape Cod Museum of Natural History and was president of the Island Rock Hounds Club.

Sonja Keller Gross, 66, died on November 17, 1992, after a 10-year battle with cancer. She was a native of Czechoslovakia who fled to England in 1938 to escape the Nazi invasion. After moving to Bolivia for 8 years the family then came to the U.S. in 1947. She received the S.B. from M.I.T. in 1950 and the Ph.D. from Harvard in 1954. Her doctorate thesis was on the synthesis of morphine under the direction of R.B. Woodward. Ms. Gross taught at Simmons College and Boston University. She was a Radcliffe Fellow in

1967, then was a research associate at M.I.T. until 1971. Her last employment was with the E.K. Shriver Center in Waltham. She was the author of ten publications on the biosynthesis of lipids in the kidney.

Milton Mager, 72, died on March 26, 1993. He was a native New Yorker who received the B.S. from New York University, the M.S. from Rensselaer Polytechnic University, and the Ph.D. in biochemistry from the Boston University Medical School. After service in World War II with the U.S. Army Corps of Engineers he was employed for 30 years at the U.S. Army Natick Laboratories, 15 of which as director of biochemistry. His research centered on the effect of climatic extremes on human behavior and military operations.

Mary E. Nash, 69, died on February 8, 1993 after a long illness. She received the B.S. from Regis College in 1944 and later the M.Ed. from the University of Massachusetts-Amherst. After teaching at Norwell High School and the Boston Public Schools she became a chemist in surgical research at the

Veterans Administration hospitals in Boston and Roxbury. She was active in ACS affairs and in alumnae and religious organizations.

Clarence D.L. Ropp, 94, died on December 16, 1992. He was a native of West Virginia who received the B.S. (1921) and M.S. (1923) from the University of West Virginia and the Ph.D. (1925) from the Washington Square College of New York University. He was an instructor at N.Y.U. until 1928 when he joined the faculty of the Junior College of Connecticut (later a part of the University of Bridgeport). In 1947 he became professor of chemistry and dean of arts and sciences at Bridgeport. He acquired a law degree from the University in 1963. He retired in 1964 and moved to Walpole, Mass. in 1970.

Louis Tanner, 93, formerly a chief chemist of the U.S. Customs Laboratory in Boston, died on May 9, 1993. He came to New York from his native London as a small boy. His B.S. in chemistry was from City College followed by the S.M. in chemical engineering from M.I.T. in 1924. He

became an authority on test methods for products entering the U.S. and The ASTM recognized him with an award of merit in 1960. The U.S. Treasury Department gave him its Exceptional Civilian Service Award in 1949 and the Albert Gallatin Award in 1969 when he retired. The Congressional Record states that he was "a man unique in the annals of the Federal Civil Service whose accomplishments constituted a unique contribution to the government and to the industry of the U.S. and abroad." **Philip S. Thayer**, 69, a retired vice president of Arthur D. Little, Inc., died during heart surgery on February 2, 1993. He was an Amherst native who received his undergraduate training at Amherst College after service as a weatherman with the U.S. Army Air Corps during World War II. He received the Ph.D. in biochemistry in 1952 from Caltech, then taught briefly at the Berkeley and Los Angeles campuses of the University of California. After coming to ADL he was a resident of Arlington and was active in many community and church affairs. Those of us who had the pleasure of working with Phil were impressed by his professional expertise and by his quiet gentlemanly manners.

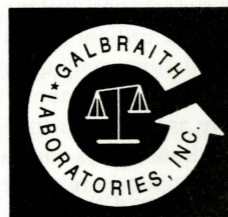
Faith Louise Van Nice, 31, died on January 3, 1993 of cancer. She was a Montana native and a 1984 summa graduate of the University of Oregon. She received the Ph.D. in physical chemistry at M.I.T. in 1989, then studied medicine in the joint M.I.T.-Harvard Medical Health Science and Technology program. Her degree was awarded posthumously during a memorial service at the Harvard Medical School on January 7, 1993. During her brief professional career she published several papers and served as a consultant to several commercial firms and hospitals. Her work for the Ph.D. involved the development of a device for the measurement of NMR at very low temperatures. Her avocation was athletics and she competed in swimming and marathon racing.

Cutler DeLong West, 89, died on March 3, 1993. He was a native of Glens Falls, N.Y. His formal education

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November 3, November 16

Chemistry of the Brain. Two one-day symposia for chemistry teachers and their students at the Boston Museum of Science. If you have not received registration material, call Dr. Phyllis Brauner, (617) 235-7849

November 6

Second Annual Northeastern Regional Undergraduate Chemistry Day at Boston University. See page 9.

November 11

James Flack Norris Award For Outstanding Contributions To Chemistry Education to be presented to Prof. Arthur C. Breyer of Beaver College, PA. See page 5 for details. ◇

Historical Notes

continued from p. 13

as a chemist included the B.S. (1924) from Wesleyan University and the M.S. (1929) and Ph.D. (1934) from Harvard. Dr. West became one of the first employees of the Polaroid Corporation and spent his entire professional career there in research on topics fundamental to the company product line. He was a member of several professional societies and was elected to the American Academy of Arts and Science in 1952. During World War II he commuted to work in Cambridge by bicycle, then became a charter member of the Charles River Wheelmen and a life member of the League of American Wheelmen. He lobbied for the interests of urban cyclists. At age 81 he completed a 65 mile trip by bicycle. ◇

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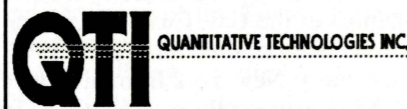
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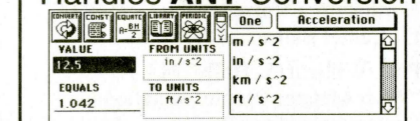
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October 4

Prof. Fred Wudl (U. Cal. Santa Barbara)
“Recent Advances in the Chemistry of Buckminsterfullerene, C₆₀”
Northeastern University
Rm. 129/130 Hurtig Hall at 4:00 p.m.

October 5

Prof. Fred Wudl (U. Cal. Santa Barbara)
“Recent Advances in the Chemistry of Conductive Polymers”
Northeastern University
Rm. 129/130 Hurtig Hall at 4:00 p.m.
The Electrochemical Society presents
Dr. Mark S. Wrighton, Provost (M.I.T.)
“Preparation and Characterization of Microelectrochemical Devices: Self-Assembly of Redox-Active Molecular Monolayers on Microelectrode Arrays.”
The Cottage Crest Restaurant, 610 Trapelo Road, Waltham, MA. Social Hour: 5:30 p.m.; Dinner: 6:30 p.m.; Presentation: 8 p.m. For dinner reservations call Prof. John Reardon at (617) 287-6155

October 6

Dr. Ross S. Feldberg (Tufts U.)
“Teaching Biochemistry as a ‘Writing Workshop’ Course”
UMass Dartmouth
Rm. 305 Sci. & Eng. Bldg. (Gr. II), 4 p.m.

October 7

Prof. Robert J. Angelici (Iowa State U.)
“Metal and Ligand Effects on Transition Metal Complex Basicities: Studies of Their Heats and Protonation by Acids”
Brandeis University
Gerstenzang 122 at 4:00 p.m.

October 12

Prof. Peter T. Lansbury (M.I.T.)
“The Molecular Mechanism of Amyloid Formation”
Brandeis University
Gerstenzang 122 at 4:00 p.m.

October 13

Prof. Doreen Leopold (U. Minnesota),
“Photoelectron Spectroscopy of Organometallic Anions”
Harvard University
12 Oxford Street, Mb-23 at 4:00 p.m.

Prof. Geo. M. Whitesides (Harvard U.)
“Nanostructures and Chemistry”
Northeastern University
Ell Center Ballrm. at 2:00 p.m.

Prof. William G. Thilly (M.I.T.)
“What Mutates People: Mutational Spectrometry May Provide an Answer”
Northeastern University
Ell Center Ballrm., at 2:40 p.m.

Prof. John B. Vander Sande (M.I.T.)
“Engineering Education in the 21st Century”
Northeastern University
Ell Center Ballrm. at 3:40 p.m.

Dr. Douglas DeVivo (Vanguard Assoc.)
“Strategic Alliances Between Industry and the University in the 1990’s”
Northeastern University
Ell Center Ballrm. at 4:30 p.m.

Dr. Morton Z. Hoffman (B.U.)
“Photodynamics of Model Systems for Solar Energy Storage”
UMass Dartmouth
Rm. 305 Sci. & Eng. Bldg. (Gr. II), 4 p.m.

October 20

Prof. David Beratan (U. Pittsburgh),
“Molecular Spelunking: Mapping Electronic Coupling Pathways in Proteins”
Harvard University
12 Oxford Street, Mb-23 at 4:00

Dr. Lynnmarie K. Thompson (UMass Amherst)
“Solid-State NMR Studies of Structure and Function in Membrane Proteins”
UMass at Dartmouth
Rm. 305 Sci. & Eng., 4 p.m.

October 25

Dr. Ian R. Gould (Kodak Research Labs)
“Photoinduced Electron Transfer Reactions”
Brandeis University
Gerstanzang 122 at 4:00 p.m.

October 27

Paul Wennberg (Harvard University)
“Hydroxyl Radicals and the Tokyo Express: The Ozone Budget of the Lower Stratosphere”
Harvard University
12 Oxford Street, Mb-23 at 4:00 p.m.

Dr. Stanley C. Israel (UMass Lowell)
“Surface Characterization by Contact-Angle Goniometry”
UMass Dartmouth
Rm. 305 Sci. & Eng. Bldg. (Gr. II) 4 p.m.

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