THE NUCLEUS

January 1990 *Of the Northeastern Section of the American Chemical Society* *Vol. LXVIII, No. 4*

Monthly Meeting

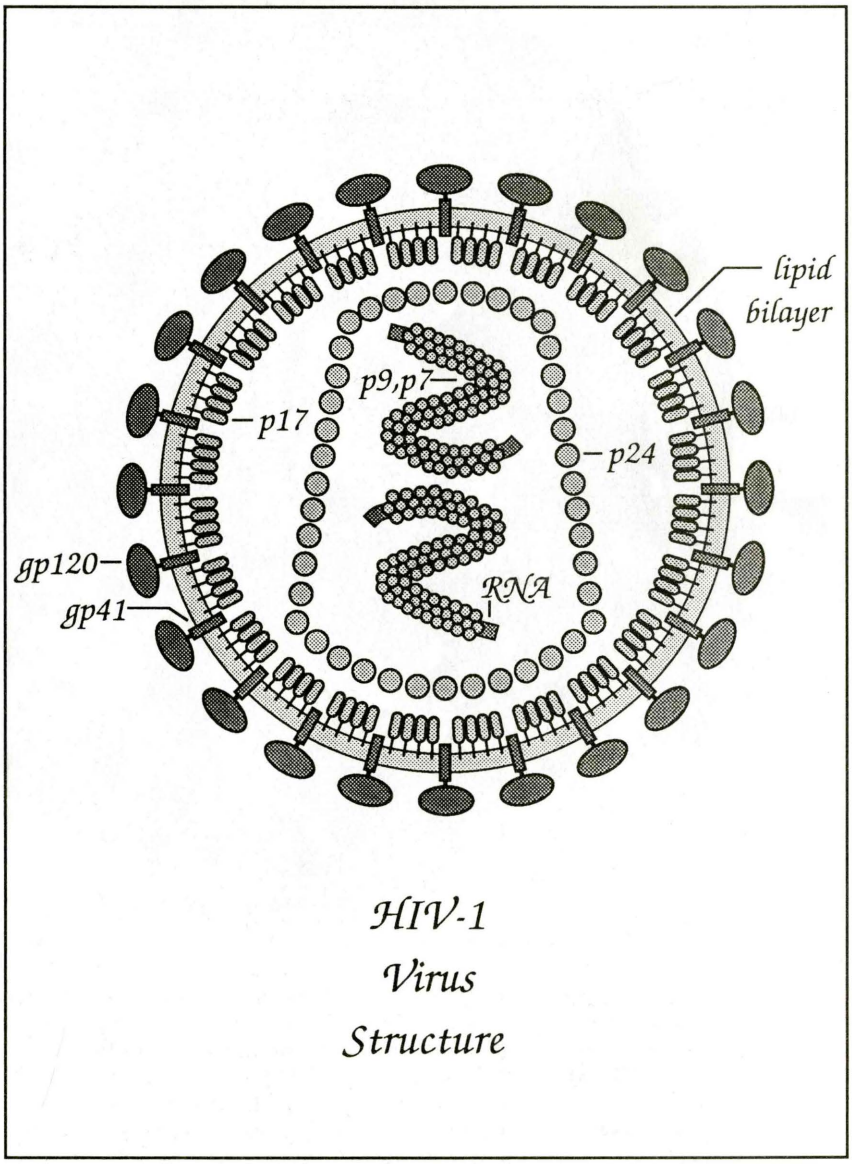
Combatting AIDS Virus Pharmacologically

C.F. Callis Address

Chemists and ACS, Resources for State Government

National Chemistry Week at NESACS

J. Mohrig's Award Address



HIV-1 Virus Structure

The Northeastern Section of The American Chemical Society Inc.
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Any ACS Business may always be conducted via the business office above.

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Deadlines: *March Issue: January 16, 1990; April Issue: February 15, 1990*

THE NUCLEUS

Dedicated to the Memory of James Flack Norris
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Richard A. Fisher

Director of Molecular Biology; Biogen, Inc.; Cambridge, MA

As an NIH Trainee in genetics, Richard A. Fisher received his Ph.D. in Microbiology in 1979 from the University of Iowa. His thesis was on the molecular genetics of DNA packaging in bacteriophage lambda. He then went on to the University of Chicago, where, as an American Cancer Society postdoctoral fellow, he studied heterocyst differentiation and nitrogen fixation in Anabaena. In 1981 he accepted a position at Biogen as a Scientist. Since 1985 he has been the Director of Molecular Biology at Biogen and the project leader for the rsCD4 program. ◇

Abstract

Recombinant Soluble CD4 as Potential Antiviral Therapy for HIV Infection

The T-cell surface glycoprotein, CD4 or T4, is the membrane-anchored receptor for the human immunodeficiency virus, type 1 (HIV-1), and progression of disease in HIV-infected persons is correlated with depletion of CD4+ lymphocytes. The striking T-cell depletion with ensuing immunological compromise in AIDS probably results from both the direct and indirect cytopathology of HIV replication. We have been developing a novel strategy aimed at slowing virus spread by blocking replication and virus-induced cell fusion at the level of receptor binding with a recombinant soluble form of CD4, called rsCD4. We have demonstrated that rsCD4 blocks HIV replication and HIV-induced cell fusion *in vitro*, and that rsCD4 blocks HIV replication through its interaction with virus envelope glycoprotein gp120. We have demonstrated that rsCD4 is not immunotoxic *in vitro*, even at concentrations that far exceed that required for antiviral activity. An *in vivo* test in SIV-infected rhesus macaque monkeys has shown that potentially beneficial effects result from treatment with rsCD4. A Phase 1 clinical trial of rsCD4 in ARC and AIDS shows that daily treatment with rsCD4 produces a dose-dependent trend toward reduction of virus load. ◇

Janet Litster Rideout

Dr. Rideout received her AB and MA degrees from Mount Holyoke College ('61; '63) and Ph.D. degree from the State University of New York at Buffalo ('68). She has been employed at Burroughs Wellcome Co. since 1968, and has advanced from Research Chemist to Assistant Division Director of the Organic Chemistry Division in 1988.

Dr. Rideout's research interests are the synthesis of purines, pyrimidines, and related compounds and their nucleoside derivatives as potential chemotherapeutic agents against viral, inflammatory, and protozoal diseases.

She has authored and co-authored some 20 publications, co-edited one book, and has been granted 14 US patents. ◇

Abstract

Anti-HIV Activity of 3'-Azido-3'-Deoxythymidine and Related Compounds

This historical presentation will show the development of 3'-azido-3'-deoxythymidine (Retrovir®, AZT, zidovudine) at Burroughs Wellcome Co. from the initial assessment as an antibacterial agent to the subsequent recognition of its activity against retroviruses. The synthesis of AZT will be described and the search (by many investigators) for active analogues will be indicated in SAR discussions. Physical properties, mechanism of action, and metabolism will be addressed. Some indication of current efforts to discover new compounds for the treatment of AIDS will be included. ◇

January Meeting

The 721st Meeting of the Northeastern Section of the American Chemical Society jointly with the Medicinal Chemistry Group.

Symposium
"Pharmacological Approaches to Combat the AIDS Virus"
Thursday, January 11, 1990

Boston College, 307 Higgins Hall
Chestnut Hill, Massachusetts

2:30 p.m. Refreshments

3:00 p.m. Opening Remarks: Dr. James S. Weinberg, T Cell Sciences, Inc.

3:10 p.m. *Richard A. Fisher, Ph.D.*
Biogen, Inc., Cambridge, MA
"Development of Recombinant Soluble CD4 as a Potential Antiviral Therapy for HIV Infections"

4:10 p.m. *Janet L. Rideout, Ph.D.*
Burroughs Wellcome Co., Research Triangle Park, NC
"Anti-HIV Activity of 3'-Azido-3'-Deoxythymidine and Related Compounds"

5:30 p.m. Social Hour: Faculty Dining Room, McElroy Commons

6:15 p.m. Dinner

7:30 p.m. After Dinner talk (Faculty Dining Room):
Paula M.D. Fitzgerald, Ph.D.
Merck Sharp & Dohme Research Laboratories, Rahway, NJ
"Retroviral Proteases: Structure and Implications for Drug Design."

Dinner reservations must be made no later than January 4, 1990. Please call Mrs. Piper at (800) 872-2054 or (508) 456-8227. Reservations not cancelled at least 24 hours in advance must be paid. Members $18; Non-members $20; Students and Retired Chemists $5. THE PUBLIC IS INVITED.

February Meeting: February 8, 1990 at Simmons College: G. Peter Beardsley, Yale University Medical School: "Novel Chemotherapy Agents."

Paula M.D. Fitzgerald

Dr. Fitzgerald is a Research Fellow in the Biophysical Chemistry Department of the Merck Sharp and Dohme Research Laboratories in Rahway, New Jersey. She graduated from Stanford University in 1972, and obtained a Ph.D. in Biophysics from the Johns Hopkins University in 1977. She held research positions at Pennsylvania State University at the Medical Foundation of Buffalo and later at the University of Alberta. Dr. Fitzgerald has investigated the structure of a number of proteins using X-ray crystallographic techniques. Her MERLOT package of computer programs is now in use in more than 100 laboratories world wide. At Merck, she is investigating the structures of proteins that play critical roles in disease to aid in the design of drugs by understanding the structure of the therapeutic target and the interactions of inhibitors with that target. ◇

Retroviral Proteases

Structure and Implications for Drug Design

Paula M.D. Fitzgerald, Ph.D.

Retroviruses have been shown to be the causative agent in several disease states, among them human immunodeficiency virus (HIV) and the associated acquired immune deficiency syndrome. Retroviruses require a viral-encoded protease to catalyse a critical step in the maturation of the virus, making these proteases potential targets for therapy in the treatment of retrovirus-associated diseases. To aid in the rational design of retroviral protease inhibitors, the structure of the proteases from HIV and from the distantly related avian myeloblastosis virus have been determined by X-ray crystallographic techniques.

Structures of the two enzymes will be described, concentrating on differences between them that may explain their different substrate specificities. Both structures will be compared to the structures of pepsin-like aspartyl-proteases (such as pepsin and renin). The role of residues in a flexible surface loop (the "flap") and their possible role in the binding of substrate or inhibitor will be discussed. ◇

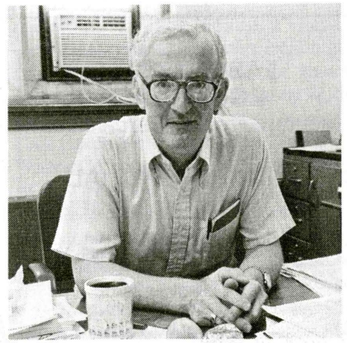
Free Registration at Boston ACS Meeting for Helping at ECH

Assistance is sought for registering and scheduling applicants and employers at the Employment Clearing House during April 22–27, 1990. Members, retirees, spouses and friends may apply. Three hours orientation on Saturday, April 21 and 21 hours of work Sunday through Thursday are requested. Reimbursement for lunch and parking.

To sign up, call Joan Wheeland of Washington ACS staff before April 1: 800-227-5558, press 4 (toll free). ◇

From the New Chairman

by Joe Billo



These are challenging times for chemistry. Scientific illiteracy, poor public image, decreasing college enrollments, are problems that face our profession and bode ill for the future. I'm sure that all of you are aware of these problems and that many of you would like to contribute in some way to their solution.

In a recent letter, Paul Gassman, current president of the ACS, called upon local sections to begin initiatives in four areas: Educating the Public (to improve the public perception of chemistry), Educating the Media (the key to educating the public), Educating the Legislators (by building a relationship between legislators and chemists) and Educating the Educators (to enhance the quality and image of science presented at the high school, junior high and even at the grade school level).

The Northeastern Section has a number of programs already in place that address the concerns and goals mentioned above. Our Public Service Committee has sponsored or co-sponsored a large number of events for the general public, often to overflow crowds. The popular Holiday Lectures, symposia on chemical safety and on chemical demonstrations, and a number of National Chemistry Week activities are only a few of the activities the committee organized in 1989. Past chairman Mike Strem, together with the Public Relations Committee, recently initiated contact between legislators, our local section officers and ACS President Clayton Callis, at a reception at the Mass. State House. The section needs to continue its efforts in these areas.

My long involvement in the Northeastern Section has always been in the area of education. I began in 1973, as co-chair of the annual College Research Symposium. Not surprisingly, since I am an educator, I feel that our efforts in the area of education are among our most important functions. The Northeastern Section has a number of programs that support education at the college and high school level. Unfortunately, many students appear to have been "turned off" to science long before entering high school. Our childrens' earliest exposure to science and to the image of scientists needs to be a positive one. I intend during 1990 to begin a program, modelled on our James Flack Norris Speakers Bureau, in which ACS members visit elementary school classes to talk to students about the excitement and satisfaction of chemistry as a science and as a career. I know from personal experience that this can be very rewarding.

The Section has tremendous resources of talented people. It is time to put some of those resources to work.

The committees of the Section span a wide range of activities and interests. I encourage you to get involved with the activities of the Northeastern Section. ◊

Thirtieth Annual Undergraduate Research Symposium

Brandeis University, Saturday, April 21, 1990

Undergraduates working on research projects are encouraged to participate. Undergraduate recipients of the Norris awards for summer research are invited to talk.

A call for papers will be mailed in early February. For more information, contact Emily Dudek, Chemistry Department, Brandeis University, phone (617) 736-2500. ◊

Committee Chairmen for 1990

(The telephone numbers listed are daytime numbers, 617 area code, unless otherwise indicated).

* = Standing Committees

***Awards:** William O. Foye, 732-2931
***Budget:** Jim Piper, 738-2184
***Board of Publications:** Cathy Costello, 253-7224
***Chemistry Education:**
Dennis J. Sardella (University) 552-3612
Dorothy Bagley (High School) (508) 845-4641
Connie Senior (Elementary) (508) 689-0003
***Constitution and Bylaws:** Arno Heyn, 969-5712
***Hospitality:**
Leisa Corbett, 964-6690 x189
Marie Potts, 923-5053
***Membership:** I.C. Hartman, 738-2181
***Nominating:** Mike Strem, (508) 462-3191
***Professional Relations:** Myron S. Simon, 332-5273
***Program:** Charles Kolb, (508) 663-9500
***Public Relations:** Katie Stygall, (508) 372-7161 x311
Continuing Education: Alfred Viola, 437-2809
Long-Range Planning: Adrienne Dey, 449-9204
Public Service: Pat Samuel, 353-2124
Safety: Jim Kaufman, 333-0500 x2330
Secondary School Award: Irwin Taub, (508) 651-4711
Speakers' Bureau: Mary Ann Solstad, 631-4748
Archivist: Esther Garber, 232-0142
NERM 23 (1993): Tom Gilbert, 437-4505
Summerthing: Michaeline Chen, 923-5042
Retired Chemists Group: Ernie Becker, 332-8686
Medicinal Chemistry Group: Jim Weinberg, 621-1400
1990 National ACS Meeting: Joe Billo, 552-3619

NESACS Celebrates NCW

by Katie Stygall

National Chemistry Week started on October 28th at Lexington Minuteman Technical High School when we ran a workshop for the general public entitled "How Safe is your Home?" The sponsors of this event were the NESACS Public Services Committee, the Massachusetts Audubon Society, MASSPIRG and the Massachusetts Department of Public Health. Though attendance was low the quality of the meeting was high. The speakers chosen by Phyllis Brauner did a wonderful job. Mary Beth Smuts from the Massachusetts Department of Public Health moderated. Jim Kaufman gave his presentation on changing behavior patterns in order to minimize risks. Many participants were particularly impressed with Dr. Alan Woolf, Director of the Massachusetts Poison Control Center. He showed vividly how bottles of detergent can look remarkably like bottles of soda to young eyes. Fire-chief Raymond Sullivan of Springfield gave a chemical demonstration — in the parking lot. To show how dangerous it is to store swimming pool chemicals next to automotive chemicals, he added a few drops of pool disinfectant to automotive brake fluid. A nasty fire spontaneously developed.

Both Valerie Wilcox and Phyllis Brauner contributed greatly to the success of the high school symposium at the Boston Museum of Science and to the reception for legislators held at the State House. This is the third year that the Boston Museum of Science and the NESACS Public Service Committee have held a symposium for High School students and teachers. This year, the topic was forensic science — a highly popular topic because the museum had to turn away 800 people. They plan to repeat the symposium later this fall. The presentation was very well received judging by the comments of both teachers and students as they left for lunch.

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We owe a special thanks to Maureen Casey — assistant to Speaker George Keverian for helping us in so many ways with our reception for legislators. We are grateful to those legislators who attended the reception and showed an interest in our activities, despite a heavy legislative agenda. We plan to hold a similar event next year. Clayton Callis, President of the ACS, welcomed legislators and chemists to the reception. Jerry Bell of Simmons College and Val Wilcox gave "hands-on" chemical demonstrations and Ed Meloni of Strem Chemicals gave a short introduction to superconductivity.

Mark Wrighton, chair of the Chemistry Department at M.I.T. was interviewed by David Brudnoy (WBZ) on November 3rd — an estimated 3 million people were listening. Professor Wrighton spoke of the importance of chemistry in our daily lives now and in the future and talked about his life as a chemist and answered questions from people who called in during the show.

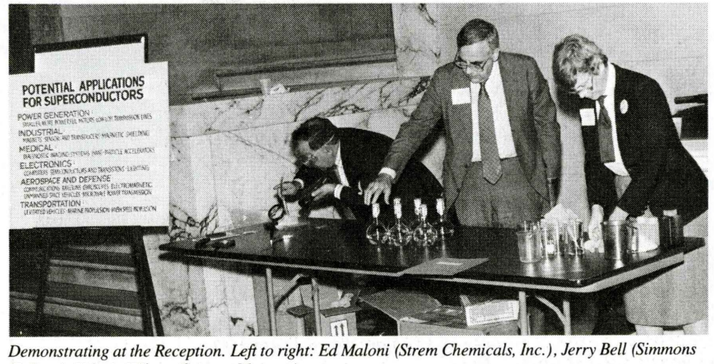
The week ended on a high note: The Center for Health Sciences at Framingham State College and the NESACS Public Service Committee collaborated for their second one-day workshop for grade K through 12 science teachers. The workshop attracted well over a hundred participants and was very well received. The key note speech was by 1986 Nobel Prize winner, Dudley Herschbach. He talked about the development of his scientific curiosity, his career as a scientist and his work as an educator. This day concluded with Toby Dills, Jim Golen and Tom Greenbowe all of the Department of Chemistry at Southeastern Massachusetts University presenting their "Science is Fun" demonstrations. I have vivid memories of Jim Golen, of Tom Greenbowe singing "Follow the Yellow Brick Road" in a helium-induced falsetto voice (does helium also make you tone-deaf? — apologies, Tom) and of Dudley Herschbach enthusiastically competing in the clock reaction race.

As if this weren't enough, Valerie Wilcox with help from student members and affiliates of the ACS ran chemical demonstrations and sold T-shirts all week at the Boston Museum of Science and Arthur D. Little Inc. ran a tour of their Cambridge facilities for local high school students. Funding for these events was generously provided by W.R. Grace and Co. — Organics Division, Ciba Corning Diagnostics, Millipore — Waters Corporation, IBM Corporation, ACS — National, Research Biochemicals, The Lowell Institute, and the Boston Museum of Science.

Our section is indebted to the ACS student affiliates from Framingham State College, Simmons College, the Massachusetts College of Pharmacy and Suffolk University for giving up their free time to help make these events so successful. Karen Piper, our administrative secretary, made all these events possible. ◇

At State House Reception, November 1, 1990. Left to right: Carol Hagian, Maureen Casey, Michaeline Chen (NESACS) (photos by Mark E. Kasianowicz, Legislat. Service Bureau)

Left to right: Mike McCormack, Marilyn Travinski, Clayton Callis (ACS), Rep. Janet Wall (N.H.), Lt. Col. Ronald R. Tucker (Pease AFB), Seth Wall



Demonstrating at the Reception. Left to right: Ed Maloni (Strem Chemicals, Inc.), Jerry Bell (Simmons College), Valerie Wilcox (Science Museum)

Chemists and the ACS

Valuable Resources for State Governments

Condensed from the Remarks by Clayton F. Callis, President, American Chemical Society at the Reception for Massachusetts Legislators at The State House, Boston during Chemistry Week, November 1, 1989

I am grateful that so many of you from the Massachusetts Legislature are here so that we can become better acquainted with you and better appreciate the tremendous responsibility that you shoulder in governing this great State of Massachusetts.

This is Chemistry Week all across the Country. Chemistry Week is sponsored by the American Chemical Society. A major goal of Chemistry Week is to catalyze an outreach to the public so that there will be a better understanding of the role of science in American life, a better understanding of chemistry, and what chemists do.

Outreach to the Legislators is certainly appropriate for the American Chemical Society, because the ACS was chartered by Congress in 1936 to provide accurate, understandable, scientific information for Congress and other governmental officials.

Today we live in a "chemical world". One of my favorite quotations is one by Professor Gregory Petsko of MIT made in Washington in 1987, where he said, "This is the most exciting time in the history of science to be doing chemistry, and chemistry is the most exciting science to be doing".

Chemical science is the central science for much of our technological progress. Let me remind you:

- Nylon stockings put Betty Grable into every GI's locker in World War II,
- Plastics transformed many common items we need and use from automobiles to cooking utensils to toys,
- Detergents led to work saving dishwashers and cleaner clothes,
- The silicon chip made the computer possible,
- Polyester continues to clothe millions who otherwise could not afford other fibers for comfortable attire,
- Agricultural and food preservative chemicals have increased not only the quantity but also the quality of our food significantly,
- The chemist's synthesis of drugs — from aspirin to antibiotics to chemotherapy — has been another "revolution" that has nearly doubled the life-span in this country.

All of these factors have created, in much of the world, a society that is more affluent, better educated, longer lived, and with more leisure time than ever before.

There are exciting discoveries being reported currently. I know that all of you have heard about "cold fusion". While the original promise held out by Professor Pons last March for a new source of energy has not borne fruit, I have found no one who does not know, as a result of the publicity, that science is important to their future well-being, and that science is working on some useful things, at the very least. Another discovery of recent vintage is a more practical superconductor. Still another is gene splicing. Biotechnology is opening up new and important avenues that will bring still more of the benefits of chemistry and biology to mankind.

But we are still faced with the problem of the poor public understanding of science — of chemistry in particular — and of what chemists do.

A recent poll (but prior to the cold fusion publicity) showed that only half of our seventeen year-olds believe science is useful. Only 5 percent of adults claim to understand basic scientific concepts, or issues of science policy; more than 70 percent want curbs on scientific activities.

Don't you agree that the chemists need an "outreach" program? It's not only crucial to the well-being of scientists in this country, but much more important to the well-being — perhaps the very existence — of our technologically based society.

Education is the answer. The enemy is ignorance.

The American Chemical Society has a role to play. The scientists must solve these problems. No one else is going to do it for us.

The American Chemical Society regularly prepares position papers on various issues to provide accurate, understandable scientific information on aspects of environmental protection, the safety of our food supply, risk assessment, competitiveness, patent policy, ethics standards, and all aspects of education.

A major project of the ACS is an exhibition planned for the Smithsonian on Science in American Life. Education

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At the Statehouse reception. Left to right: Michael Strem, Rep. Barbara Gardner, Pres. Clayton F. Callis. (Photo by A. Fingland)

Health and Safety on My Mind

5:04 p.m., October 17th, 1989
by M.A. Solstad

This fall we were vacationing in the Pacific Northwest and we decided to visit my sister in Sacramento. Our flight to Oakland in clear, mild weather over the spine of the Cascades arrived about 3:30 p.m. Our luggage had not arrived and we were filing claims when during reloading the plane the luggage turned up, after all. Because of World Series traffic there was delay at the car rental office and we finally were off to Sacramento just before the 5 o'clock rush hour, taking routes I-880 to I-80.

As navigator, I was concentrating on the map when I was wondering why my spouse was driving so crazily, and why everyone else was fishtailing as if they were driving on an icy hill — or was there an oil spill, or were our tires flat? And why were so many people pulled over looking perplexed? We finally figured out that we had an *earthquake*, but hardly "THE" earthquake. As a youngster in Southern California I had experienced several force 5 or 6 earthquakes which were sharp shudders or rumbles. This one was like driving on a rolling ship.

One radio station which was on confirmed our guess. When there was talk about the collapse of the Cypress section of the Nimitz Highway I searched the map in vain — we never dreamed we had passed that section just a mile or so back. We drove slowly onward, then seeing no destruction, continued to Sacramento, transfixed by the tragedy behind us, as we heard of it over the air.

Only next day, as reports filtered in and we saw detailed maps, did our closeness to disaster sink in. Had our baggage been delayed a couple of minutes more, or had there been a slightly longer wait at the car agency and we could have been on that deadly stretch of collapsed highway — or with no delays we could have been safely in Sacramento at 5:04 p.m.

So, what lesson can we learn for a safety column? *There are some events for which one simply cannot be prepared.* No safety devices in their cars, or sturdy cars saved those unlucky souls on I-880. For hurricanes or tornadoes there usually is sufficient warning to reach a spot of safety. And surely you know how to avoid accidents in the lab. When we say 'accidents are preventable' are earthquakes an exception?

After the 1933 Long Beach earthquake, and later the El Centro quake our father who was an architect was responsible for drafting legislation for requiring quake resistant schools and public buildings in California. Skyscrapers swayed and frightened occupants but did not collapse. These are the reasons why loss of life was not in the thousands. The lesson from this quake is that structures built on filled land are especially vulnerable: the shaking is amplified.

In August northern California had a multi-county earthquake disaster drill, so the structure was in place for a good and quick response; certainly this helped to reduce casualties. Substitute communications, strategic stockpiling of supplies, practice in triage were all in place. Planning for disaster does mitigate its impact. In the last analysis, however, the response of Joe Public was the important factor for short term recovery.

The collapsed highway supports were to be reinforced, but because of Proposition 13 (the California version of Proposition 2½) this had been postponed even though the deck had been reinforced.

Experts tell us that the East is overdue for a big earthquake; we, too, have many bridges and overpasses in bad shape. Can we afford to delay? It is tiresome to prepare for the very rare disaster, so people will rebuild on fault lines and on filled land. Fatalism and economics will make people accept a certain risk. In matters of chemical safety, in contrast, the public will not accept that same risk. So, plan well, build well, rehearse the unthinkable — and GOOD LUCK! ◊

Jerry Mohrig's Norris Award Address

Students as Colleagues in Teaching and Learning

by Kristin Swope

"My goal in teaching chemistry has been to help students move from being passive test takers to active participants in their education. It is not the certification but the education of students that holds my interest," said Professor Jerry R. Mohrig as he accepted the James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry on November 9, 1989.

Mohrig, a professor of chemistry at Carleton College in Minnesota, said that professors must be willing to actively involve their students. The two must act as a team, each group contributing to the education of the other. The interaction is crucial to a healthy learning process.

He illustrated the importance of the professor's attitude in the following anecdote. A colleague of his on sabbatical at a prestigious university taught a large chemistry class. After the course was over he ran into a student who said "you cared that we learned," to which the professor replied "Of course, why do you think I teach?" The student responded "We do not take that for granted here. When I walk into a classroom on the first day of class I never know if the teacher will be one who cares that I learn."

"And that my friends make a mockery of the word education," said Mohrig.

"When I use the word colleagues to describe student and faculty working together I don't mean to imply they are equals nor need they be friends," said Mohrig. "The fundamental process of education it seems to me is mutual respect between the teacher and the student."

One way to involve students actively is through chemical research. The undergraduate works closely with a professor and experiences the process and "spirit" of science. It is a totally different experience from traditional laboratories where the professor already knows the answer.

Another example of students as colleagues is the collaboration between Mohrig and an undergraduate that led to the development of a computer graphics system to visualize large proteins. He said the project helped students to actually "see" what active sites look like and manipulate the interactions of molecules. Without the undergraduate's expertise with computers combined with Mohrig's knowledge of chemistry the project would not have been successful, he said.

Learning chemistry is often a lonely and passive business, he noted. Mohrig devised the open book group quiz to encourage students to work together and discuss concepts. He assigned groups of three students to come up with a single set of answers to several tough questions. The students who are doing better are forced to explain their reasoning and teach those struggling with the material. It often points out to the better students that they don't know it as well as they thought.

Sometimes a student will come up to him and say that despite having the right answer, no one would listen. Very often it is a woman Mohrig observed. He tells her if it happens again he will put her in a group with at least one other woman but he points out that it is really useless knowledge if it can't be communicated clearly or forcefully enough to convince others. He has never had a woman come back to him requesting to be switched into a different group. This approach may have something to do with the high number of woman chemistry majors at Carleton College, Mohrig said.

The senior comprehensives in the Chemistry Department at Carleton College have been changed from the traditional passive exams to active exercises. Groups of six or eight students meet together with a faculty member to discuss recent papers written by a well known chemist. The chemist comes for one week to discuss his work with the students. In preparation, the seniors must teach each other the theories and techniques involved. The students then devise an agenda of questions to put to the speaker. The students gain confidence that they can understand and talk about "real world" research he said.

A month after Ronald Breslow had come to discuss mimicking biological activity with organic molecules Mohrig and his students went to hear a nobel laureate discuss his research in the same area. Following the lecture the seniors asked several intelligent questions of the nobel laureate. At first he was distant but as soon as he saw that the students knew what they were talking about the discussion became quite animated.

"I remember stepping aside and watching them go at it — a nobel laureate and six undergraduate students. As we were going up the aisle he yelled up what does Breslow think about that? He was asking six undergraduates," he said. "Teachers die for that kind of interaction. You can't plan it, just every now and again it can happen if you make the opportunity possible." ◇

Board of Directors

Condensed Minutes, Meeting of October 11, 1989

D.M. Howell, Secretary

Officers' Reports: The minutes of the September meeting, prepared by the Secretary Elect, M. Hearn, were approved as presented.

J. Piper (Treasurer) reported that there will be a cash-flow problem in December. The Budget Committee is starting its work for the 1990 budget.

Awards: W. Foye announced that the Esselen Award meeting would be held at Harvard on April 12, and therefore separate from the national ACS meeting in Boston. The Levins Award has been reactivated.

Board of Publications: J. Vnenchak announced that it is planned to have a 32-page issue in April 1990 which will be distributed to national meeting registrants. The May issue will be 24 pages, if election material will be published in it. Other issues will be 16 pages. For the April issue advertising rates for one-time advertisers have been doubled in view of the larger number of copies published.

Constitution and Bylaws: A. Heyn presented some changes for approval by the Board. These will be published in the November NUCLEUS and will be presented to members at the December meeting. The naming of the Richards Medal Fund, Art. X, Sec. 6 was APPROVED. The rewording of Bylaw VIII, Sec. 4 also was APPROVED.

Programs: J. Billo announced that the December meeting will be a holiday party.

Student Affiliates: D. Lewis has been trying to get Student Affiliates more involved with the society. Several of them will help at the Museum of Science during National Chemistry Week.

Public Service: K. Stygall reported that 60 people attended the Traveling Chemistry Demonstration Show and that Senator Tsongas spoke to the group. The biennial conference of the Division of Chemical Education will be held during the national ACS meeting in Boston. V. Wilcox reported that the lecture on Forensic Chemistry, cosponsored by the Northeastern Section and the Lowell Institute is oversubscribed: Possibly two sessions will be held. Chairman M. Strem announced that there will be a reception for legislators at the State House on November 1, hosted by the Northeastern Section.

National Meeting: J. Billo said that the plans for the April 1990 national meeting are well in hand.

Retired Chemists: E. Becker presented a proposal for reactivating this group.

NERM: R. O'Malley urged the Directors to make specific plans for the 1993 NERM meeting which is to be hosted by this Section. ◊

Member News

by Katie Stygall

Mark Wrighton, chair of the Chemistry Department at M.I.T. was recently awarded a grant of three million dollars by Ciba Geigy Ltd. The grant provides for a professorial chair and a research endowment — the first time that both have been supported. Professor Wrighton, who is now 40, was made a full professor at the age of 27 and is known affectionately as "Wunderkind" by his colleagues and students. He has been blazing new trails in chemistry at M.I.T. for 17 years.

Jim Kaufman of the Curry College Laboratory Safety Workshop and chair of our Safety Committee has recently given presentations to National Science Teacher Association Conventions in Texas, South Carolina, Wisconsin, Arizona and New Jersey. In November, Jim gave a presentation to 200 students at Salem High School, Salem, New Hampshire on science and their health and safety. The students at this school have organized their own safety committee and Jim taught the committee how to inspect their laboratories for safety. The Academic Laboratory Safety Council is thriving and recently held a meeting at Middlesex Community College where they discussed their goals for the future and learned about eye and face protection. The Curry College Laboratory Safety Workshop with Fischer Educational Materials Division and UVEX are offering a national $1000 award to the secondary school that has the best safety program.

Our illustrious chair, *Mike Strem,* attended OMCOS V (the fifth IUPAC symposium on organometallic chemistry directed towards synthesis) in Florence, Italy, during October.

Gerald Halk, president of Currents International of Massachusetts chaired a three day conference entitled "Strategic Biotechnology Opportunities in the 1990s" in California during October. *Sally Seaver* of Hygeia Science, chaired a session "Process Development for Biotechnology Products" at the same conference.

Ellen Bressel, has recently been appointed director of clinical services at Medical Device Consultants, Inc., in Attleboro, MA, responsible for managing clinical investigations of medical devices.

We welcome *Tom Reitz* to our section. Tom comes from Bennington College where he spent the last nine years. Tom now teaches chemistry at Bradford College, is very interested in environmental issues and hopes to work with us teaching science to children. ◊

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Preliminary Notice
1990 James Flack Norris Undergraduate Summer Research Scholarships

Potential applicants, research directors, nominators and recommenders are advised that detailed guidelines and application forms should be reaching the respective departmental offices by mid-January.

Calendar

For additional information, call:
Northeastern University — (617) 437-2822
Southeastern Massachusetts University — (617) 999-8246/8232

Tuesday, Jan. 9
Dr. James Vath (Genetics Institute)
"Microscale Derivatization of Peptides and Glycoconjugates for Tandem Mass Spectrometry"
Northeastern University
Hurtig Hall room 129 at 4:00 pm

Tuesday, Jan. 16
Professor T. Hudlicky
(Virginia Polytechnic Institute)
"Recent Advances in Chemical Synthesis"
Northeastern University
Hurtig Hall room 129 at 4:00 pm

Wednesday, Jan. 24
Dr. Edwin G.E. Jahngen
(University of Lowell)
"The Mechanism of Protein Degradation by Ubiquitin"
Southeastern Massachusetts University
Science & Engineering Building (Group II) room 305 at 4:00 pm

Wednesday, Jan. 31
Dr. Margaret A. Wechter
(Southeastern Massachusetts University)
"A New Theory of Sediment Formation in Fuels"
Southeastern Massachusetts University
Science & Engineering Building (Group II) room 305 at 4:00 pm

Thursday, Feb. 1
Professor C. Braun (Dartmouth College)
"Geminate Charge Pairs in Organic Solids and Liquids"
Northeastern University
Hurtig Hall room 129 at 4:00 pm

Notices for the Nucleus Calendar should be sent to:
Cynthia McGowan
Department of Chemistry
University of Lowell
Lowell, MA 01854
Phone: (508) 934-3828
(Note: Material for the March Nucleus should arrive before January 25, 1990.)

Chemists and the ACS

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of the public of all ages is a major goal of our "outreach" program.

Another specific program of the ACS is the CHEMCOM course for non-scientists at the high school level. Nearly 2000 students in the Boston area have taken this course in their high school. Over 60,000 books have been sold nationwide. The response of the students is an enthusiastic acceptance.

I was very pleased that a special event this morning on forensic chemistry and drug abuse at the Science Museum attracted an overflow crowd of young people.

Professor Petsko stated the case for chemistry very well. We have to provide the execution of that excitement. The chemical enterprise is very broad. Our outreach program must also be very broad. In particular, we must become an important resource for our government officials.

When there is a chemically-related issue, I hope that you in the Legislature will think "American Chemical Society" and 'call the chemists' for accurate, understandable scientific information. ◊

THE NUCLEUS