

THE NUCLEUS

May 2001

Vol. LXXIX, No. 9



Monthly Meeting

Education Night: John J. Fortman speaks on: "The Serious and Delirious Use of Chemistry in Movies"

Book Review

"Career Management for Scientists and Engineers"
by John K. Borchardt

NESACS

Election Candidates' Bios and Statements

Summer Scholar Report

Sergei Poletayev on photo-protecting groups

Eastern Analytical Symposium

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THE NUCLEUS

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Book Review

Career Management for Scientists and Engineers

By John K. Borchardt (*American Chemical Society*; 2000), 258 pp., ISBN 0841235252; \$34.95 (hardcover)

Reviewed by Lynne O'Connell
Department of Chemistry
Boston College Chestnut Hill, MA
02467

Assessing past professional accomplishments and determining future career goals is a task that many of us undertake only when life's circumstances force us to do so. The book, *Career Management for Scientists and Engineers*, by John K. Borchardt, makes it clear that performing this kind of analysis on a regular basis is an important and necessary task for all scientists at any stage of their career. From students who are trying to land that first job offer to mid-career professionals who are considering a change to an alternative career, everyone needs to evaluate their strengths and weaknesses and define both short and long term goals in order to remain marketable and open to opportunities for growth.

The book is organized into three main sections:

- 1) "Professional Skills", in which Borchardt discusses the non-technical skills that must be developed in order to be successful in one's present position as well as marketable if actively engaged in a job search.
- 2) "Today's New Working World", in which the author illustrates why proper career management is so vital in the insecure environment of industrial science created by frequent restructurings and downsizings.
- 3) "Job Hunting", in which the steps of securing a new position are thoroughly covered from search techniques through résumé writing, interviewing and negotiating a job offer.

I found Borchardt's writing style to be clear and easy to read. He consistently provides examples to illustrate

his points, all of which are taken from science and engineering settings. The main focus is on industrial careers and only an occasional comment refers to academia, but all levels, from technician to Ph.D. bench chemist or manager, are considered. Attention is paid to the role which technology can play in fine tuning career management, such as the use of the Internet in job searches. Throughout the book, certain topics are highlighted in side-bars, although the reasons why these topics are set apart from the main text are not always clear. The editorial staff should have followed Borchardt's advice to résumé writers and done a more careful job of proofreading as a number of typos are encountered throughout the book.

Reading the volume cover-to-cover will provide a very comprehensive overview of all aspects of career management; however, this book can also be used as a reference source in which those parts relevant to one's current situation can be reviewed at appropriate times. For instance, a recent graduate who is about to embark on his first position may want to review just the sections that concentrate on developing workplace skills, such as time management and oral presentation techniques. For the mid-career scientist who is not actively seeking a new job but wishes to add variety and challenge to her professional experiences, sections that discuss activities such as participation in professional organizations, publishing in trade journals or maintaining a second job, will be of interest. Both the well-organized table of contents and the index will facilitate the use of the book as a reference guide. Furthermore, lists of additional resources at the ends of each chapter will lead readers to more information pertaining to a specific area of interest.

Even persons who are comfortable in their current positions will be able to extract something from Borchardt's book. His instructions are motivational as well as informative; keep your goals in focus, know your strengths and improve on your weaknesses and a fulfilling career in science is just around the corner. ◇

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Abstract

This presentation will begin with illustrations of brief mentions of chemistry in films where you might not expect it, such as *The Graduate*, *It's a Wonderful Life*, *1776*, and *Bells on Their Toes*. Movies that feature science will then be contrasted between then (past) and now (present), the real and the impossible, drama and comedy, and similar scenes in multiple movies. Featured clips will be selected from such films as *Apollo 13*, *Dante's Peak*, *Chain Reaction*, *It Happens Every Spring*, *The Man in the White Suit*, and *Smoke*. Several live chemical demonstrations relative to the movie scenes will be interspersed with the videos. ◇

CHICKENS AND EGGS

Membership surveys show that you want more articles in the Nucleus. If you tell our advertisers that you saw their ad in the Nucleus, they will provide more financial support and this will allow us to add articles.

Monthly Meeting

The 825th Meeting of the Northeastern Section of American Chemical Society

Thursday, May 10, 2001

Executive Dining Room, 4th floor, School of Management,
Boston University, 595 Commonwealth Ave., Boston, MA

5:30 pm Social Hour; a table of Career Services Literature and Aids will be available

6:30 pm Dinner

7:45 pm Evening Meeting, Dr. T. Frigo, Chair, presiding

Address: *The Serious and Delirious Use of Chemistry in Movies,*

Dr. John J. Fortman, Robert J. Kegerreis Distinguished Professor of Teaching, Wright State University

Presentation of Awards

Philip L. Levins Memorial Prize

James Flack Norris/Theodore William Richards
Undergraduate Research Fellowships

Undergraduate Grants-in-Aid

2000 Project SEED Students

Excellence in Teaching at the Secondary School Level

Induction of new members into *Aula Laudis*

Avery A. Ashdown Chemistry Examination

Simmons College Prize

Dinner reservations MUST be made by noon, May 3, 2001. Please call or fax Marilou Cashman at (800) 872-2054 or e-mail at MCash0953@aol.com. (The office will be closed May 4-8) Reservations not cancelled at least 24 hours in advance must be paid. Members, \$25.00; Non-members, \$28.00; Retirees, \$15.00; Students, \$ 8.00.

THE PUBLIC IS INVITED.

Anyone who needs special services or transportation, please call Marilou Cashman a few days in advance so that suitable arrangements can be made.

Parking: Recommendation: Use the T (Green B-line, first stop west of Kenmore). Because of the Red Sox home game, on-street meter parking will be difficult to find after 5 pm. Limited parking may be available in the School of Management garage – obtain a voucher at the meeting registration desk.

Summerthing on June 7: Pre-game mixer at BU, followed by Red Sox Home Game with Detroit Tigers. See announcement on page 8.

Biography

John Fortman is Professor and Associate Chair of Chemistry of Wright State University, Dayton, Ohio 45435, where he has taught all levels of freshman chemistry as well as senior inorganic chemistry for over 30 years. In 1998, he was appointed the Robert J. Kegerreis Distinguished Professor of

Teaching.

Dr. Fortman received a B.S. from University of Dayton in 1961 and a Ph.D in physical inorganic chemistry from the University of Notre Dame in 1965. He had a part time appointment at the Aerospace Research Labs at Wright-Patterson Air Force from 1966 to 1970 and was a visiting associate professor at Purdue in 1973-74. Dr. Fortman has received numerous

awards for his teaching, including the 1998 CMA “Responsible Care” Catalyst Award for Outstanding College Chemistry Teaching”.

In addition to course content and organization, his educational interest include chemical demonstrations and teaching analogies. With Dan Ketcha he does at least fifteen chemical demonstrations for outreach programs reaching more than 7,500 high school or junior high students per year. With Rubin Battino he has produced sets of videotapes which contain chemical demonstrations for use at middle schools through college levels. He has done demonstration workshops for teachers on pyrotechnics and on simple demonstrations using readily available and inexpensive materials. He is the author of a series of thirteen articles featuring pictorial analogies which began appearing in the January 1993 issue of the *Journal of Chemical Education*. He has designed a one year course in chemistry for non-science majors which organizes principles around occurrence and use instead of vice-versa and incorporates extensive use of videotapes as well as demonstrations. The course has been cited as a model in the AAAS report on “The Liberal Art of Science” and is the subject of a featured article which appeared in the November, 1990 issue of the *The 2YC3 Distillate*. John was a member of the General Chemistry Task Force of the ACS Division of the Chemical Education from 1991 to 1997. In the Fall of 1992 he began teaching an experimental offering for science majors of an alternative general chemistry sequence containing the core material identified by the General Chemistry Task Force but organized on the framework of his successful course for non-science students, starting with inorganic and biochemistry, moving to materials, and concluding with energy. The course is sometimes characterized as being taught inside-out, upside-down, and backwards. Dr. Fortman designed an applied science curriculum and served as a master teacher in the WSU Summer Upward Bound Program for disadvantaged high school

continued on page 24

ACS SHORT COURSE

Designed to improve the skills and marketability of practicing B.S., M.S., and Ph.D. chemists. National ACS is making top-rated ACS Short Courses available to local sections at tuition fees greatly reduced from the normal \$845. The NESACS Committee on Continuing Education is pleased to present this newly updated course, formerly titled: *Dispersion of Fine Particles in Liquids*.

DISPERSIONS, EMULSIONS, and FOAMS: Modern Methods and Applications

Save over 50% of the registration fee charged for this course when it is offered at ACS National and Regional Meetings.

This Two-day Short Course, sponsored by the Committee on Continuing Education of the Northeastern Section, ACS, is designed for scientists and engineers engaged in R & D in the chemical, petroleum, coatings, food, electronics, pharmaceutical, cosmetics, and ceramics industries.

DATES and TIME: Thursday, May 17, 2001, 8:00 a.m.-5:00 p.m.
and Friday, May 18, 2001, 8:30 a.m.-5:00 p.m.

PLACE: Snell Library, Room 88, Northeastern University, 360 Huntington Ave., Boston, MA

PROGRAM AGENDA:

Surfaces and Interfaces: Basic principles of the nature and stability of interfaces; Energies of spreading, wetting and adhesion; Molecular models of interactions across interfaces.

Fine Particle Technology: Properties of dispersed-phase systems; Light scattering; Particle size analysis.

Surface-Active Solutes: Adsorption from solution at the liquid-vapor and solid-liquid interfaces; Mechanisms to stabilize interfaces; Classification of surface-active solutes.

Dispersion Processing: Rates of adsorption, attrition, and comminution; Commercial equipment.

Interparticle Forces – Sources and Estimates of Their Magnitudes

Kinetics of Flocculation

Dispersion Stability by Electrostatic Repulsion Mechanisms of Particle Charging in Aqueous and Nonaqueous Dispersions

Electrokinetic Phenomena

Methods of Measuring Particle Charge

Rheology of Dispersions

Instruments for Rheological Measurements

Relation of Rheology to Interparticle Forces and Dispersion Stability

Polymer Adsorption

Dispersion Stability by Steric Repulsion: Relation of steric stabilization to molecular properties of polymers and to polymer phase diagrams.

Stabilization by Block Copolymers

Combined Electrostatic and Steric Stabilization

Mechanisms of Flocculation

Dispersions in Industry – Examples and Practical Applications

INSTRUCTORS:

Sydney Ross, Professor of Colloid Science, Emeritus, Rensselaer Polytechnic Institute, is the author of over 150 publications and patents and has written and edited several books.

Ian Morrison, Director of Ink Technology at E Ink. Prior to this he was a Principal Scientist at Xerox Corporation for 20 years and has authored over 35 publications and patents.

PRE-REGISTRATION REQUIRED – Registration Fees:

ACS Members if **received** before May 2 \$400.00; after May 2\$475.00

Non-ACS Members if **received** before May 2\$475.00; after May 2\$550.00

There will be a limited number of scholarships for unemployed ACS Members on a space-available basis.

Parking Fee \$14.00/day

University cafeterias will be available for lunches.

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

Registration form for Short Course: *Dispersions, Emulsions, and Foams: Modern Methods and Applications*

Name: _____ Business Affiliation: _____

Mailing _____ Telephone: _____

Address _____

Mail with remittance to:

(Please make checks payable to **NESACS**.)

Sorry, we cannot accept credit cards or purchase orders.)

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

Chemical Education in the United States and Germany: *A Look into the 21st Century*

A symposium sponsored by the Northeastern Section of the American Chemical Society (NESACS) and the Gesellschaft Deutscher Chemiker (GDCh) with the Younger Chemists Committee (YCC) and the Jungchemikerforum (JCF)

**Boston University, School of Management Auditorium
595 Commonwealth Avenue, Boston, Massachusetts**

Thursday, May 3, 2001

Program

1:00 p.m. Welcoming Remarks: Mr. Jon Westling, President, Boston University

Professor Morton Z. Hoffman, Department of Chemistry, Boston University; Chair-Elect, NESACS

Prof. Dr. Kurt Begitt, Education Division, GDCh

1:20 p.m. Ms. Sylvia A. Ware, Director, Education and International Activities Division, American Chemical Society: *Chemistry for the Citizen and Chemists as Responsible Citizens*

Chemistry and chemical technology contribute to the quality of life on this planet in many areas: health, nutrition, agriculture, transportation, materials and energy production, and industrial development. These contributions are usually positive but have been accompanied by adverse environmental consequences, and subsequent public hostility to the chemical enterprise. The wise utilization of chemistry knowledge through the development of sustainable chemical industries will require a healthy partnership between the chemistry community and the general public. The American Chemical Society has been involved in a number of initiatives to bring an understanding of chemistry to the general student (and future citizens). At the same time, it is important that the future chemist recognize his/her role as a citizen as well as a chemist, by embracing an environmental ethic. In this context, the recent expanded involvement of ACS in the "Green Chemistry" movement will be described as well as the ACS approach to "chemistry for all."

1:40 p.m. Professor Glenn A. Crosby, Department of Chemistry, Washington State University: *Current Problems of Science Education in American Schools*

There is a current crisis in the American educational system(s), particularly in the middle and high schools. Standards have eroded in all instructional areas, but possibly the worst erosion has occurred in the fields of science and mathematics. Some of the problems are peculiarly American, stemming from the historical conception that the public schools are local and state responsibilities, and any federal influence is viewed as interference. Another American problem is the pandemic and fallacious idea that one can teach a subject armed only with the weapons of pedagogy without the ammunition of deep knowledge of content. Other problems are not uniquely American. They are defined by the revolutions in technology, the rapid increase in scientific knowledge in all fields, and the rapidity of

change. The impact of these and other exogenous forces on American schools, and suggested responses to the problems, particularly the education and professional development of teachers, will be presented.

2:20 p.m. Dr. Robert L. Lichter, Executive Director, The Camille and Henry Dreyfus Foundation, Inc. *Chemistry Education: Freude am Leben or Sturm und Drang?*

This presentation will offer some personal observations on large- and small-scale efforts to improve undergraduate chemistry education. It will attempt to provoke reflection on whether these efforts matter, are properly targeted, can be broadly adapted or institutionalized, and, especially to this audience, can or ought to be incorporated into educational systems with different histories, traditions and emphases. Results are not guaranteed.

2:50 p.m. Coffee Break

3:10 p.m. Prof. Dr. Christiane S. Reiners, Department of Chemistry and Education, University of Cologne: *Teaching, Discovering, and Applying Chemistry in Germany: Current State and Selected Recent Developments*

Starting with a general overview of the educational system in Germany, attention will then focus on chemistry education in schools and universities. Due to the fact that society is shifting from the age of industry to the age of information, the goals of science education have to be redefined. In addition, reports about the efficiency of science education have initiated several reforms in science teaching and learning. Some of the new perspectives concerning the chemistry education in schools and universities will be discussed and reflected from an educational point of view.

3:40 p.m. Prof. Dr. Carsten Bolm, Institute for Organic Chemistry, Rhine-Westphalia Technical University, Aachen: *Chemical Education at German Universities*

This talk will summarize the current chemical education system at German universities. Furthermore, new developments and future directions in the training of chemistry students of all levels will be discussed.

4:10 p.m. Prof. Dr. Terence N. Mitchell
Department of Chemistry, University of Dortmund:
Post-Bologna Chemical Education in Europe

In June 1999, the European ministers of education met in Bologna and signed a declaration that is likely to have wide-ranging repercussions for university education in Europe. Chemistry education is already starting to change against the background of the "numbers problem", i.e., the lack of interest of young people in most European countries in studying our subject.

4:40 p.m. Panel Discussion ◇



AMERICAN CHEMICAL SOCIETY



*Northeast Regional
Meeting June 24-27, 2001*

The 30th Northeast Regional Meeting, hosted by the ACS Northeastern Section, will be held in the Memorial Union Building at the University of New Hampshire, Durham, June 24-27, 2001. The meeting will feature general sessions, and topical symposia, and several workshops are being planned. Symposia topics include: advances in polymer composites, delivery systems and analytical techniques; advances in synthetic organic chemistry; change in chemistry education; clusters — from molecules to nanomaterials; developments in mass spectrometry, (a) proteomics and glycomics, (b) instrumentation; functional glycomics; molecular magnetic systems; oligosaccharide synthesis; reactive and unusual organic molecules; reversible molecular interactions; symposium in honor of Robert E. Lyle; ultrafast dynamics. Workshops on the following topics will be held: PRF proposals; new strategies for the teaching of general chemistry; Labworks[®]; College Chemistry Consultants Service; laboratory safety; recruiting and retaining minority students. For further information, visit <http://www.unh.edu/chemistry/NERM> or contact Howard Mayne, (603) 862 1550, email: howard.mayne@unh.edu. ◇

Summerthing 2001

June 7, 2001

*5:00 – 6:30 pm Pre-game party at BU
Science Lounge, Metcalf Science Center
590 Commonwealth Ave.*



Jointly sponsored by NESACS and its Younger Chemists Committee

7:05 pm Red Sox-Detroit Tigers Game

Swing into Summerthing 2001 with the Northeastern Section and the Boston University Younger Chemists Committee. NESACS has obtained 100 reserved right field box seats for \$15 (\$30 at the box office) plus 1\$ for postage and handling. As an extra attraction, the BUYCC has planned a pre-game party/reception with all the good refreshments you might want.

Tickets: Send your order (\$16 per ticket) by check (payable to NESACS) to Marilou Cashman, 23 Cottage St., Natick, MA 01760. Be sure to include a return address for ticket mailing. Red Sox rules concerning canceled or postponed games apply. Questions? Call 1-800-872-2054.

Since this event was already listed in the April issue, the tickets may well be gone by now!

Use the T. Any parking, whether commercial or at BU is at the special event rate of at least \$20 per car! ◇

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Northeastern Section

Election of Candidates for 2002

In the interest of providing maximum information and expression of opinion by the candidates for election in 2001, the Nominating Committee has prepared this section of the NUCLEUS for mailing concurrently with the ballots. All candidates were asked to submit biographical material and, with the exception of committee member nominees, position statements. To attain uniformity of format, the biographical data have been rearranged, and, where the text exceeded the allotted space, abbreviated. The statements have been reproduced without change. An official ballot, along with a ballot envelope and return envelope have been provided. The election and balloting are being carried out in conformance with Article VIII of the Constitution of the Northeastern Section. The order of candidates for each office has been determined by lot. Comments regarding the election may be addressed to the Nominating Committee Chair, Dr. Doris I. Lewis (address on p.3: Immediate Past-Chair)

BALLOT DIRECTIONS: Vote for the candidate(s) of your choice, insert your ballot into the ballot envelope. (Neither the ballot nor ballot envelope may have any writing or identification). Insert the sealed ballot envelope into the return envelope and sign your name on the return envelope only, affix postage and mail.

The ballot must be received by June 1, 2001.

Chair-Elect

(Three-year sequence: Chair-Elect, Chair, Past Chair; One to be elected)

Mukund S. Chorghade

Education: B.Sc. 1971, M.Sc. 1973 (1st Class Honors) Univ. of Poona, India; Ph.D. (Organic Chemistry), 1982, Georgetown University.

Professional Experience: Research Fellow, National Chemical Laboratory (1973-74); Instructor, Georgetown University (1981-82); Postdoctoral Res. Assoc., Univ. of Virginia (1982-84); Postdoctoral Research Fellow, Harvard University (1984-85); Sr. Res. Chemist (1985-89), Project Leader (1989-90), Dow Chemical Co.; Res. Scientist/Asst. Director, Collège de France, Paris and Université Louis Pasteur (1990-91); Project Mgr., Abbott Laboratories, Pharmaceutical Research (1991-95); Sr.



Director, Chemical Sciences Research & Development, Cytomed, Inc. (1997-98); President, CP Consulting, Inc. (1995-); Visiting Scholar, Univ. of Brit. Columbia, Univ. of Chicago, Northwestern Univ. and others. Vice President, Chemical Development Sciences, GelTex Pharmaceuticals (2000-).

ACS Service: Member since 1982. Chairman, Brazoport Section (1990); Organic Division, member; Chairman, Symposium on Industrial Chem., Great Lakes Regional Meeting, May 1997; Visiting Speakers Program (1999-); Department of Career Services Consultant (2000-).

NESACS Service: Public Services Committee, Chair; Professional Services Committee, member; Public Affairs Committee; Public Relations Committee.

Memberships, Honors: Maharashtra Academy of Sciences (Elected Fellow); IUPAC; Royal Society of Chemistry (Elected Fellow); New York Acad. of Sciences; Am. Institute of Chemists (Elected Fellow); AAAS; Sigma Xi; Indian Society of Bio-Organic Chemists; IUPAC Commission on Biotechnology, Medicinal Chemistry, New Technologies and Special Topics, Titular member; 20th IUPAC Conference on the Chemistry of Natural Products, Chicago, 1996: Chair, Scientific Programs Comm; on Advisory Bd. For *Organic Process Research and Development*; Reviewer of manuscripts for numerous leading professional journals. Awarded "Diamond Jubilee Fellowship", Univ. Dept. of Chemical Technology, Mumbai, India; Awarded "B.D. Tilak Distinguished Visiting Fellowship", Univ. of Bombay, India. Listed in American Men and Women of Science, Who's Who in Science and Engineering. Actively involved with Indian Cultural Coordination Committee, Washington, DC. Leadership roles in several community groups.

Statement: It is a singular honor and privilege to have been nominated to the position of Chair-Elect for the Northeastern Section. The breadth, depth and sophistication of the talent and creativity of the individuals in the section is truly outstanding. We have eminent researchers representing the strategic triad of academia, government and industry from all subdisciplines of Chemistry.

It will be my endeavor to (1) Foster greater interaction between the ACS and the other professional bodies catering to the cause of Chemistry - the American Institute of Chemists and the International Union of Pure and Applied Chemistry come readily to mind. A one-day joint meeting featuring several prominent scientists can be envisioned. This could provide a useful forum for productive exchange of ideas. (2) Organize a speakers bureau to provide guest lectures to school, universities and civic and community groups. The topics can encompass issues of topical interest, e.g., chemical safety, environmental and the contributions made by chemists/chemistry to the benefit of society at large. (3) Expand the activities of the Professional Training/Education Committee. Regular workshops will be used to educate students at local colleges/universities about the diverse opportunities in chemistry, résumé writing, interviewing skills/techniques and related topics. (4) Organize a

Election

Continued from page 9

symposium on the progress of a drug from conception to commercialization. This will build a much needed bridge between the medicinal and process chemistry groups and is expected to attract several scientists in the area. (5) Organize a few lunch time lectures to attract researchers who, because of their busy schedules, are not able to attend the evening lectures. (6) Increase participation of members in the section activities and increase the membership of the ACS and the section. This will also allow greater opportunities for networking among chemists. (7) Increase participation of the section in the international activities of the ACS.

Patrick M. Gordon

Education: B.Sc. University of Guyana (1977); M.Sc, University of New South Wales, Australia (1982); Ph.D., University of Manitoba, Canada (1987)

Professional Experience: Postdoctoral Associate, Kansas State University, (1987-1988); Organix Inc., Woburn, MA (1988-1991); Senior Scientist, Polaroid Corporation (1991-present)

ACS Service: Alternate Councilor (1994-1996, 1997-1999, 2000-2001)

NEACS Service: NERM Chair of the Symposium on Cannabinoids, (1989); Centennial Committee Co-Chair (1998); member, Board of Publications 1999 to present; Secretary, Board of Publications, 2001

Statement: The Northeastern Section is one of the oldest units of the American Chemical Society. It is also one of the most active sections. However, neither longevity nor activity will necessarily sustain the Section without mindful considerations of current and future challenges facing the American Chemical Society. Among the issues that may arise, there are three areas that I would like to influence if I were elected Chair of the Section:

1. I plan to continue to influence, in a positive way, the public perception of Science, in particular, Chemistry. The Section has done a great job under the leadership of the late Phyllis Brauner, to have programs such as the Holiday Lectures, for our local population. This area can be enhanced and expanded.
2. I would like to see our membership grow, both in numbers and participation, by emphasizing current benefits and by providing more benefits. I believe that expanding some of the ACS services can aid in this effort. For example, career services and programs provided by the Medicinal Chemistry Group are incentives to increase Membership.
3. Finally, as part of growing our membership in the



National Organization (ACS), we will undoubtedly be including a broad spectrum of Scientists. Hence, the Section should take advantage mentoring programs (such as project SEED and the ACS Scholars Program). Both Dorothy Phillips (who served as Chairperson in 1993) and I are affiliated with the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCChE). I would support the Section forging a better relationship between the two Organizations and the Section assisting NOBCCChE in promoting their out reach to Scientists of Color.

While I have been privileged to serve the Northeastern Section and the Medicinal Chemistry Group since 1990, it would be a greater honor to serve as Chair of the Section. I will do so humbly but with confidence knowing that many capable Section leaders will support my efforts.

John L. Neumeyer

Education: Bronx H.S. of Science (1948); B.S., Columbia Univ. (1952); Ph.D. in Medicinal Chemistry, Univ. of Wisconsin (1961).

Professional Experience: Research Chemist, Ethicon Inc. (Div. of Johnson & Johnson) (1952-57); Sr. Research Chemist, FMC Corp., (1961-63); Staff Scientist, Arthur D. Little, Inc. (1963-69); Professor of Medicinal Chemistry and Chemistry, Northeastern Univ. (1969-91), Emeritus (1991-present); Visiting Professor of Chemistry, Univ. of Konstanz, Germany (1975-76); Visiting Scientist, McLean Hospital, Harvard Medical School (1985-86); Scientific Director, Chairman and Co-founder, Research Biochemicals International (1980-96); Director, Medicinal Chemistry Program, McLean Hospital, Alcohol and Drug Abuse Research Center, Harvard Medical School (1996-present); Visiting Professor, University of Groningen, Holland (1997).

ACS Service: Division of Medicinal Chemistry, Councilor, Executive Comm. (1971-81), Vice-Chairman (1981), Chairman (1982), Councilor (1983-87); ACS Board of Publications (1990-93).

NESACS Service: Founder and Chair, Medicinal Chemistry Group (1964-65); Board of Publications of *The Nucleus* member (1976-78, 1985-87), Chair (1977, 1986); Councilor (1988-95); Trustee (1989-93); Alternate Councilor (1995-present).

Memberships, Honors: Committee of Revision of *The U.S. Pharmacopoeia* (1970-85); Board of Editors, *J. Medicinal Chem.* (1974-95); Senior Hayes Fulbright Fellow (1975-76); Matthews Distinguished Professor of Medicinal Chemistry and Chemistry, Northeastern Univ. (1980-91); Marie Curie Award of the European Association of Nuclear



Medicine (1982); Fellow of the American Assn for the Advancement of Science (1984); Fellow of the Academy of Pharmaceutical Sciences (1986); Emeritus Matthews Distinguished Professor, Northeastern Univ. (1991-present); Henry A. Hill Award for Outstanding Service to the Northeastern Section (1998).

Statement: For the past 36 years, I have served the American Chemical Society, both nationally and locally, in a variety of positions. I feel prepared and am willing now to devote my time and energy to the task of leading the Northeastern Section as its Chair. If so honored, I shall use my experiences in both academia and industry to further the objectives and interests of the various constituencies of the Northeastern Section. I am concerned that the expression, "Better living through chemistry", has lost its meaning. We must do more to promote the concept of chemistry's role in our advancing technological world, stimulate the study of the various fields of chemistry, and educate the public to the contributions that chemistry has made and will continue to make to the welfare of society. I hope that you will give me your vote of confidence to lead the Northeastern Section as its Chair and, if elected, I will continue my commitment to serving the needs of my fellow members of the chemical profession.

Secretary:

(Two year term, one to be elected)

Michael Singer

Education: B.S., State Univ. of New York at Stony Brook (1986); M.S.; Chemistry, Brandeis Univ. (1988); Ph.D., Brandeis Univ. (1993).

Professional Experience: Post-doctoral Res. Assoc., Organix, Inc. (1991-94); Senior Scientist (1994-96), Group Leader, Automated Combinatorial Synthesis, ArQule, Inc., Medford, MA (1996-2000); Sigma RBI (2001-)

ACS Service: Councilor, Northeastern Sect. (1996-)

NESACS Service: Secretary (1998-); Bd. Of Directors (1993-); Bd. Of Publications (1998-1999); Medicinal Chem. Group: Member (1991-), Treasurer (1992-93); Program Chair (1994); Chair (1995-96).

Statement: The traditional role of Secretary has been one of limited visibility. This was to take the minutes of the monthly meeting of the Board of Directors and to report back to the Board of Directors. During my tenure as Secretary for the NESACS I have been able to increase the visibility of the Section Secretary and increase the efficiency of the position of Secretary. The biggest improvement is in communication. By utilizing both E-mail and the section website (www.nesacs.org). Currently the minutes of the NESACS Board of Directors are available on the section website immediately after their approval by the Board. This empowers our membership to be aware of the current issues facing our section. The draft version of the minutes is avail-

able by request via email. I have also instituted obtaining written reports prior to the NESACS Board meetings. This enables our section committee chairs to submit a written report instead of an oral report at the monthly meetings. This improves the efficiency of the monthly meetings and permits more time for discussion during the monthly meetings. As with any volunteer organization, the organization is only as strong as the membership and those members that actively participate in the planning and execution of the various events. The strength of the NESACS lies in its membership. For the membership to be strong, communications is critical. With your support for another term as Secretary for the NESACS I will strive to increase the flow of communication between all facets of our section membership.

Trustee

(Three-year term, one to be elected)

Esther A. H. Hopkins

Professional Experience: Retired from the position of Chief Bureau Counsel for the Bureau of Administrative Services to the Massachusetts Department of Environmental Protection

ACS Service: (past and present) Member and Secretary, Women Chemists Committee Member and Secretary, Committee on Constitution and Bylaws; Member and Secretary, Committee on Committees; Chair, Committee on Professional Relations; Member, Committee on Nominations and Elections; Member, Council Policy Committee; Associate, Membership Affairs; Associate, Committee on Environmental Improvement

NESACS Service: (past and present) Chair of Section - 1983, Program Chair - 1982, Board of Directors, Trustee; Committee member of: Public Affairs, Awards, Long-Range Planning, Budget, Program, Committee on Amending the Constitution and Bylaws (past-chair)

NESACS Award: Henry A. Hill Award for Outstanding Service to the Section, 1993

Other: Currently serve as a Selectman for the Town of Framingham, Trustee of Boston University, and Trustee of the First Parish, Framingham

Statement: I see the role of the Trustees as:

Guiding and monitoring the investment of the endowment funds of the Section in responsible and growing areas;

Reserving a portion of the yield of these funds to increasing the corpus of the Trusts, considering not only the future programs and awards of the Section but also the effects of inflation on their basic value;

Recommending the spending of the unreserved portion of the yield to further the aims of the donors of the funds who gave them into the keeping of the Section, and the aims of the American Chemical Society.

I have a conserving philosophy relative to the funds of this non-profit organization and a sense of responsibility to

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the persons who have made these funds available to us. I have a need to bring alive the programs and goals of the Section when matching the vigor of our members with financial resources that allows that to happen.

I ask for your vote so that I may continue.

Councilor/Alternate Councilor

Ten to be elected: 4 Councilors (3-year terms), one Councilor (2-year term), 4 Alternate Councilors (3-year terms), one Alternate Councilor (two-year term)

Timothy B. Frigo

Education: BA Chemistry, Lawrence University (1982); Ph.D. Organic Chemistry, University of Wisconsin-Madison (1988).

Professional Experience: Post-Doctoral Appointments at MIT (1988-1990) and BU Medical Center (1990-1992), Senior Scientist, Advanced Magnetics, Inc. (1992-present)

NESACS Service: NESACS Chair, 2001; NESACS Program Chair, 2000; Medicinal Chemistry Group Secretary/Program Chair/Chair/Past Chair, 1996-2000.

Statement: It has been a pleasure to serve as program chair, and now chair of NESACS. This has been an excellent introduction into the operation of the ACS at the local level. I feel I have helped to propel our local section to a very good start in the new millennium through the program activities held last year, and now through helping to coordinate events this year. I hope to continue to serve the local section in some capacity. While serving as councilor, I would strive to fairly represent our section at the national level through attendance of at least one national ACS meeting each year, and at local board meetings as well.

Thomas R. Gilbert

Birth Year: 1946.

Education: Clarkson College of Technology, B.S., 1968; Massachusetts Institute of Technology, Ph.D., 1971.

Professional Experience (past 10 years): Northeastern University: Associate Professor, 1985-; Faculty Fellow, Barnett Institute of Chemical Analysis and Material Science, 1987-; Associate Director for Academic Affairs, School of Education, 1999-.

ACS Service: Council Policy Committee (Nonvoting), 2000. Committee on Meetings and Expositions: 1995-2000, Acting Chair, 1999; Chair, 2000; Subcommittee on Site Selection, Chair, 1997-1999. Committee on Nominations and Elections, 2001-. Task Force on Members' Needs, 1997. Task Force on National Meeting Finances, 1998-99. Task Force on Committee Size, 2000. Divisional Program Chairs

Planning Conference, Chair, 2000. Regional Meeting Steering Committee Summit, Chair, 2000. 23rd Northeast Regional Meeting: General Chair, 1993. 46th Annual Summer Symposium on Analytical Chemistry, Co-Chair of the Organizing, 1993. A.C.S. Examinations Institute: 2000 Analytical Chemistry Examination Committee, 1998-2000.

NESACS Service: Program Chair, 1987; Chair, 1988; Nominations Committee Chair, 1989; Councilor, 1990-2001; Alternate Councilor, 1987-89; Long-Range Planning Committee, 1989; Analytical Group Chair, 1983-86; Centennial celebration Program Chair, 1998.

Member: Member ACS since 1968. ACS Divisions: Analytical Chemistry; and Chemical Education.

Honors: Sigma Xi; Gamma Sigma Epsilon, Excellence in Teaching Award, Northeastern University, 1999.

Statement: I wish to thank the members of the Northeastern Section for the opportunity to serve you as Councilor. I have tried to make the most of this opportunity, and now seek your support for re-election. ACS Council is a large deliberative body, and functions effectively only because of its committees and task forces where the heavy lifting in planning programs and improving member services gets done. Being an effective councilor means getting on committees and task forces and making an impact once you get there. I believe I have been successful on both counts, as documented by my service in various ACS offices. I pledge to bring the same energy and leadership to my future work on Council. Last year I was elected to the Council Committee on Nominations and Elections and so will be involved in identifying candidates for president of the society and other offices. A Society of 163,000 members needs thoughtful and dynamic leadership. I hope you will support me in helping provide that leadership.

Patricia H. Hamm

Education: BS in chemical engineering and MS in environmental engineering, University of Massachusetts, Amherst, MA; MA in Chemistry, Bridgewater State College; Ph.D. in chemistry, Brown University.

Professional Experience: Visiting Assistant Professor of chemistry and the environmental sciences program at Suffolk University; Consultant; Environmental process engineer (Badger Engineers and Metcalf & Eddy); Instructor, Wheaton College, Wentworth, Brown University. Written and lectured on communication skills for technical professionals at the American Institute of Hygiene Conference and Exposition, and as an ACS Tour Speaker

ACS Service: Member for 10 years; member of Division of Chemical Health and Safety.

NESACS Service: Co-Chair of Professional Relations Committee, Chair of the Local Section Career Program (1999-)

Statement: My personal interests in the future of ACS as a professional society are dual. Since all great societies are only as strong as their individual members, my first interest

is in seeing the goal of providing programs and activities for the career development of chemists, described as one of the ten strategic thrusts in ACS National's Strategic Plan for 2001-2003, come to fruition. The need for career management tools, goal-setting strategies, and specific portable skills (e.g., public speaking) was made evident to me through the member feedback on the career programming events that our local section provided in 1999-2000. The feedback was very positive—the major critique being “we want more!” As a section, we have the in-house talent to provide such programming for our members. We can also continue to serve as a model for other sections in this area. My second interest in the future of ACS is linked to the first. From my perspective, most great teaching is through demonstration not declaration. Savvy, articulate chemists (see interest number 1!) can increase public awareness and understanding of chemistry, particularly environmental chemistry issues, through a variety of educational venues. Such outreach activities serve not only to educate the public but also to attract potential partners for interdisciplinary events. All of which puts chemistry in the good light it deserves. Such are my personal biases in my bid for the role of Councilor. In this role, I would like to continue to serve the section by acting as an interface between our section and ACS National—to articulate our members' needs to ACS National and to articulate ACS National's goals to our section.

Michael J. Hearn

Education: Yale University, New Haven, Connecticut. Ph.D. 1976. M.Phil., 1975. M.S., 1973. Rutgers College, New Brunswick, New Jersey. B.A. 1971 with Highest Honors and Highest Distinction. Phi Beta Kappa, Phi Lambda Upsilon, Delta Phi Alpha, Sigma Xi.

Professional Experience: Professor of Chemistry, Wellesley College. Research Interests: Organic Chemistry. Synthesis of Tuberculostatic Drugs. Near Infrared Spectroscopy.

ACS Service: Councilor, Jt. Board-Council Committee on Chemistry and Public Affairs.

NESACS Service: Chair-Elect, Chair, Immediate Past Chair: 1997-99; Board of Directors 1985 to present, serving on the Education and Awards Committees and as Government Relations Liaison; Section Secretary;

Member: American Chemical Society, American Society for Microbiology, Fellow, American Institute of Chemists, Coblenz Society, American Association of University Professors, National Science Teachers Association, American Association for the Advancement of Science, New York Academy of Sciences, Society for Applied Spectroscopy.

Statement: As we look to the future of our profession and our professional society, we must continue to strive for involvement on the part of all our membership to make ourselves a truly welcoming organization for diverse chemistry constituencies. Through membership commitment to partic-

ipation in its extensive committee structure, the Northeastern Section has developed strong traditions in fostering professional understanding, public awareness and chemical education. Even so, our organization will face unique new challenges in the future as we seek to promote the professional lives of our members. I believe that the best way to face these challenges will be by the active involvement of our members in the governance of our organization and by participation in its meetings, events and committees at both the local and national levels.

Morton Z. Hoffman

Education: A.B., City University of New York–Hunter College (1955); M.S., University of Michigan (1957); Ph.D., University of Michigan (1960).

Professional Experience: Post-doctoral Research Associate, Sheffield University, England (1960–61); Boston University: Assistant Professor through Professor (1961–present); Visiting Scientist, U.S. Army Natick Laboratories (1969–74); Associate Chairman and Director of Undergraduate Programs, Department of Chemistry, Boston University (1989–94); Director, Center for Teaching Excellence, College of Arts and Sciences, Boston University (1994–1997).

Recent ACS Service: Member (now consultant), SOCED Task Force on Undergraduate Programming (1991–present); Consultant, President's Task Force on International Education (1992); Member, CHED Program Committee (1992–present); Member, CHED International Activities Committee (1993–present); Member, College Chemistry Consultants Service (1995–present); Member, Editorial Advisory Board, General Chemistry Project (1999–present); Chair, CHED Regional Meetings Committee (2000–present); Chair, CHED Program Committee (1999–01)

Recent NESACS Service: Member, Board of Directors (1993–present); Chair, Education Committee (1993–1996); Chair, College Subcommittee, Education Committee (1997–present); Member, Centennial Committee (1997–99); Alternate Councilor (1994–1997); Councilor (1997–98); Alternate Councilor (1999–present); Chair–Elect (2001); Chair (2002).

Memberships: ACS, AAAS, New York Academy of Sciences, New England Association of Chemistry Teachers, Sigma Xi, Radiation Research Society, Inter-American Photochemical Society.

Honors: Phi Beta Kappa (1955); Senior Post-doctoral Research Associate, U.S. National Academy of Sciences (1969–70); Associate of the Danforth Foundation (1970); Fellow of the American Association for the Advancement of Science (1992); Metcalf Cup and Prize for Excellence in Teaching at Boston University (1994); Henry A. Hill Award for Outstanding Service, Northeastern Section, American Chemical Society (1999).

Statement: In 2002, I will have the honor and privilege to serve the members of NESACS as their Chair. The position

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will also give me the opportunity to represent NESACS among the leaders of the other ACS local sections. I ask you now to give me the opportunity as well to represent you and the Section at the ACS Council, which is the policy-making body of the Society. My election as Councilor would also make me eligible to be appointed to one of the many committees of the Council on which I would like to serve, such as the Society Committee on Education, the International Activities Committee, and the Committee on Minority Affairs. I promise to work forcefully on the Council and its Committees to create a stronger bond between the Society and younger chemists, high school teachers, and underrepresented minorities. I promise to be an active voice for the Northeastern Section to represent the interests of its broad and diverse membership.

Arlene Wick Light

Education: Received a Master's Degree in Chemistry, State University of New York at Buffalo.

Professional Experience: Analytical chemist, Blackstone Co., Jamestown, NY; Laboratory Supervisor in Statesboro, GA. Supervisor, Kendall Company, Franklin, KY and Senior Chemist, Lexington, MA.

ACS Service: Employment Services Advisory Board; worked at both semi-annual National Meetings from 1991- present at the National Employment Clearing House (NECH).

Awards: Henry Hill Award for Service to Northeastern Section (with Truman Light), 1993.

NESACS Service: Secretary; Councilor (1998-present); Employment Services Committee; Hospitality Committee, 1975-present.

Statement: As a Councilor, I have recently been appointed to the National CEPA (Committee on Economic and Professional Affairs). It is important that the Northeastern Section is represented on this Committee and my reelection would permit me to remain on this Committee and to continue to serve at the NECH.

Truman S. Light

Education: Harvard University, S.B. (1944); University of Minnesota, M.S. (1949); University of Rome (Italy), Doctor of Chemistry (1961).

Professional Experience: Boston College, Assistant Professor (1949-1959); Avco R&D, Sr. Scientist, Manager of Analytical Laboratory (1959-64); The Foxboro Co., Principal Research Scientist (1964-88); Consultant in Instrumentation (1988-present); Adjunct Professor, Chemical Instrumentation, Suffolk University (1992), Aquinas College, Newton (1994-95), Boston College (1987, 1999).

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Awards: National Science Foundation, Science Faculty Fellowship, 1959-61 (Rome), Henry Hill Award for Service to Northeastern Section (with Arlene Light), 1993; Waters Symposium Award (Ion Selective Electrodes), Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, (1996).

ACS Service: Councilor (1976-95; 2001); Alternate Councilor (1996-2000); National Committee memberships: Local Section Affairs, Constitution and Bylaws, Membership Affairs, Employment Services; Advisory Board; Copyrights; worked at both semi-annual National Meetings from 1991- present at the National Employment Clearing House (NECH).

NESACS Service: Section Chairman (1978); member and chairman of various Committees: Student Affiliate, Constitution and Bylaws, Esselen Award, Professional Service, Employment Services.

Statement: I am a candidate for Councilor because I would like to continue to serve the Northeastern Section in the liaison capacity between the Local Section and the National ACS. In addition to the offices listed above, I have helped create a link between the National and Local Section Employment Services, which I have co-chaired. Ten years ago, I suggested that Local Section Volunteers could better replace the paid temporary staff recruited to aid in the registration of thousands of candidates at the National Employment Clearing House (NECH). Since 1991, I have attended National Meetings twice a year, by virtue of being a Councilor or Alternate Councilor, and thereby simultaneously working at NECH, registering candidates and more recently being in charge of the Resource Library. I need to be a Councilor to be able to continue this work at the National level.

I seek your vote for Councilor to be able to continue my involvement in several of the facets of National ACS and thereby link them with the NESACS.

Howard R. Mayne

Education: B.Sc. (1974), M.Sc. (1975), Ph. D. (1977), University of Manchester, UK

Professional Experience: Postdoctoral, MPI für Strömungsforschung, Göttingen, Germany (1977-1979); Research Associate, University of Toronto (1979-1983); Assistant Prof. Eastern Michigan U (1983-1985); Assistant Prof; UNH (1985 -1990); Assoc. Prof. (1990-1994); Professor (1994-date); Chair (1998-date). Visiting Positions: UC Santa Barbara; Northwestern U. Research: Physical Chemistry, Chemical Physics. Reaction dynamics; Structure and dynamics of clusters; Optimization algorithms.

ACS Service: Co-chair, Local Committee, ACS National Historic Chemical Landmark, Conant Hall, UNH (1999); General Chair, NERM 2001

Statement: A healthy grass roots organization needs continuing broad representation from all its constituencies. The Northeastern Section stretches from southeastern Massachu-

sets up through New Hampshire to the Canadian border. This area encompasses a range of urban and rural areas, each with its own characteristic economy and industry. Furthermore, the area's educational institutions vary dramatically. This year, the University of New Hampshire is proud to host the NERM for the first time. I hope this can be the start of a re-invigoration of participation from the New Hampshire universities in NESACS affairs. If elected, I will work to this end.

Barry A. Morgan

Education: B.Sc. degree with Honors in Chemistry; Ph.D. in Organic Chemistry, University of Wales, Swansea, U.K.

Professional Experience: Postdoctoral research, University of Liverpool, U.K., (organic chemistry applied to biological systems). Reckitt and Colman, Pharmaceutical Research Laboratories in north east England (involved in the discovery and characterization of the enkephalins); Sterling Winthrop Research Institute in Albany NY (1980-83); Director of Chemistry at Biomeasure Incorporated, Boston (1993-2000) research focused on the discovery of peptide derived therapeutics. Praecis Pharmaceuticals Inc., in Cambridge, Vice President of Chemistry (2000-). Research interests: Design, synthesis and evaluation of novel therapeutics based on peptide receptors, enzymes, and protein-protein interactions. Robotic technologies to the synthesis of chemical libraries

Member: American Chemical Society for nearly 30 years, and have organized sessions on several aspects of medicinal chemistry.

NESACS Service: Program organizer, Medicinal Chemistry Group.

Donald O. Rickter

Education: University of California-Davis (AB, MS, and general secondary teaching credentials); Michigan State University, Ph.D.

Professional Experience: U.S. Navy 2 years; H.S. and college teaching 3 years; Polaroid Research 31 years (Scientist and Information Manager); Now an independent information consultant

ACS Service: Member since 1953; Current Member of Divisions of Organic Chem., Chemical Information, and Professional Relations; Congressional Science Counselor (8th District, Mass.) 1974 - 1992; Alternate Councilor (off and on since 1985);

NESACS Service: Section Chair-elect 1998; Chair 1999; Nominating Committee Chair 2000; Liaison between Polaroid and the Northeastern Section 1974-1996; Program Committee 1981 and 1998; Board of Publications 1983-85; ACS and Polaroid exhibit at Mass. State House, June 1992; Nominating Committee 1996; Helped start the Section web page 1996; Co-chair of Professional Relations Committee

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1997; Work to plan State Capitol Days in June 1998 and June 2000; Now calendar coordinator for The Nucleus.

Statement: My first goal is to encourage more chemists to take active roles in the ACS, to learn more about the society and to contribute their time, skills, and knowledge. There are opportunities for those who can write about their organizations for The Nucleus; for citizens interested in the 3 E's: Education, Employment, and the Environment; and for people with international interests. It is still true that "It is your society", and you benefit more by participating more.

Michael Singer

For biographical material, see above under Secretary

Statement: During my tenure as Councilor for the NESACS I have had the opportunity to bring the concerns of the NESACS directly to the attention of the National Officers of the American Chemical Society. Maintaining open communication between the local and national officers of the ACS is critical to the growth of our professional organization. As your local elected representative to the National ACS Council I would hope that you send your concerns and issues to me so I may direct them to the appropriate offices of the ACS. I have over the past few years been able to aid in the transfer of knowledge from the National to the Local level ranging from membership to expositions to the Employment Clearing House to the Chemistry Olympiad. Let me thank everyone for his or her support over the past few years. The Northeastern Section of the American Chemical Society has over 6000 members. Our collective voice needs to be heard. With your support and vote I pledge to continue to work as a voice for the local membership

Derk Andrew Wierda

Education: B.S. (Honors in Chemistry, summa cum laude), Loyola College, Maryland; M.A. and Ph.D., Harvard University.

Professional Experience: NSF-sponsored post-doctoral fellowship, Strasbourg, France (with John Osborn); Saint Anselm College in Manchester, New Hampshire, currently an Associate Professor. Research interests: Inorganic precursors for chemical vapor deposition, catalytic activation of small molecules.

Member: American Chemical Society, American Crystallography Association, Council on Undergraduate Research (Institutional Representative).

Statement: My goal in running for the position of Councilor/Alternate Councilor is to work to increase the involvement of the area's predominately undergraduate institutions (PUI) in the section. There are numerous smaller institu-

tions in the area that can benefit greatly from involvement in the Section. The individuals at these institutions also have a great deal to offer the section. Increased involvement will be a mutually beneficial situation and the expanded base of activity will strengthen the Section and broaden its appeal, both in the types of organizations that are involved, but also in the geographical representation. The Section has done an excellent job at promoting undergraduate summer research activities. My hope is that this can continue and that initiatives that involve the section with younger future chemists can be expanded and initiated.

Barbara G. Wood

Education: BS, Ursinus College (1961); MS Drexel Univ. (1970).

Professional Experience: Retired; 1990-99 technical information consultant; 1961-90 Rohm and Haas Co. Research Information Service Manager most recently

ACS Service: Member since 1961; Society Committee on Budget and Finance 1992-2000; Council Policy Committee 1989-91, non-voting 1985-87; Society Committee on Publications 1981-88 Chairman 1985-87; C&EN Editorial Advisory Board Chairman 1985-87; Society Committee on Chemical Abstracts 1986-88; Division of Chemical Information Chairman 1983, Councilor 1984-86, Secretary 1978-81; *Journal of Chemical Information and Computer Sciences* Editorial Advisory Board 1982-84.

Local Section Participation: Councilor Phila. Section 1987-92 MARM -Chemical Information program chair 1980

Statement: I recently moved to NH from FL and would be honored to actively serve the Section as Councilor. Having participated at the National level for many years, I would like to contribute my knowledge and experience to the Section and its members. The Section must meet the needs of a diverse and geographically scattered constituency. We must do more to educate the public to the "good" of science and also to raise the level of scientific knowledge of our children. Our National Chemistry Day is one such activity that excites children about chemistry and hopefully encourages a science career. Teachers at all levels should be properly educated to instruct in the sciences. We must continue our policy of a fiscally sound ACS. In this age of paperless communication, our publications and CAS must continue to innovate and serve the chemical sciences. These two arms of the ACS also need to contribute to the Society's bottom line so that the member services we all use and depend upon may continue at the highest levels.

Have you looked at
the NESACS website?
WWW.NESACS.org

Director-at-Large

(3-year term, two to be elected)

Linda Charpentier

(withdrawn)

Susan M. Chiri-Buta

Education: B.S. in Chemistry, Western Illinois University (1984), M.A. in Science Education, Harvard University (1991).

Professional Experience: Positions at Kraft Incorporated, Access Analytical Systems, Yale University, the Chicago Public Schools, and Lincoln-Sudbury Regional High School. Currently: Wellness Educator and owns her own business. Also Summer appointments at the United States Department of Agriculture Dairy Testing Facility and Argonne National Labs.

ACS Service: Secretary of the New Haven Section, 1989-1990.

Statement: Public outreach has long been a theme in my career as a chemist. Very early on in my professional life, I saw inconsistencies in the public's perception about chemistry and the chemical industry. Many recognize the fascinating opportunities chemistry affords. They also regularly enjoy the products and services provided by chemistry. Yet the same population assumes that our profession is always dangerous and toxic. Yes, the public is right to demand environmental responsibility by the chemical industry, but they must understand *their* role in generating chemical pollution and know that our industry is truly concerned about waste management and safety. Education, therefore, became a priority in my career. I became an ACS VIP volunteer before teaching high school chemistry for seven years.

As Director-At-Large, I would have a greater voice in moving forward with the "truths" of chemistry. Last year, in conjunction with the NESACS' conference *Connections to Chemistry*, I developed a speaker's bureau for high school chemistry teachers called "Chemists to Classrooms." As Director, I hope to increase school participation in this program. A long-term goal would be to expand this forum toward community outreach so we can create positive images of chemistry as well as educate consumers of their responsibility in creating less toxic home environments and reducing waste.

Finally, in complying with Massachusetts Recertification standards, teachers need opportunities for meaningful short courses that satisfy professional development requirements while gaining relevant, up-to-date information about chemistry. I hope to help develop such courses as an outreach activity of NESACS.

Anthony L. Fernandez

Education: B.A. (Chemistry), Boston University (1992); Ph.D. (1999), Boston University, with Profs. Warren P. Gier-

ing and Alfred Prock: model of ligand effects in describing phosphorus(III) ligands.

Professional Experience: Postdoctoral at the University of Toronto with Prof. Anthony J. Poe; reaction kinetics of transition metal complexes encapsulated in zeolites (1999-2000); Assistant Professor of Chemistry, Merrimack College, (Sept. 2000-).

NESACS Service: Looking forward to getting involved in the activities of the local section.

Suzanne Howard

Education: B.S. in Biology (Chemistry minor); Master's in Public Health (Environmental Health), Boston University School of Public Health.

Professional Experience: Currently: Director of the Office of Environmental Health and Safety, Boston College; formerly, Environmental Consultant to General Electric Co. and New England Power and other corporate clients. She has also worked at several area hospitals, including Brigham and Women's and the Massachusetts Eye and Ear Institute

Member: ACS; Campus Consortium for Environmental Excellence, a New England based group which looks at the challenges and provides solutions for environmental health and safety issues in higher education.

Gary R. Weisman

Born 1949, Cincinnati, Ohio.

Education: B.S. in Chemistry With Distinction, University of Kentucky, 1971; Ph.D., Organic Chemistry, University of Wisconsin-Madison, 1976 (mentor: Stephen F. Nelsen).

Professional Experience: Post-doctoral, University of California, Los Angeles, 1976-77 (mentor: Donald J. Cram); Faculty member of the Department of Chemistry, University of New Hampshire since 1977, Professor of Chemistry since 1994; Visiting Associate Professor, University of Wisconsin, 1986; Visiting Fellow, University of Bristol, England, 1987 and 1998. Research interests and areas of expertise: synthesis, reactions, and special properties of amines and polyamines; ligand design and supramolecular chemistry; stereochemistry, conformational analysis and molecular modeling; intramolecular interactions; use of NMR in structural and conformational analysis of organic and metallo-organic compounds.

Honors: Sigma Xi, 1976-present; Excellence in Teaching Award, College of Engineering and Physical Sciences, University of New Hampshire, 1995.

Member: American Chemical Society, 1970-present;

ACS Service: Co-Program Chair of NERM 2001.

Position Statement: I would be pleased to serve as a Director-at-Large of the NESACS if the members choose that I do so. Naturally, I would do my best to further the goals of the Society and represent the views of the members of the section, with special emphasis on the views of New Hampshire members. Two goals of my service would be to

Election

Continued from page 17

increase the involvement of New Hampshire chemists in section activities, and to promote involvement in and contribution to Northeast Regional Meetings of the ACS. I believe that NERM's are scientifically rewarding and the best opportunities for involving chemists in Society activities early in their careers. This is my opportunity to plug NERM 2001 one more time! The technical program is first-rate; I hope section members will show their support by attending what promises to be an excellent meeting.

Nominating Committee

(One year term, two to be elected)

Kendra D. Carter

Education: B.S. in Chemistry, Xavier University (1996); Ph.D. candidate, Boston University

Professional Experience: Undergraduate research assistant with Professor Donald Robinson, Xavier University (1994-1995); Summer internship with Rohm and Haas Company under the leadership of Dr. Renee Roemmele (1996); Summer internship with Hoechst Roussel Pharmaceuticals under the leadership of Dr. Joseph Klein, Dr.

Lawrence Martin and Dr. Larry Davis (1995); Summer internship with Hoechst Roussel Pharmaceuticals under the leadership of Joe Strupczewski and Ken Bordeau (1993); Teaching fellow of Biochemistry and Organic (1997-1999); Graduate research assistant with Professor James Panek (1997-present).

Memberships, Honors: American Chemical Society (1995-present); NESACS (1997-present); Boston University Younger Chemists Committee - Founder and President, Treasurer, Member of Career Development Committee (1999-present); New England Board of Higher Education Mentor (1998-present); Awarded the UNCF-Merk Dissertation Fellowship (1999); Minority Access to Research Careers (MARC) Scholar (1994); Hoechst Roussel Pharmaceutical Scholar (1993).

NESACS Service: Younger Chemists Committee (YCC) Member of Career Development Committee; Member of Arrangements Committee, Member of Northeastern Student Chemistry Research Conference Committee (1999-present);

Robert S. Umans

Education: A.B. Columbia University, M.S., Ph.D. Yale University; Post-doctoral positions: Johns Hopkins University, University of Paris.

Professional Experience: Assistant Professor of Chemistry, Boston University; Assistant Professor of Chemistry,

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Wellesley College; Adjunct Associate Professor of Chemistry and Assistant Director of Laboratories, Boston College; presently Director of Life Science Laboratories, Chemistry Department, Boston University.

Member: ACS since 1969 (Divisions of Biochemistry, Medicinal Chemistry, Chemical Education),

NESACS Service: James Flack Norris Award Committee (1996-2000, Chair 1999-2000).

Dean E. Wilcox

Education: B.S. (1978), M.S. (1979), Chemistry, University of California at Riverside; Ph.D. (1984), Chemistry, Massachusetts Institute of Technology.

Professional Experience: Assistant Professor (1984-1990), Associate Professor (1990-1996), Professor (1996-present) of Chemistry at Dartmouth College; invited lectures at 4th International Conference on Bioinorganic Chemistry (7/89), Metals in Biology Gordon Research Conference (1/90), 211th National ACS Meeting (3/96); 4th International Meeting on Metallothionein (9/97), 82nd Canadian Society of Chemists Conference and Exhibition (5/99). Advisory committee for EPR Center for the Study of Viable Biological Systems, Dartmouth Medical School (1997-present);

ACS Service: Board of Editors, *Inorganic Chemistry* (1995, 1996); organizer of "Coordination Chemistry of Metal Metabolism" symposium at 224th National ACS meeting (8/02).

NESACS Service: Member NESACS Nominating Committee 2000-2001; organizer of "Metals and DNA", a memorial symposium for Karen Wetterhahn (9/97);

Member: ACS since 1978; Sigma Xi since 1984, current President of the Dartmouth Sigma Xi Chapter; member of Society of Biological Inorganic Chemistry; member of International EPR(ESR) Society;

Kevin D. Wyndham

Massachusetts native, happy to be back home after living in sunny California for five years.

Education: B.S. in Chemistry, Boston College (1995); Ph.D., University of California in Irvine (2000). My graduate research involved the synthesis and characterization of a unique class of inorganic-organic cluster molecules, called Polyhedral Oligosilsesquioxanes.

Award: Edward K. C. Lee Award in 1999 for outstanding research, University of California.

Professional Experience: Senior research position at Waters Corporation (2000-). Current research involves the design and synthesis of new chromatographic materials for use in high performance liquid chromatography.

Member: ACS since 1995; MRS and the Royal Society of Chemistry; member of several Divisions of the ACS, including Inorganic, Polymers, and PMSE. During my graduate career I was a member of the Orange County section of the ACS and presented my research at two southern California conferences.

Esselen Award Committee

(Four-year term, two to be elected)

E. Joseph Billo

Education: B.Sc. (1961), M.Sc. (1963), Ph.D. (1967), McMaster University.

Professional Experience: Postdoctoral Research Associate, Purdue University (1967-1969); Assistant Professor (1969-1974), Associate Professor (1974-present), Department of Chemistry, Boston College.

ACS Service: Member since 1969; Alternate Councilor (1987-1995); Councilor (1996-1998);

NESACS Service: Chairman-Elect and Program Chairman (1989); Section Chairman (1990); Chemical Education Committee (1974-76, 1978-86, chairman 1982-86); Organizer of the Undergraduate Research Symposium (1974-1976, 1978-1984); Nominating Committee (1981, 1991, 1993, 1994); James Flack Norris Award Committee (1985-88, chairman 1987); Budget Committee (1989-1991); 1990 National Meeting Committee Chairman (1989-1990); Continuing Education Committee (1990-present); Board of Publications (1994-2001, chairman 1996, 1998 - 2000); 1998 National Meeting Committee Chairman (1997-1998); Director-at-Large (1999-2001).

Iclal S. Hartman

Education: Ph.D. in Biochemistry

Professional Experience: Professor of Chemistry, Simmons College until her retirement last year. In addition to courses in chemistry and biochemistry, she has also developed and taught general science courses on drugs and drug action and environmental chemistry. Research interests: The effects of environmental pollutants on metabolic pathways and the design and development of drugs from the natural products used in alternative or folk medicine practices.

NESACS Service: Served on various committees including the Professional Relations Committee, the Membership Committee, and currently the Esselen Award Committee, where she is concluding her second year as Chair.

Thomas D. Tullius

Education: B.S. in Chemistry (cum laude), UCLA (1973); Ph.D. in Chemistry, Stanford University (1979), Research Advisor: Prof. Keith O. Hodgson

Professional Experience: Postdoctoral Fellow, Columbia University, with Prof. Stephen J. Lippard(1979-1982); Assistant, Associate, Full Professor of Chemistry, Biophysics, and Biology, The Johns Hopkins University; (1982-1997); Professor and Chairman, Department of Chemistry, Boston University (1997-present. 2001: Acting Director, Bioinformatics graduate training program, Boston University 1998-present: Member, executive committee, Bioinformatics graduate training program, Boston University;

Election

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1998–present: Member, Advisory Committee, Center for Synchrotron Biosciences, NSLS Brookhaven/Albert Einstein College of Medicine; 1999–2003: Member, Biomedical Research and Research Training Subcommittee A, NIGMS, NIH; 1994–present: Member, Molecular Biochemistry Review Panel, NSF 2000–2005: Chair, JBIC Publications Committee, Society of Biological Inorganic Chemistry; 1995–1999: Editor, *Journal of Biological Inorganic Chemistry* (JBIC); 1999: Program Chair, Molecular Biophysics Subgroup, Biophysical Society; 1990–1997: Co-Director, Institute for Biophysical Research on Macromolecular Assemblies, The Johns Hopkins University

Honors and Awards: 1998: Herbert A. Sober Award, American Society for Biochemistry and Molecular Biology; 1996 (elected): Fellow of the American Association for the Advancement of Science; 1988–1993: Camille and Henry Dreyfus Teacher-Scholar; 1988–1992: Fellow of the Alfred P. Sloan Foundation; 1987–1992: Research Career Development Award, NIH; 1984–1987: Searle Scholar; 1979–1981: National Research Service Award, National Cancer Institute, NIH;

ACS Service: 1997–1998: Chair, Nominations Committee, Division of Biological Chemistry of the American Chemical Society.

Paul Vouros

Born: Thessaloniki, Greece, April 1, 1938

Education: B.A. Wesleyan University, Middletown, CT (1961); Ph.D. M.I.T. Cambridge MA (1965)

Professional Experience: Professor, Department of Chemistry, Northeastern University, (1978-); Faculty Fellow, Barnett Institute, Northeastern University, (1974-); Raymond Bradstreet Chair in Bioanalytical Chemistry (1995–2000); Assistant Professor, Baylor College of Medicine, Houston, TX (1968–74); Visiting Scientist, CIBA-GEIGY Corp, Basel, Switzerland, (10/92–3/93)

Research Interests: Organic analytical mass spectrometry; Coupling of mass spectrometry to liquid chromatography, capillary LC; capillary electrochromatography and capillary zone electrophoresis; Applications to bio-organic analysis (e.g., drug metabolism, vitamin D analogues, DNA adducts, combinatorial chemistry, steroids)

Publications: Over 180 research publications in peer reviewed journals; several review chapters in books and journals.

Member: ACS; Board of Directors, American Society for Mass Spectrometry, (1996–98)

Richards Medal Committee

(Four-year term, two to be elected)

John P. Caradonna

Education: M.S./M.S. degree in Inorganic Chemistry, The Johns Hopkins University (1979) investigating metal ion binding to nucleic acids with Professor Luigi G. Marzilli; M.Phil./Ph.D. in Chemistry, Columbia University and M.I.T (1985) working on determining the mode of binding of the anticancer drug cis-Pt(NH₃)₂Cl₂ to duplex oligonucleotides with Professor Stephen J. Lippard.

Professional Experience: NIH postdoctoral fellow with Professor Richard H. Holm studying oxygen atom transfer chemistry of molybdenum complexes and Mo-dependent enzymes at Harvard University (1985–87); Assistant Professor of Chemistry, Yale University (1987), Associate Professor in 1993; Boston University (1998), studying the biological chemistry of non-heme iron through the investigation of non-heme Fe-dependent monooxygenase enzymes, synthetic non-heme Fe-based oxygen atom transfer catalysts, and the rational design of redox active and catalytic metalloproteins. He is a recipient of the Camille and Henry Dreyfus Award and the Alfred P. Sloan Foundation Research Fellowships. Associate Professor of Research in the Department of Pharmacology and Experimental Therapeutics, Boston University School of Medicine (2000-); NIH study sections (ad hoc, Metallobiochemistry, 1997, 1998, 2000; Special Emphasis Panel, 2000); member of the review board of Chemtracts - Inorganic Chemistry since 1997

ACS Service: Member since 1979; Co-chair of a symposium and symposia session chairperson, ACS Symposium “Bioinspired Catalysis and Functional Modeling” (1999).

Peter Alan Jacobi

Born 14 September 1945, Abington, Pennsylvania

Education: B.S. cum laude in Chemistry, University of New Hampshire, Durham, New Hampshire (1967). Junior and senior research in organic synthesis (tropane alkaloids), with Professor G. G. Lyle; M.S.(1970), Ph.D.(1973), Princeton University, “Synthetic Studies in Pteridine Chemistry.” NSF Fellowship, (1970–73), with Professor E. C. Taylor.

Professional Experience: Postdoctoral, Harvard University, (1973–75) with Professor R.B. Woodward, “Total Synthesis of Erythromycin.”; Assistant Professor of Chemistry, Wesleyan University (1975–82); Associate Professor of Chemistry, Wesleyan University (1982–85), Professor of Chemistry (1985–93), Chairman (1989–91) John Wesley Beach Professor of Chemistry (1993–97), Wesleyan University; Professor of Chemistry, Dartmouth College (1997–)

Honors: American Cyanamid Company Award for “Advancement of the Art and Science of Chemical Synthesis” (1985); Elected to Connecticut Academy of Science and Engineering (1986); Connecticut Valley, ACS award for

“Outstanding Contributions to Chemistry” (1988); Caleb T. Winchester Award for Excellence as a Scholar-Teacher (1996).

Member: ACS, The Chemical Society, Sigma Xi, Connecticut Academy of Science, AAAS.

Charles E. Kolb

Education: S.B. in Chemistry, M.I.T. (1967); M.A. (1968) and Ph.D. in Physical Chemistry, Princeton U. (1971).

Professional Experience: President and CEO of Aerodyne Research, Inc. (ARI) since 1985. Various management and research staff positions at ARI, (1971-85.). Since joining ARI, areas of research have included atmospheric and environmental chemistry, combustion chemistry, chemical lasers, materials chemistry, and the chemical physics of rocket and aircraft exhaust plumes. Author or co-author of over 150 archival publications in these fields.

Member: Associate in Atmospheric Chemistry, Center for Earth and Planetary Physics, Harvard U. (1976-85); Research Affiliate, Spectroscopy Laboratory and Dept. of Aeronautics and Astronautics; MIT (1981-93), Editorial Advisory Board, International Journal of Chemical Kinetics (1990-92); Atmospheric Sciences Editor, Geophysical Research Letters (1996-99).

NESACS Service: Richards Award Committee (1998-2001); Trustee (1994-96); Co-chair – Elementary Education Task Force, (1990-94); Chair – Nominations Committee (1992); Section Chair (1991), Section Chair-elect (1990); Board committee service: program, budget, nominations, and professional relations.

Awards/Honors: 1997 ACS Award for Creative Advances in Environmental Science and Technology; Fellow of the American Physical Society, the American Geophysical Union, and the Optical Society of America.

Patricia Ann Mabrouk

Education: A.B., Chemistry and Mathematics, Wellesley College (1982); Ph.D., Physical Chemistry, M.I.T. (1988).

Professional Experience: N.I.H. Postdoctoral Fellow, Stanford University (1988-90); Assistant Professor of Chemistry (1990-97), Associate Professor (1997-), Northeastern University.

Research Interests: nonaqueous enzymology, poly(ethylene glycol), bioelectrochemistry, resonance Raman, analytical chemical education, problem-based learning, undergraduate research

Honors: Listing in: *Who's Who Among America's Teachers* (2000); N.I.H. Postdoctoral Fellowship (CA) (1988-90); National Science Foundation CAREER Award (1996).

ACS Service: ACS Project SEED mentor (1995-), have supervised 8 SEED student summer research projects to date;

NESACS Service: Richards Medal Committee (1998-2001). ◇

Chemical Health and Safety

New Course And Certificate Program

There has been an increased interest and growing concern in health and safety issues in both the workplace as well as the environment throughout the past decade. Employment opportunities in the allied health and sciences field as well as the management of these fields are growing.

The Certificate in Chemical Health and Safety is designed to help students enrolled in any one of the Colleges of the Fenway bolster their degree of choice with documented skills in chemical health and safety. This will enhance both their value and employability to business, industry, academia, and government. This is increasingly valuable in light of recent enforcement actions by EPA and OSHA as well as the attention that environmental quality and workplace health and safety are receiving. Many employers now ask if a graduate has had any training in health and safety matters, in addition to a college degree, prior to hiring.

Thanks to a grant from the Davis Educational Foundation, Professors Armen Casparian, Wentworth Institute of Technology, and James Piper, Simmons College, collaborated during the summer of 1999 and developed a certificate program in chemical health and safety to meet this need. The cornerstones of the program are a course in Chemical Health and Safety, to be offered at Wentworth Institute of Technology this summer, and an internship.

The course and program are open to qualified students

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Solution Puzzle April 2001



New Course

Continued from page 21

or individuals in the Greater Boston area, including students enrolled in or out of the Colleges of the Fenway Consortium, technical personnel in hospitals and private companies, and high school chemistry teachers. Enrollment in just the 3-credit Chemical Health and Safety Course (CHEM 205) is open to interested individuals, who have had a basic course in college chemistry.

The course is scheduled to run this summer and begins May 7 and ends August 2. It meets Monday and Thursday afternoons from 3 to 4:30. The cost of tuition is \$1200. Registration and enrollment is currently being accepted.

For further information or details of either the course or program requirements, please contact Professor Armen Casparian at (617) 989-4346 or e-mail at caspariana@admin.wit.edu as soon as possible. ◇

Meeting Report

Report of the Award Address on the occasion of the Gustavus J. Esselen Award to Joseph M. DeSimone on April 19, 2001

Green Chemistry for Sustainable Economic Development

by Joseph M. DeSimone, William R. Kenan Jr. Distinguished Professor of Chemistry and Chemical Engineering, University of North Carolina at Chapel Hill, North Carolina State University

Imagine an automotive industry that doesn't expose its employees to toxic chlorinated solvents during metal degreasing processes. What if the electronics industry used specially-designed photoresists that could be deposited using a spin coating process based upon liquid carbon dioxide (CO₂) instead of organic solvents? What if this industry didn't have to use hundreds of millions of gallons of water per day to remove sub-micron particles during the manufacture of integrated circuits and flat panel displays? Imagine a polymer industry that avoided using trillions of BTUs annu-

ally to dry commercial polymers manufactured in aqueous reaction media. Imagine a textile industry that doesn't need to use 100 pounds of water for every pound of yarn dyed. What if local dry cleaners didn't have to use perchloroethylene? Consider the effects of non-toxic garment cleaning on industry employees as well as customers. What if manufacturing industries didn't need to spend billions of dollars on environmental compliance to control emissions of organic solvents to the environment. And what if the demands on municipal water and waste water systems could be dramatically reduced by changes in manufacturing technology?

Technological breakthroughs in the last decade now indicate that liquid and supercritical carbon dioxide (CO₂) could be the most commonly used solvent of the twenty-first century as the manufacturing and service industries attempt to avoid the production, use, and subsequent release into our environment of contaminated water, volatile organic solvents, chlorofluorocarbons and other noxious pollutants. Carbon dioxide is an attractive solvent alternative for a wide range of chemical and industrial manufacturing processes because it is nontoxic, inexpensive, widely available and environmentally benign¹. In addition, carbon dioxide's dissolving power is tunable over a broad range of solvent quality because it is highly compressible, especially in the supercritical region. Carbon dioxide is readily available: it is generated in large quantities as a by-product in ammonia, hydrogen, and ethanol plants, and in electrical power generation stations that burn fossil fuels.

Our research program has focused on advances in this field related to mitigating the use of solvents and water in a variety of industrial applications. For example, we have shown that CO₂ is an excellent solvent in which to con-

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Meeting Report

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duct the polymerization of fluorinated monomers, such as fluoroalkyl acrylates² and tetrafluoroethylene³.

This research has revealed that CO₂ is chemically inert to such polymerizations, especially such polymerizations that propagate through highly electrophilic radical species, and as such there is no chain transfer to solvent. Moreover, the inherently low viscosity of CO₂ results in very high initiator efficiencies in CO₂ compared to conventional organic solvents due to the higher diffusivities of the primary radicals in CO₂. DuPont is now commercializing this technology for the manufacture of Teflon™ in CO₂. This \$275 million investment by DuPont will drive the creation of 500 construction jobs and 100 permanent, high-paying technical jobs in economically-challenged Eastern North Carolina.

Numerous researchers around the world have pursued the design of surfactants for CO₂^{4,6}. We showed the first direct measurement of a micellar aggregate in CO₂ using small angle x-ray and neutron scattering⁷. The discovery of surfactants for CO₂ enables the stabilization or emulsification of CO₂-insoluble substances into CO₂⁵. In particular, this is useful for the formation of polymer colloids in CO₂ as well as for separations. Polymer colloids are important for polymer manufacturing, coatings, toner particles, drug delivery systems and a whole host of technologies that depend on fine powders that are easy to isolate and are free of contaminating solvents.

Separations are important in a number of industries, old and new, including precision cleaning in microelectronics, professional garment care (dry cleaning) and in biotechnology. The utilization of liquid CO₂ by Micell Technologies (www.micell.com) is a particularly important development as the dry cleaning industry uses hazardous chlorinated solvents in a manner that has led to thousands of contaminated dry cleaning sites around the world. The use of liquid CO₂ provides for a pollution prevention alter-

native that is an important investment for our communities and for small businesses in their employees and their customers.

Currently we are working in the area of improving the processes used to make integrated circuits in the microelectronics industry. Present semiconductor manufacturing uses a solvent-intensive photoresist methodology to lithographically define features at every mask level, during both device and interconnect processing. The conventional methodology often requires in excess of twenty-five mask levels per wafer, hence significant volumes of liquid waste are generated during the deposition, development and stripping of the photoresists. Thus, photoresist processing presents a clear need and opportunity to reduce the environmental, health and safety (ESH) impact of the microelectronics industry in the United States and overseas.

Our process integrates newly developed liquid CO₂ coating methods for the deposition of photoresists with supercritical CO₂ development and stripping.^{8,9} This integrated methodology replaces a variety of traditional "wet" chemical steps in use today for

the manufacture of microelectronics. Beyond obvious environmental advantages of utilizing a pollution prevention approach for the manufacture of semiconductors, we see performance opportunities enabled by the incorporation of "dry" processing steps to replace "wet" processing steps that are in use today. In particular, the low surface tension of supercritical CO₂ avoids the damage (called "image collapse") caused by the inherently high surface tension of water used in conventional processing.^{10,11} This is essential for developing the next-generation 100 nm sized structures and smaller for tomorrow's semiconductors. In addition, our liquid CO₂ spin coating process exploits the inherently low viscosity of liquid CO₂ enabling us to coat 125 mm wafers at rotational speeds that are much slower than needed with conventional solvents. Such low rotational speeds will be particularly enabling as the industry progresses towards the use of large 300 mm wafers.

1) McHugh, M. A.; Krukonsis, V. J. *Supercritical Fluid Extraction: Prin-*

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Meeting Report

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Biography

Continued from page 5

students showing promise in science.

In addition to teaching chemistry courses, he now teaches the chemistry component of a physical science sequence for elementary education majors focusing on those topics appropriate for grade school children and modeling and hands-on activities.

He has been an ACS member since 1962 and is currently Councilor for the Dayton Section and a member of the Local Section Activities Committee. He has given talks at most of the local ACS sections.

Taken from the biographical sketch on file at the ACS Speaker Services. ◇

Historical Notes

By Edward R. Atkinson, Amherst, MA

We present here short biographies of chemists and chemical engineers whose deaths have been reported to us during the past twelve months. Please continue to send us obituary notices from community newspapers that we do not regularly see.

John Gilman Davis, 75, died on September 22, 2000. He was a native of Cambridge, the son of Arthur R. Davis who was a well-known member of the M.I.T. faculty. After graduation from Kimball Union Academy in New Hampshire he obtained the B.S. from Haverford College and then continued with graduate work at the University of Virginia. Mr. Davis then taught chemistry at the Lawrenceville School in New Jersey, at the St. George's Episcopal School in Middleton, R.I., and at the M.C.I. school in Pittsfield, Maine. After retirement to Chatham on Cape Cod in 1976 he continued to tutor students in mathematics and chemistry. As befits his academic career Mr. Davis made many contributions to academic periodicals, and he enjoyed singing in several choral groups.

Walter J. Grondalski, 81, died on November 5, 2000. A lifelong resident of Lowell, Mass., he served in the Army Air Corps in the Pacific theater during World War II. He received the B.S. from Boston College, the M.S. from Calvin Coolidge College, and the Ph.D. from Suffolk University. He taught chemistry, biology, and physics at Lowell High School for 42 years. He also taught chemistry and physics in the evening division of what is now the University of Massachusetts, Lowell and also as an adjunct professor at the University's Boston branch.

James Lear Gurney, 76, died on September 22, 2000 at his home in Osterville, Cape Cod. He was a Boston native who grew up in Brookline and received his secondary education at the Chauncey Hall School in Copley

Square. After receiving the S.B. in chemical engineering at M.I.T. in 1945 he served briefly in the Army's Chemical Warfare Service then returned to M.I.T. to receive the S.M. and Sc.D. degrees in chemical engineering. He also attended the Boston University Law School. His entire professional career was as a research engineer with the Standard Oil Company of New Jersey (now Exxon/Mobil). At his home in Short Hills, N.J. he operated one of the first computers used in American business. His hobby was correspondence with notables and with members of the U.S. Congress. In 1975 he became a founder and lifetime trustee of the Franklin Pierce Law Center in Concord, N.H., which specialized in intellectual property law. Gurney was a member of Alpha Zeta of the Alpha Chi Sigma chemical fraternity.

Matthew L. Herz, 58, died of cancer at his Framingham home on November 11, 2000. He was a Rhode Island native who received the B.S. from Tufts University, the Ph.D. in chemistry from the University of Rhode Island, and the M.B.A. from Boston College. He became the chief scientist

and chief of the supporting science technology directorate at the U.S. Army Natick Laboratories. Among many awards was the Meritorious Civilian Service Award, a military honor. He was an author of about 40 scientific publications and was active as a coach in the local youth sports program.

Richard F. Hogan, 75, died at his home in Fort Myers, Florida on January 20, 2001. He was a Lynn native who received the B.S. from St. Anselm College and the M.S. from Boston College. After Navy service as a pharmacists mate during World War II he was employed as a chemist for 35 years at the Watertown laboratories of the B.F. Goodrich Co. During his professional years he was a resident of Danvers and Swampscott, Mass.

Elvin A. Kabat, 85, died on June 16, 2000 at a nursing home in Falmouth, Mass. He was a New York City native who developed an interest in chemistry at age 5 under the influence of a neighboring boy who had a chemistry set and of an uncle who was a physician. He received the B.S. from City College

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Summer Scholar Report

Applications of Photo-Protecting Groups Using 2-Nitrobenzyl Ethers

Sergei Poletayev, University of Massachusetts Boston, Department of Chemistry

A Progress Report

Nitrobenzyl sulfonate esters have been demonstrated to undergo photo-activated intramolecular cleavage resulting in the formation of 2-nitrosobenzaldehyde and benzene sulfonic acid in high yields [Figure 1].¹ This process, has been used experimentally with a number of different sulfonic acids.

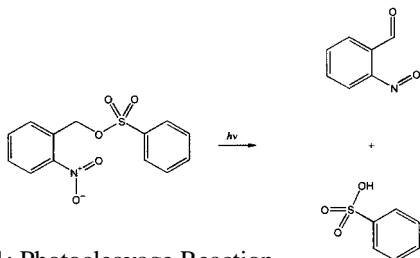


Figure 1: Photocleavage Reaction.

Either 2-nitrobenzyl bromide and the suitable nucleophile, or 2-nitrobenzyl alcohol with an appropriate electrophile, can be used as reagents to generate the nitrobenzyl ethers [Figure 2].

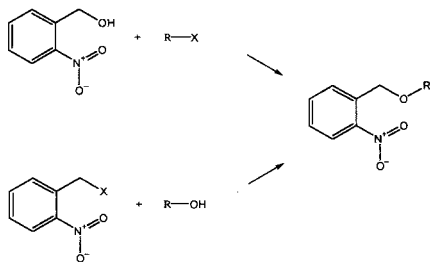


Figure 2: Synthesis of 2 Nitrobenzyl Derivatives.

For this research project, the second pathway was used. By reacting p-toluenesulfonyl chloride with 2-nitrobenzyl alcohol, we were able to synthesize 2-nitrobenzyl tosylate. When irradiated with UV light [<360 nm], molecules of 2-nitrobenzyl tosylate are subject to this photo-activated cleavage, resulting in the formation of 2-nitrosobenzaldehyde and p-toluenesulfonic acid. In order to explore the rate of this transformation, a sample of 2-nitrobenzyl tosylate in chloroform was tested by UV-Vis to examine its susceptibility to ultraviolet irradiation. The readings were taken after the sample was irradiated with UV light for the specified time. The following spectra [Figure 3] were observed as the result of this experiment:

From the plots, it is apparent that the molecules of 2-nitrobenzyl tosylate undergo the chemical transformation. The experiments show that the peak centered at 265 nm gradually diminishes, while the sample absorption around 315 nm increases. This behavior is due to photoactivated intramolecular cleavage, resulting in the formation of 2-nitrosobenzaldehyde and p-toluenesulfonic acid in the solution.

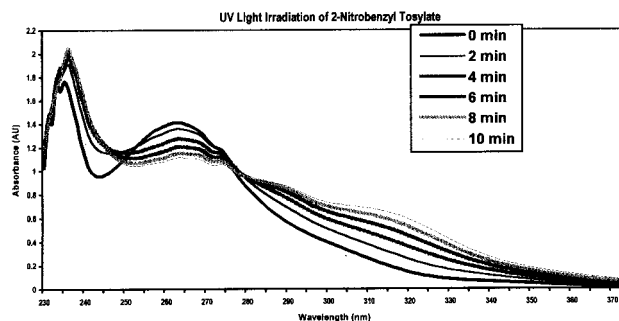
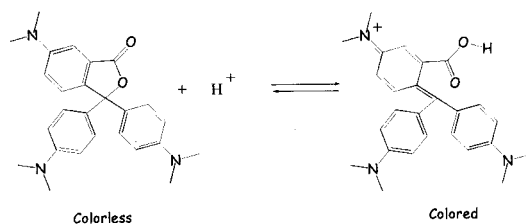


Figure 3: UV-vis Spectra of 2-Nitrobenzyl tosylate under UV Irradiation.

To further explore the nature of this reaction, experiments were conducted which did not use a solution to contain the molecule of interest, but rather a polymer film. In these experiments, certain indicator dyes sensitive to the presence of acid were used to show the generation of the acid.



Scheme 4: Indicator dye, 6-Dimethylamino-3,3-bis(4-dimethylamino)phenyl-1-(3H)-isobenzofuranone (Crystal Violet)

Figure 5 shows the schematic of the experiment, which is designed to demonstrate the effects of ultraviolet irradiation on molecules of nitrobenzyl sulfonate esters. The coating was prepared by mixing poly(methyl methacrylate), 2-nitrobenzyl tosylate and an indicator dye in methylene chloride in 2:1:1:10 ratio by mass. A layer was coated on PET and allowed to dry. Pieces of aluminum foil were placed on the coated film prior to the UV exposure to provide a partial mask for comparison. The film was then placed under 500W UV light [20 cm distance] for approximately 3 minutes. The exposure to the UV light caused the molecules of 2-nitrobenzyl tosylate to undergo photo-activated intramolecular cleavage resulting in the formation of 2-nitrosobenzaldehyde and p-toluenesulfonic acid. The latter reacted with the indicator dye, effectively causing it to change color.

continued on page 27

Puzzle Column

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Summer Scholar

Continued from page 26

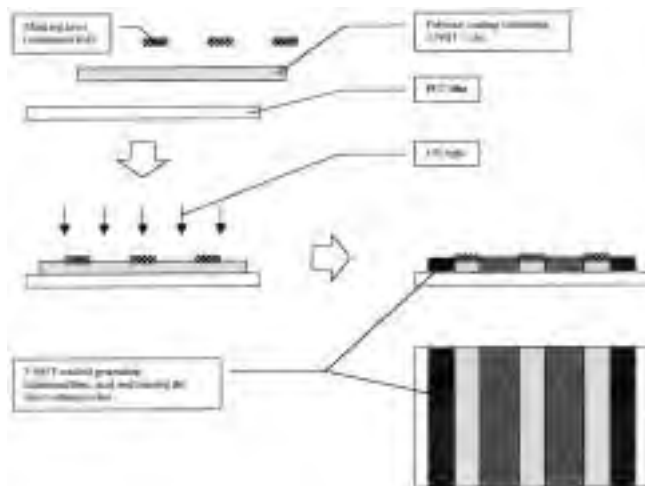


Figure 5: Schematic of Film Experiment.

Upon the completion of irradiation, the masks were removed to observe the difference in color between the reacted and intact layers of film. Figure 6 shows a sample of the film used in the experiment. The colored parts of the film correspond to the layers where the dye had changed its color due to the presence of toluenesulfonic acid.

The work outlined in this report shows that 2-nitrobenzyl tosylate can be successfully used in experiments designed to explore the action of photoreactive molecules in polymer films. In ongoing experiments, we are attempting to synthesize a variety of photolabile molecules that respond to longer wavelengths of light.

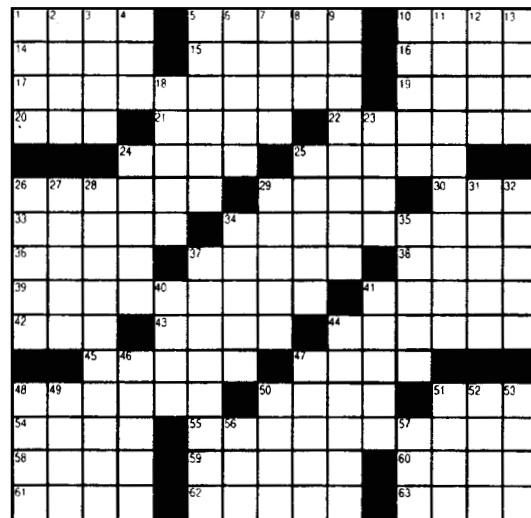


Figure 6: Scanned Image of Irradiated Film.

Acknowledgments. I wish to thank the Northeastern Section of the American Chemical Society and the University of Massachusetts Boston Department of Chemistry for financial support. I thank Professor John Warner for useful discussions and ChemMotif Corporation for a sample of the indicator dye used.

Reference

1. Mease, A.; Strauss, M.; Horman, I.; Andrews, L.; Keefer, R. *J. Am. Chem. Soc.*, **1968**, *90*, 1797. ◇



ACROSS

1. Plays the ponies
5. Chopped trees
10. Taj Mahal's city
14. Throb
15. Martini garnish
18. Press
17. Abert/Gabor sitcom: _____ (2 words)
19. Actor Penn
20. Nearest star
21. Albany-to-Buffalo canal
22. City in Spain or Ohio
24. Shane star
25. Around the world in 80 days star
28. See 1 across
29. Radius, for one
30. Possesses
33. Poet Pound and others
34. Inexperienced fellow
36. Membership costs
37. Arkiin and Alda
38. German auto brand
39. Large Atlantic island
41. Gripped tightly
42. Poetic contraction
43. Carmaker Ransom
44. Peaceful
45. John, Paul and John Paul II
47. Babies In blue
48. Milwaukee player
50. Singer Turner
51. King beater
54. Low in fat
55. Go-ahead signal: _____ (2 words)
58. Formerly
59. "_____ a dream" (King declamation): (2 words)
60. Equestrian's strap
61. Garden pest
62. Space traveler, of a sort
63. Author Ferber

DOWN

1. Does a supermarket job
2. Beige
3. Now's counterpart
4. Envision
5. Accumulates greedily
6. Spanish hero: _____ (2 words)
7. Telegram
8. Our Miss Brooks actress, with 31 down
9. Predetermines
10. Usher's place
11. Growing place
12. Highway
13. Part of A.D.
18. Approaches
23. Pizzeria need
24. Tenant's form
25. With _____ in sight (seemingly ceaseless); (2 words)
26. Golf club type
27. Sky blue
28. Antiwhalding group
29. Some cereals
31. See 8 down
32. Slyly disparaging
34. Bright flowers, for short
35. What precise people split
37. Suffering from hay fever, e.g..
40. Opposite of "yup"
41. Mercenary
44. Shakespearean poem
46. Held title to
47. Colander's kin
48. Punch
49. Philosopher Descartes
50. Cowboys or Indians
51. Like some cheeses
52. Goatee setting
53. Mediterranean volcano
56. Greek letter.
57. Anger

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February 2001 Volume 6

U.S. Team Takes Top Gold Medal Again!

David Kurtz of Idaho Falls took the top gold medal at the 32nd International Chemistry Olympiad (IChO), held July 2-11, 2000, in Copenhagen, Denmark. This is the second consecutive year that the U.S.A. received the top gold medal in the IChO. Charles Duan, a graduate of Beverly Hills High School, CA, was also awarded a gold medal. Luke McSpadden, a graduate of the Oklahoma School of Science and Math, Oklahoma City, and Albert Wang of Bellaire High School, TX, were awarded bronze medals. The 2000 IChO students were mentored by Jesse Bernstein, Hawken School, Gates Mills, OH; Nadine Szczepanski, MacMurray College, Jacksonville, IL; and Jane Nagurny, Scranton Preparatory School, PA.

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hagen, Denmark, for the international competition.

The ACS staff appreciate the support and guidance they received from the Olympiad subcommittee. ACS has sponsored the U.S. team since 1984. Principal funding comes from the Society's Othmer Olympiad Endowment, with additional support from the U.S. Air Force Academy, IBM Research, Merck Publishing Group, Texas Instruments Inc., W.H. Freeman & Company, McGrawHill Companies, Inc., Advanced Chemistry Development, and Steck-Vaughn/Saunders Publishing. Thank you for supporting the 2000 USNCO program.

- Robin Green, ACS Staff ◇

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Dr. Maria Webb, VP of Research, Pharmacopeia, Princeton, NJ

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March



(l. to r.) Wm. Eykemp (Am. Inst Ch. E.), Elliot Hillback, Speaker (Genzyme Corp.), Richard Schoenfeld (Inst. Soc. F. Pharm. Eng), Tim Frigo (NESACS Chair)



Elliot Hillback, Speaker (Genzyme Corp.) giving his talk

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Dr. Martin W. Brechbiel (National Cancer Institute, Radiation Oncology Branch)
"Continuing Adventures with Metal Complexes for Medicinal Application: Actinium and Gadolinium"
Univ. New Hampshire, Iddles Auditorium Room L103, 11:10 am
Prof. Kendall N. Houk (Univ. of California, Los Angeles)
"Theory and Modeling of Stereoselective Organic Reactions"

Boston College, Merkert Chemistry Center,
Room 130, 2609 Beacon St.
3:00 pm

Dr. Shridhara Alva (Abbott Laboratories)
"Diabetes and Blood Glucose Monitoring Technologies"
Univ. Mass. Boston, Science Building Room 089,
4:30 pm

May 3

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Distinguished Alumnus Lecture
"Pulsed Electrochemical Detection in Bioanalysis"
Northeastern Univ., 129 Hurtig Building, 4:00 pm
Prof. Mike Hopkins (Univ. of Chicago)
Title: TBA (Physical Chemistry Lecture Series)
Harvard University, 12 Oxford Street, Cambridge,
5:00 pm, Pfizer Hall

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Prof. Ian Manners (Univ. of Toronto)
Title: TBA
Northeastern Univ., 129 Hurtig Building, 4:00 pm

Prof. John Yates (Pittsburgh Univ.)
Title: TBA (Harvard-MIT Physical Chemistry Lecture Series)
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May 11

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Boston College, Merkert Chemistry Center, Room 130, 2609 Beacon St. 4:00 pm

May 17

Dr. Deborah Davis (Abbott Labs)
Title TBA
Dartmouth College, Room 101 Fairchild, 10:30 am
Prof. P.T. Kissinger (Purdue Univ.)
Karl Weiss Lecture
"Thirty Years of Experiences in Academic and Commercial Bioanalytical Chemistry: The Good, The Bad, The Ugly."
Northeastern Univ., 129 Hurtig Building, 4:00 pm

May 23-25

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The 33rd Annual Camille and Henry Dreyfus Chemistry Lectures
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Historical Notes

Continued from page 25

of New York. When family finances required an additional source of income Elvin obtained a job in the laboratory of Michael Heidelberg at Columbia University. While earning \$90/month he was able to obtain the M.S. and Ph.D. degrees, then developed expertise in immunology and immunochemistry while working for the National Institutes of Health. He was the author of several books on these subjects and a 50-year member of the summer institutes at Woods Hole.

As the results of allegations of Communism made by an associate during the Joseph McCarthy era Kabat appeared before loyalty boards and lost his research grants and the right to travel abroad. He felt vindicated when he received in 1991 the National Medal of Science from President G.H.W. Bush at the White House. He admitted to having used himself as a test subject for experiments in immunochemistry, to having himself used gallons of his own blood, and to having given gallons to his students. He stated that "I am probably the most intensively studied human with respect to antibody formation to a variety of things".

to be continued