
MINNESOTA CHEMISTS NEWSLETTER

Department of Chemistry
University of Minnesota, Twin Cities

Spring 1985

Smith Hall Facelift Under Way

A new epoch in the history of chemistry at Minnesota is about to begin. The old, badly crowded, miserably ventilated, and poorly equipped laboratory will be replaced by a new, well ventilated, perfectly fireproof building of reenforced concrete. (Unfortunately, only three quarters of what was planned is feasible with the appropriation.)

Except for a few minor editorial changes, the above text is taken verbatim from a 1916 publication, *The Gopher*. Now, more than two thirds of a century later, history is about to repeat itself. The previous issue of the *Minnesota Chemists Newsletter* reported the exciting news that after more than 20 years of dreaming, proposing, planning, and replanning that spanned five departmental administrations, the state legislature had finally approved \$21 million for the renovation of Smith Hall. Since that time, the project has been bid, contractors have been designated, and the south half of the building has been vacated by students and researchers and sealed off for Phase I of the project.

The sign on Pleasant Street proclaims "Minnesota Jobs—Tax Dollars at Work." To find out what this means, we spoke to **Stuart W. Fenton**, who has labored with great persistence and dedication on many aspects of this undertaking. He told us that the Smith Hall project will be the most complete renovation of an old chemistry building in the United States. The heating system will be completely revamped, with air conditioning available throughout the building and double-glazed

windows replacing the old ones. All plumbing and utilities will be changed, because the original specifications are no longer available. Ventilation and hood space for all laboratories, both for undergraduate teaching and for research, will be increased to meet current and future requirements. A new freight elevator will be added in the north central part of the building. Lecture room 100 will be reduced in size, theater-type seats will be installed, and modern audiovisual equipment will be added. There will be an entryway with seats for students waiting for class, and the first floor will also feature a corridor that circles the central area. Additional classroom modernizations including upgrading the acoustics are on the agenda as well.

Architects for the renovation are Smiley-Glotter; contractors are Knutson, general; New Mech, mechanical; and Hayes, electrical. Specialized requirements of the chemistry department were communicated by the hard-working committee headed by **Stuart Fenton** and including **Doyle Britton**, **John Wertz**, **Pete Carr**, **Ron Gentry**, and administrator **Stan Bonnema**. **Harvey Jaeger** of the University planning office assisted in the difficult planning process.

Special kudos go to **Doyle Britton**, who patiently organized the complicated "musical laboratories" logistics whereby the department's teaching and research either is contracted into space in Kolthoff and Smith Halls, or transferred to swing space across the street in Appleby Hall.



The School of Chemistry, ca. 1916

University Archives

A Letter from the Chairman

Larry L. Miller

Sadly, I must report first that we have lost the services of Professor **John Overend**, who passed away on November 26 after a long battle with cancer. He was a leader in our department, a thoughtful teacher, and a brilliant researcher. He will be deeply missed here and around the world. (See photo on page 12 and obituary on page 4).

Another development was the early retirement last spring of Professor **John Wertz**. He retired because of severe back problems, but he was able to make good progress with his illness and I am pleased to say that he is now on campus regularly and looking quite chipper. John has volunteered to make contact on a one-to-one basis with all of our seniors. We want to improve our chemistry majors program and give our seniors better employment opportunities and counseling. John will be another communications link with these students—helping them and getting feedback from them. We honored John and his wife, Florence, at a retirement party last fall (see photo on page 12) where one of his students, **Bill O'Mara**, spoke on behalf of John's coworkers.

Although the major news in chemistry is the renovation of Smith Hall (see cover story), we continue to be active in the usual ways, including improving our equipment. With two National Science Foundation grants we began a laser facility for general use and bought a new high-resolution mass spectrometer with fast atom bombardment (FAB) capability. Professor **Paul Barbara** looks after the laser facility. The mass spectrometer facility, which houses three instruments, is run by Dr. **Ed Larka**. Ed earned his Ph.D. here with **Ray Dodson** and after doing postdoctoral research in mass spectrometry, returned to the permanent staff. We have also added a second 300 MHz NMR and a new laser Raman spectrometer with grants from the National Institutes of Health. Professor **Larry Que** and his group are the primary users of the Raman instrument for their studies of metalloproteins. Current tax laws make it very favorable for companies to donate equipment to universities. We hope that alumni who are in a position to engineer such donations will keep us in mind.

Computers are a factor in every aspect of science and technology today and we are struggling to take advantage of the opportunities. We have made some progress in the past year. For example, all of our secretaries are now using word processors and we have computerized our accounting system and our stockroom. We now have the most advanced accounting system in the University. A substantial effort has also gone into getting computer-aided instruction off the ground. Our small-computer committee, **Peter Carr**, **John Evans**, **Paul Gassman**, **Kent Mann**, **Steve Prager**, and **Archie Wilson**, has been meeting weekly to formulate plans and initiate the program. A future newsletter will give more detail, but the general plan is to integrate the use of small computers into undergraduate courses from the top down. This year, one physical, one advanced inorganic, and two analytical courses will get attention. Both labs and lectures are under attack and we have just hired Dr. **Bruce Prezavento** to help with software development. It should also be noted that Professor **Bob Hexter** is spending his sabbatical at Control Data Corporation working mostly on new systems for computer-aided instruction.

Our major fund-raising activity during the past year was the Kolthoff Fund. With the special help of **Herb Laitinen** (B.S. 1936; Ph.D. 1940), we increased the endowment available for both the Kolthoff Lecture Series and a Kolthoff Graduate Fellowship from about \$110,000 to \$180,000. This is about \$20,000 short of our original goal. Nevertheless, the response was excellent. Altogether, 164 alumni and friends made contributions. John Wiley Publishers and Dow Chemical made major contributions. We in chemistry have had an excellent working relationship with Dow, and in this case Dr. **Perry Gehring** was instrumental in securing support for us. The names of those of you who were kind enough to respond are listed separately (see page 9), but I wish to take this opportunity to thank all of you again. You will be interested to know that **Piet Kolthoff** is going strong at 91. Recently, he volunteered to go to the Soviet Union as a good faith witness so that the dissident Yelena Bonner could travel abroad.

This spring one of our graduate students will be named a Kolthoff Fellow. The lecture series remains successful. This year, Professor Aaron Kupperman from Cal Tech was the fall Kolthoff Lecturer and spoke about dynamics problems in chemical physics. In the spring, Jerrold Meinwald from Cornell will visit for a week.

Special recognition has come to four faculty members this year. **Paul Gassman** will receive the James Flack Norris Award in Physical Organic Chemistry at the Miami American Chemical Society (ACS) meeting; **Ron Gentry** has received a Creativity Award from the National Science Foundation; **Ben Liu** was picked for one of eight Dreyfuss Newly Appointed Faculty Awards; and **George Barany** was selected by a distinguished panel as one of the top 100 young scientists in the country. We certainly have a lot of pride in the recognition these four have achieved. George has achieved a certain additional notoriety, and the attention of some peptide groupies, since he was pictured in *Science Digest* wearing a T-shirt. Mention should also be made of **Bob Brasted's** unsuccessful candidacy for president of the American Chemical Society. We think Fritz Mondale set a bad example.

Finally, in terms of alumni affairs, we were pleased with a luncheon that we held at the Philadelphia ACS meeting. It was organized by **Frank Blum** (Ph.D. 1981) and among the other alumni attending were **David Bohling**, **Newman Bortnick**, **Joe Dellaria**, **George Detrick**, **Douglas Dunn**, **Tom Guggenheim**, **Maxine Heinitz**, **Mark Kurth**, **Curtis Marcott**, **Jerry Miller**, **Martha Minich**, **John Potoski**, **Vaughan Pultz**, **Wayne Ranbom**, **Donald Robinson**, **John Sellstedt**, **Mark Severson**, **Richard Sundberg**, **John Talley**, **Peter Trumper**, and **Glenn Ulyot**. This was the first time in recent years that we have held a social function like this and the turnout was quite good. We want to do this sort of thing regularly in the future, and have already scheduled a cocktail party in honor of Norris awardee Paul Gassman. The party will be on Wednesday evening, May 1, 1985, at the Miami ACS meeting. If you will be in Miami, we would like you to join us.

A Message from the Editors

George Barany and Archie Wilson

About nine months ago after a three-year hiatus, the Department of Chemistry issued its annual newsletter to alumni under a revised format. The response from readers has been most gratifying, and we hope to build on this goodwill with the current edition. Please note that we are resynchronizing our timetable so that from now on, each issue will appear as early as possible in the year to reflect events and accomplishments of the preceding calendar year.

Again, we acknowledge the devoted assistance of those who helped put together this newsletter: **Wayland Noland** was a veritable fount of information; **Grace Hokanson** provided a report on all grants, fellowships, and private donations given to the department; **Debbie Bonnema** provided information on last year's graduating students; **Rebecca Jackson** converted cryptic rough drafts to polished final copy; **Gladys Olson** helped in numerous ways; and **Sharon Grimes** of University Relations provided editorial assistance.

In closing, we repeat our appeal from last time for alumni information. We enjoyed hearing from many past Stainless Steel Beaker winners (article on pages 6 and 7), and are certain that there is a rich store of further anecdotal material among our alumni that should be shared with the readers of this newsletter. For your convenience a postage-paid information form is enclosed.

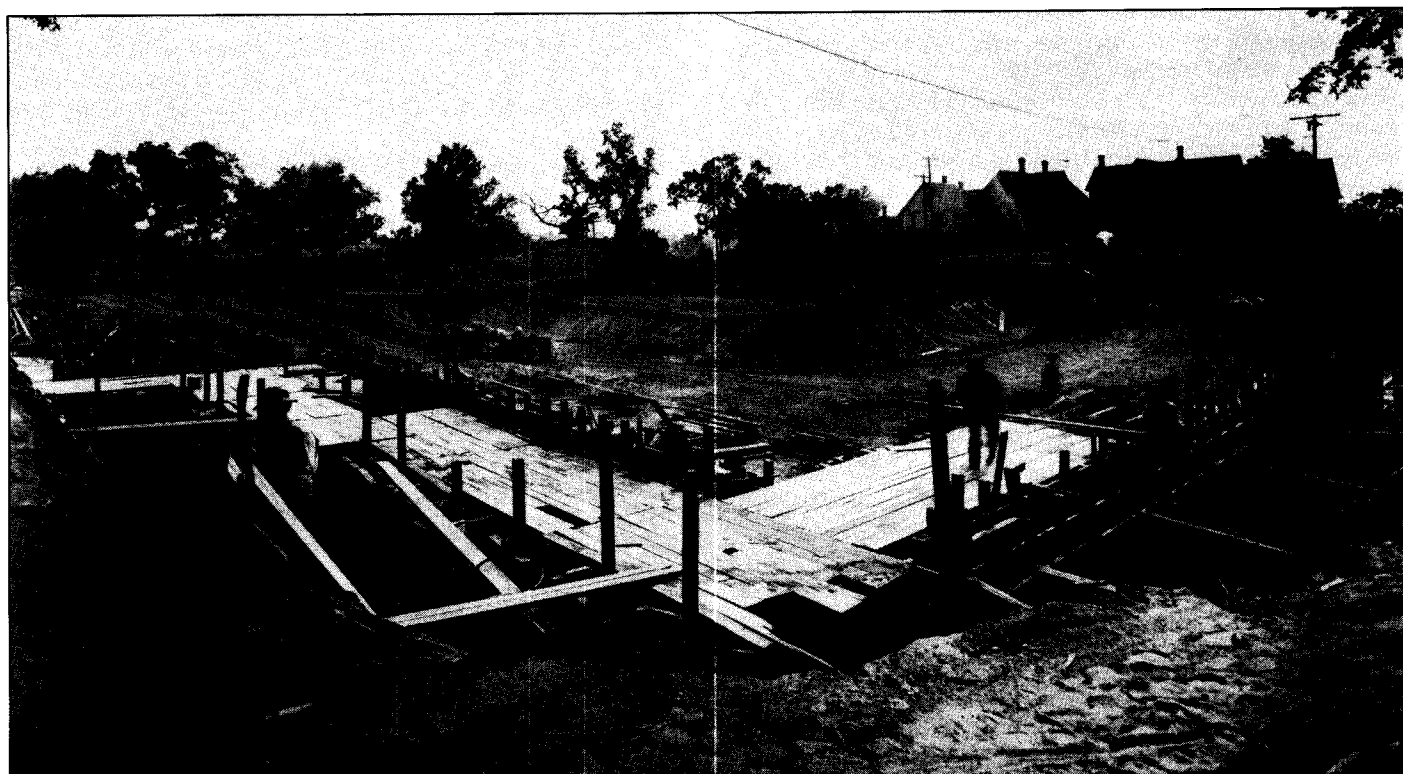
We Thank You

Every year, some of the activities of the department, such as fellowships for students, laboratory establishment monies for new faculty, and special functions are supported by the generous contributions of a number of our friends in the industrial sector. They are:

Air Products Foundation, Allied Corporation, AMOCO Chemicals, Council for Chemical Research, Dow Chemical, E.I. du Pont de Nemours, General Electric, H.B. Fuller Company, Henkel, Mobil Foundation, Monsanto Company, Procter & Gamble, Rohm & Haas, Smith, Kline & Beckman, SOHIO, and 3M Company.

We also thank the following alumni for their recent help and support.

John A. Bohn, Thomas Bouman, David Dalquist, April J. Evans, Norman W. Gill, David J.W. Goon, William H. Gumprecht, Cyrus O. Guss, Gary P. Hagen, Charles M. Hall, David A. Halsrud, Maxine L. Heinitz, Henry H. Isaacson, Eugene C. Johnsen, Raymond P. Johnston, Les Krogh, William C. Krueger, Lawrence L. Landucci, Steven E. Lindberg, Blaine C. McKusick, Jerry Miller, James A. O'Rourke, Judson S. Pond, Malcolm M. Renfrew, Donald N. Robinson, Adeline W. Siegel, Thomas G. Stavros, Lynne F. Taus, Steven J. Tinker, Glenn E. Ulliot, James J. Wade, Victor K. Wang, Yueh Wang, Katheryn J. Wicker, and Larry D. Winter.



A scene from the original Smith Hall construction

University Archives

Transition State

NEW FACULTY AND STAFF:

Margaret C. Etter received her bachelor's degree in 1965 from the University of Pennsylvania, and then came to this department for a 1974 Ph.D. under the direction of Professor Jack Gougoutas. From 1976 to 1983, she was employed in the Twin Cities at 3M Company where she eventually headed a group that studied organic solid-state chemistry.

In 1983 Etter returned to the department to learn solid-state NMR with Professor Robert Bryant. A year later, she accepted a position as an assistant professor in the organic division. Her research interests are in solid-state organic chemistry and especially the change in chemical properties of molecules when confined in the solid state.

Hung-Wen Liu received his B.S. in chemistry from the Tunghai University in Taichung, Taiwan, in 1974 and received his Ph.D. in organic chemistry from Columbia University in 1981. During the next three years, Liu was a postdoctoral student at the Massachusetts Institute of Technology with C. Walsh. Liu joined the faculty as an assistant professor in the fall of 1984 to pursue a research program on enzyme mechanisms and immunochemistry.

PROMOTIONS:

John E. Ellis was promoted to professor in 1984. He joined the department in 1971 as an assistant professor after receiving his Ph.D. from the Massachusetts Institute of Technology. Ellis's research interests lie in gaining a better understanding of the reactivity patterns of organometallic compounds.

Wayne L. Gladfelter, who joined the department as an assistant professor in 1979, was promoted to associate professor in 1984. Gladfelter received his Ph.D. in 1978 from Pennsylvania State University. His thesis won the first Nobel Signature Award of the American Chemical Society. Further, he carried out postdoctoral work with H.B. Gray at the California Institute of Technology before coming to Minnesota. Gladfelter's research is on the interactions of atoms and small molecules with molecular metal clusters.

Kent R. Mann received his Ph.D. in 1976 from the California Institute of Technology and continued for a year as a postdoctoral student with his graduate adviser H.B. Gray. Mann's research accomplishments in inorganic photochemistry and electrochemistry were noted with his 1984 promotion to associate professor.

RETIREMENTS:

Professor **John E. Wertz** retired in June after 36 years as a member of the chemistry faculty. He received his B.S. in chemical engineering in 1937 from the University of Denver and the following year earned an M.S. in physical chemistry from the same institution. In 1938, he entered graduate school in the Department of Chemistry at the University of Chicago where his adviser was Dr. William D. Hawkins, famous for his contributions to surface chemistry and nuclear physics. The Ph.D. from Chicago was awarded after the war in 1948. Meanwhile, Wertz taught chemistry at Augustana College, Rock Island, Ill., from 1941 to 1944 and at Gustavus Adolphus College in St. Peter, Minn., for the 1944-45 academic year. In 1945, his association with the University of Minnesota began with a lectureship in applied thermodynamics in the Department of Mechanical Engineering. He moved to the Department of Chemistry in 1946 as a research associate for Profes-

sor Lloyd H. Reyerson, and was appointed assistant professor in 1948. In 1953 Wertz was promoted to associate professor, and in 1957 he became a full professor. Wertz's many interests have included nuclear resonance and electron spin resonance. He was one of the earliest workers in the field of chemical applications of magnetic resonance, and his group obtained many important results in this area. Especially significant was the use of electronic spin resonance for the study of crystal defects. He and James R. Bolton authored the text *Electron Spin Resonance—Elementary Theory and Practical Applications* in the early '70s. Wertz will continue to serve the department even in retirement as an employment opportunities counselor for our senior majors. Professor and Mrs. Wertz plan to use some of their retirement time for travel. In April they plan to be in England. Later they will enjoy many camping treks in their motor home.

DEATHS:

Professor **John Overend** died November 26, 1984, at the age of 56. In 1980 he was afflicted with a brain tumor, which was surgically removed with complete success; however, it recurred in late 1983. A second operation was not as successful and resulting complications led to Overend's untimely death. He was a native of Keighley, England, receiving his D.Phil. from Oxford in 1956. He came to Minnesota as a postdoctoral fellow working with Bryce Crawford. After two years with Dow Chemical Company, 1958-60, he rejoined the department in 1960 as an assistant professor, moving up to full professor in 1967. He also served as department chairman during the 1979-80 academic year and was active in serving the Graduate School and on a number of significant University committees.

John Overend was well recognized for his significant contributions to vibrational spectroscopy and molecular dynamics. He was an associate editor of the *Journal of Chemical Physics*, 1978-81, and received a number of awards and honors, including the Coblentz Prize and a Guggenheim Fellowship. Most recently he was honored with the 1983 Ellis Lippincott Medal.

He will be remembered among spectroscopists particularly for his contributions to the analysis of normal coordinates and force constants, especially the development of a chemical understanding of the causes of anharmonicity; for his seminal contributions, both experimentally and theoretically, to the study of infrared intensities, especially those of overtones and combinations bands; for his contributions to the study of vibrational circular dichroism; and most recently for his development of the IRRAS technique for the study of infrared spectra of molecules adsorbed on surfaces. In each field Overend's studies were of fundamental importance, opening up new methods or fields that are still being developed to the benefit of our science. He will be profoundly missed in spectroscopic circles, and certainly in our department.

The family has asked that John be remembered by contributions to the University of Minnesota Foundation with designation for the John Overend Memorial Fund.

490 Parties—A Retrospective

A mythical bond joins five decades of University of Minnesota organic and biological chemists. The greenest neophyte, within days of arriving on campus, cannot help but be regaled with stories of wild and woolly goings-on at the annual, late spring meetings of the so-called 490 Club. As the long-anticipated date draws near, excitement builds like a Rossini crescendo and serious work grinds to a near halt. Long after the last party goer has been chased out by an enraged innkeeper or fire marshal, the parties provide a legacy and memories that stay with the participants for a lifetime.

Mozart was said to have alienated fellow lodge members by weaving secret Masonic rites into the fabric of his masterpiece comic opera, *The Magic Flute*. Your reporter may be committing a similar breach now by sharing some of the 490 lore.*

First, the ground rules. Each professor picks up the tab to feed all members of his or her research group, while the sole financial obligation of each student is to keep the faculty well plied with liquor. It is an evening when everyone pulls out the finest and most elegant (or in some cases gaudiest) items in their wardrobes. Upon arriving, the guests are presented with a program that includes aphorisms, quizzes, and poetry. The contents are digested together with the meals, and finally the students get partial retribution for their years' worth of suffering at the hands of the faculty by rendering forth a series of thespian efforts unencumbered by any bounds on taste or veracity. The plays are populated by characters with such unlikely names as Elite, Sadfeeler, Livinghorse, Gassboy, and Paquette. Sometimes modeled on TV game shows, beauty pageants, commercials, situation comedies, or news programs, they deal with such weighty topics as oral exams, tenure, financial remuneration, graduate student recruiting tactics, and sex.

Highlights of the 490 parties invariably include the various awards that are explained and distributed throughout the evening. The most important of these is the Lee I. Smith Award given to the year's outstanding organic graduate student chosen by vote of his or her peers. The recipient's name is permanently engraved on a stainless steel beaker. On the fol-

lowing pages of this newsletter, we feature reminiscences of many past award winners and a profile of C.F. Koelsch, one of two professors (the other was R.M. Dodson) so honored.

Other awards are named after certain past and present members of the department whose privacy shall be protected by preserving their anonymity. The year's most memorably foolish breach of common sense is celebrated by an Award for Laboratory Safety. The Teacher of the Year Award, subtitled "to be intelligible is to be found out," is accompanied by a statuette complete with an embedded screw. Particularly coveted is the Memorial Traveling Trophy, which comprises the posterior half of a thoroughbred equestrian species. Lastly, a Memorial Shovel Award is given to the (un)fortunate individual(s) drafted to organize the next year's festivities. Even as the official activities adjourn, post-party celebrations start up throughout the Twin Cities and have been known to last past sunrise.



At the 490 Party of May 7, 1982, Jim Kilgore and Stuart Fenton pose by a model of Smith and Kolthoff Halls, which were featured in a skit entitled "The Empire Strikes Back" (a free-wheeling fantasy on the wars in the Falkland Islands and in the chemistry department) starring author Ed Leete as Queen Elizabeth II and Mary Sende as the Queen Mother.

*During its heyday, Room 490 was a large laboratory where all organic graduate students, irrespective of their advisers, worked on their thesis research. By 1964 the cumulative effect of corrosive chemicals, together with the advent of different systems of funding and organizing research programs, led to the abandonment of the laboratory, and even to its informal renaming as "The Regents' Room." Thus, Room 490 hosted a parade of legislators over many years in the ultimately successful effort to convince them of the need to renovate Smith Hall.

Stainless Steel Reminiscences

The preceding story has described that great safety valve of the organic division, the annual 490 party. One award stands out from the rest, because it is entirely serious and reflects the highest accolade that can come only from one's peers. Since 1949, the names of 43 Minnesota chemists have been engraved on the Stainless Steel Beaker, and over the last few months, many of them have responded to our special request for this issue. Highlights of what each had to share follow:

1949: Wesley J. Dale, professor of chemistry, *University of Missouri, 5100 Rock Hill Road, Kansas City, Mo. 64110*; formerly chairman of chemistry, graduate dean, provost, and acting chancellor at the same institution.

"I am proud and pleased to have been the first name on the Beaker. [I still recall] the words that Lee I. Smith read upon bestowing this award [Ed. note: characteristic of citations to winners in subsequent years]: 'for his talents in many fields and his advanced viewpoint on matters in general. Because he is an intelligent research man, careful, thorough and original, and neat in research and in personal appearance. Most of all for his pleasant personality and for the time and effort he has spent towards furthering the activities of the research group and their families and toward promoting good feeling between students and faculty. He, more than any other, is responsible for the present very high esprit de corps of the research group.'

[Having also done synthetic rubber research during the war with I.M. Kolthoff] I am especially proud to have worked for both men honored in the naming of the chemistry buildings."

1951: John S. Showell, program director for Natural Products Chemistry, *National Science Foundation, Washington, D.C. 20550*.

"[My job is] interesting and rewarding, since I have the pleasure of interacting with a group of very talented individuals and helping to facilitate the new science. I find this very exciting and consider myself very fortunate to have the position. I look forward to hearing about some of my former graduate student colleagues at Minnesota."

1952: William W. Lee, synthesizing potential antitumor agents and radiosensitizers, *Stanford Research Institute at Menlo Park, Calif.*

"I recall a few mornings after I had been awarded the beaker, I heard a klunking sound outside our metal barracks in the students' village. For a while I didn't realize what it was, although I knew our oldest son, then four years old, was outside playing. Suddenly, I realized that he was banging the Stainless Steel Beaker on the sidewalk. I immediately rushed for the door, but paused when I saw Professor Fred Koelsch striding by on his way to the campus. I paused until he had safely passed, then scrambled outside, retrieved the beaker, and replaced it with my son's sand pail. I've often wondered since whether Professor Koelsch had noticed that the child's toy was the precious Stainless Steel Beaker. . . I am very grateful that I had the opportunity to do my graduate work at Minnesota. . . There was a sense [of] belonging together, of encouragement and helpfulness of staff toward students and students toward one another."

1954: John R. Holum, professor of chemistry, *Augsburg College, Minneapolis, Minn. 55454*, and author of numerous widely used chemistry texts for nurses.

[Ed. note: Less than a year after leaving the University to work for Kodak, Holum was drafted.] "The army taught me three important things. One, polished shoes last longer than unpolished shoes. Two, one can be physically fit (which I became) without a shred of athletic ability. Three, I love to teach. There was no thought of returning to the cushy life of Kodak. Instead I and my trusting wife (unknowingly) took vows of eternal poverty and entered the academic scene. . . I've never once regretted going into teaching [and] the poverty problem solved itself [with textbook writing]."

1955: Darwin D. Davis, technical fellow, *Du Pont, P.O. Box 2626, Victoria, Tex. 77902*, working on very large scale processes for the manufacture of polymer intermediates.

"Probably the major event during my four years at Minnesota (1951-55) was the fire in lab 443, which nearly wiped out my research notebook and lab products. I had just gone down to the storeroom when the blast occurred (at the opposite end from my area). Fortunately all was not lost, and I graduated on time. Ours was a small (but select!) group of organikers, including John Franz, Dick Scribner, Paul Stright, and Harry Reiff (a three-year man!). This group put on some skits which must surely rank among the most ridiculous ever attempted at the 490 banquet. I vaguely recall one of our better performances, a chemistry-oriented paraphrasing of Edgar Allan Poe's *The Raven*, complete with costumes."

1955: Harry E. Reiff, retired from Smith, Kline, and French and living at *1601 Clair Martin Place, Ambler, Penn. 19002*, was involved in the development of TAGAMET, an ulcer drug.

"Of course I remember the Stainless Steel Beaker Award, an honor I particularly cherished since my fellow graduate students had a hand in making it. . . The last year [at Minnesota] was the most interesting—oral prelims and other exams were over, I'd gotten an NSF fellowship, and I had nearly a whole year to do research without other interferences. What a wonderful time!"

1957: Walter P. Miller, director of technology, *UCAR Emulsion Systems, Union Carbide Corporation, 410 Gregson Drive, Cary, N.C. 25711*.

". . . after Ph.D. in 1957 under Stuart Fenton, postdoc in Germany with Ziegler and Wilke, 25 years with Carbide as polymer, colloid, and paint chemist. . . married with seven children."

1966: Edward A. Walter, associate professor of chemistry, *University of New Mexico, Albuquerque, N.M. 87131*.

"[Working with Maury Kreevoy] was one of the wisest moves of my career. . . [Ed. note: referring to current research interests] The tools we have available now did not exist when I was a grad student, but the insights and the attitudes towards research that I got at Minnesota have served me well in moving into unfamiliar ground . . . Among my fondest recollections of days at Minne-

sota are the annual 490 parties. Our class developed a tradition of preparing home movies to be shown at these events. We had a couple of real classics. It would be great fun to see them again."

1969: Robert D. DeMaster, technical director, *Graphics Preparation Systems Division, Building 209-1W-11, 3M Center, St. Paul, Minn. 55144-1000*, devising materials for color film.

"I remember the night we almost lost the Stainless Steel Beaker. It was during the 490 party at the Edgewater Inn. Dr. Bill Parham was successfully doing his famous trick of drinking beer while standing on his head. A few graduate students were unsuccessfully attempting to duplicate his efforts. When we looked around, the Stainless Steel Beaker was gone! After an intensive search of several minutes, it was found behind the bar. The bartender had turned it into an ice bucket—probably the only functional job the Stainless Steel Beaker has had in its 35 years!"

1971: Christopher S. Roosevelt, development associate, *Tennessee Eastman Company, Organic Chemicals Division, Development and Control Department, P.O. Box 511, Kingsport, Tenn. 37662*, working on photographic chemicals.

"So many memories crowd my mind. Some of the fun remembrances are reading the roll at organic seminar and noting all the famous attendees, awarding the Big H to the hacker of the week, philosophical discussions at the Big Ten, carrying Frank N. Stein on the roll in Bill Parham's undergraduate organic course, and, of course, the 490 parties. . . I am pleased to report that the evidence is mounting that the beaker really is stainless steel. Not only is stainless steel printed on the bottom, but the beaker is also rust free."

1972: James J. Wade, senior research specialist, *Building 270-2S-06, 3M Center, St. Paul, Minn. 55144-1000*.

"I'm still doing research, still running reactions, trying to synthesize interesting organic compounds, just like I did 12 years ago in Rick Borch's lab (although the pay is better now). So far I've resisted any temptations to get into supervisory or management positions, because I still enjoy doing science, getting my own hands wet and trying new chemistry."

1976: Chang Kiu Lee, chairman of Department of Chemistry, *Kungweon National University, College of Natural Sciences, Chuncheon 200, Korea*.

"I am honored to be remembered by friends because of the 490 party and the Stainless Steel Beaker award. It was the most touching experience and the happiest moment in my life. I know it was possible only because of their love and encouragement. They loved me not because I was a lovable person but because they were that kind of people who were eager to help and love me. [Ed. note: after sharing fond memories of Professors Noland, Kreevoy, and Vince of medicinal chemistry, Lee closes his letter with this appeal regarding his 'desperately poor' department.] My dream [is to] establish a decent chemistry education program here. Of course I would like to continue research, which seems to be extremely difficult here. Since [the] research grant is quite small, I have to provide chemicals and glassware out of my salary many times. But I hope I can have a reason-

bly equipped laboratory in five years. I, therefore, would welcome any donation of old journals, books (reference and textbook), or used laboratory equipment from anyone. My deepest thanks should go to you with this letter."

1979: Andrew J. Caruso, *Union Carbide Agricultural Products Company, P.O. Box 12014, T.W. Alexander Drive, Research Triangle Park, N.C. 27709*.

"[I recall] a furious cork-ring hockey match against the Gassman group during which their pump guard, Guy La Getman (Dan Getman), scored a truly astonishing goal from the pipe run. . . Most memorable of all was Tom Hoye's placement of an unmarked, 100-gram sample of benzoyl peroxycarbamic acid, cleverly disguised as MgSO_4 , on my bench. Days passed, during which every reaction I ran afforded, after workup, copious amounts of a sparingly soluble white power which caused a lively (and sometimes noisy) ejection of the contents of an NMR tube when mixed therein with DMSO."

1981: Joseph F. Dellaria, *Abbott Laboratories, Abbott Park, North Chicago, Ill. 60064*, developing new antihypertensive agents.

[Ed. note: Dellaria worked 20 months with Professor David Evans.] "Southern California provided a much needed respite from the Minnesota winters, which remain permanently frozen in my memory . . . Just as a daily routine was settling in I was informed that our group was undertaking a cross-continental move to Harvard University in July of 1983. This was bittersweet news as it cut short our touring plans for California but it offered the unique opportunity to study at another prestigious institution."

Bates Mourned

Professor Brasted sadly informs us that one of his former graduate students, **John Bates** (Ph.D. 1959), passed away in December due to a massive heart attack. Bates was employed for a number of years at U.S. Steel, and at the time of his death worked in the Corrosion Research Division of Olin Mathieson in Los Angeles.

Gassman To Be Feted in Miami

We of the chemistry department are very proud of Professor Paul Gassman on the occasion of his receipt of the James Flack Norris Award in Physical Organic Chemistry. On Wednesday evening, May 1, 1985, at the Miami American Chemical Society meeting, we will hold a cocktail party at the Doral Hotel in Gassman's honor. We hope that our alumni and friends who are in Miami for the meeting will join us that evening. Please mark your calendar.

Fred Koelsch—Still Going Strong at 78

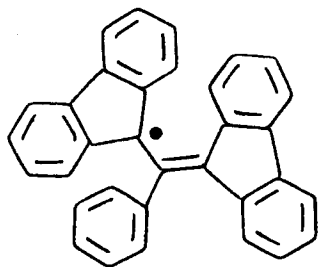
One of the names adorning the Stainless Steel Beaker is that of Professor Emeritus **C. Frederick Koelsch**, who was presented this honor the year before his “official” retirement in 1973. The adjective in quotes is appropriate because Koelsch is still active with his “hobby” of electronics, which occupies much of his time. He also plans to return to the laboratory bench and to complete with his own hands several organic chemical projects that he developed in the 1970s.

Koelsch was born in 1907 in Boise, Idaho, and learned his chemistry at Madison, Wisconsin, with McElvain as his major professor. He recounted how he joined the American Chemical Society (ACS) in a letter he wrote in 1979 when he was being honored for a golden (50-year) anniversary.

Apparently, “the necessary \$10 was a lot of money for a student who ate his meals only by dint of washing dishes.” On the way to a homecoming football game, Fred was accosted by a man desperate for a ticket. “Oh, no,” he said thinking of the 50-cent student ticket in his pocket, “I want it myself, and besides, it’s not legal to sell [Ed. note: scalp, in modern parlance] a ticket.” However, when a crisp sawbuck was passed his way, “My ethics collapsed...[although] I have forgotten the score and even the opponent’s name, I look back on the years of membership [initiated by] the ill gotten gains...with pleasure.”

Koelsch spent 1931-32 as a National Research Fellow at Harvard, and was subsequently recruited with Paul Bartlett by the University of Minnesota for Professor **Lee I. Smith’s** program to build a strong organic division. In 1934, Koelsch received the ACS Award in Pure Chemistry in recognition of his brilliant research. Even so, one of his outstanding experimental accomplishments of this period was not recognized for a full quarter of a century. This is a story of serendipity, fortitude, and propitious surroundings that should give pause for thought to anyone struggling to get new ideas accepted.

The tale starts with the *Journal of the American Chemical Society’s* rejection of a manuscript describing the synthesis of a stable free radical. It seems that the referee held that the structure (see diagram) assigned to the chief compound—



beautiful, green, diamond-shaped plates from benzene, mp 222-224°C—could not be correct. In the mid-1950s at Minnesota, Professor **John Wertz** was developing instrumentation to measure electron spin resonance spectra and tested a sample of Koelsch’s compound that had been kept in air at room temperature for over two decades. Meanwhile, a recently appointed young physical chemist, Professor **Maurice Kreevoy**, carried out calculations that supported Koelsch’s initial intuition.

Thus, with only trivial changes, this work finally found its way into the literature (*JACS* 79, 4439 [1957]).

Koelsch was much loved and respected as an educator during his long career at Minnesota. Many of his graduate students have gone on to distinguished careers of their own. A moving occasion to the next generations of organic chemists was the introduction and reminiscences Koelsch gave to one of his first graduate students, **Virgil Boekelheide**, when Boekelheide returned home for an organic seminar in November 1983.

We caught up to Fred recently in his office-laboratory in Smith Hall. He had just returned from his daily game of bridge at the Campus Club. He was sorting through the research notebooks of his former students and said, “I have been fortunate to have had so many good students.” His own research notebooks, he remarked, contain data for about 25 papers that have not been written. Certainly, his talent and dedication are an inspiration to all of us.

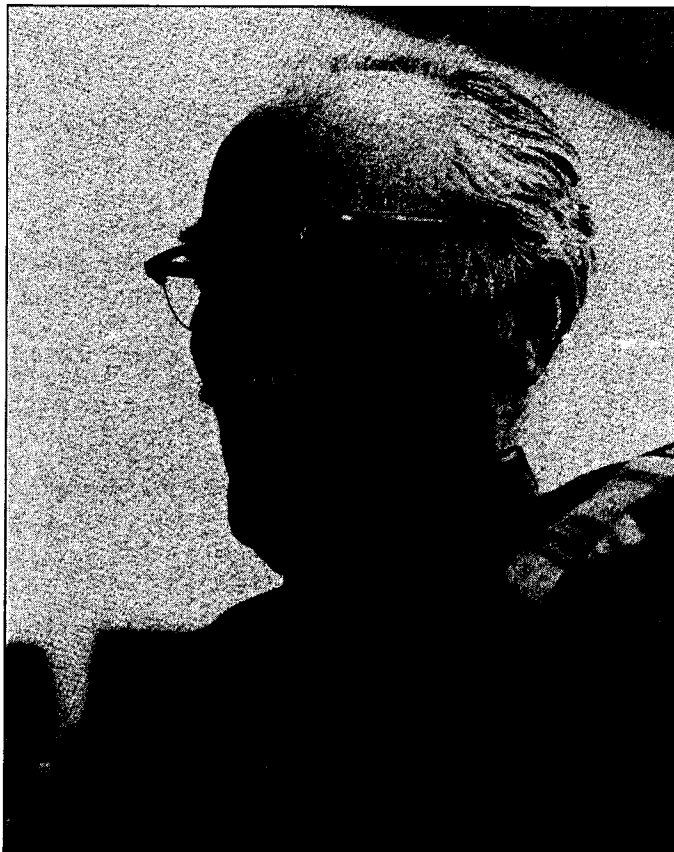


Photo by Stuart Fenton

Fred Koelsch

Kolthoff Funded

As mentioned in the last *Minnesota Chemists Newsletter*, **Larry Miller** and **Herb Laitinen** organized a campaign to increase the size of the endowment of the Kolthoff Fund. This fund honors Professor Emeritus **Piet Kolthoff**, and supports a lecture series and fellowships for outstanding graduate students. This year many people have contributed generously to the Kolthoff Fund and deserve recognition for their gifts. They are:

Andrew and Juana Acrivos, Courtland Agre, C.J. Alexander, Roger Amidon, Harold J. Andrews, Charles A. Anker, John A. Anthes, Madelyn Babcock, William J. Bailey, Michael Baker, Jay S. Baldinger, William O. Barber, Charles Bartsch, Jonathan L. Bass, Robert Batdorf, Nancy E. Baum, Willard H. Beattie, Roy O. Beito, C. Manley Berry, John W. Bixler, Frederic G. Bordwell, Newman and Lillian Bortnick, Thomas Bouman, Richard Bowers, Robert Buntrock, Albert and Marian Bushey.

Melvin Calvin, Charles Carr, Edward Carr, Pete Carr, Norman Ceaglske, Jr., Irene Cesa, Miran Chantooni, Grace Chapman, Gerald G. Christianson, Johannes Coetzee, Joseph Conrad, Corning Glass Company, H. David Dalquist, S.F. Darling, Dow Chemical, Reuben Ellestad, Otto Elmer, J.S. Faber, William F. Filbert, Douglas and Kristi Fjare, Alan Fladmoe, FMC Corporation, Frisch Supply, Paul and Gerda Gassman, General Mills, Walter Gensler, Don D. Gilbert, Wayne and Betty Gladfelter, David Goon, Frank S. Griffith, Eston Gross, Mary R. Grula, William Gumprecht, Willa Guss, Frederick T. Gustafson.

Philip D. Hammen, Joseph Hanson, Edgar Hardy, Walter Harris, Charles M. Hartzell, Philip B. Herman, Eugene L. Hess, Frederick J. Hicks, Wallace Hlavac, Milton L. Hoefle, Hoffman LaRoche Company, Albert Holler, Howard E. Holmquist, Peter Howell, Rebecca Hoyer, Jerry Hoyt, Clarence W. Huffman, John Hull, John Wiley and Sons, Roy Johnson, William C. Johnson, Joseph Jordan, Paul G. Kemp, John A. King, Wallace Kirkpatrick, Samuel Kirkwood, Lester Krogh, Kenneth Kustin.

Herbert and Marjorie Laitinen, Michael Lande, R.M. and L.M. Leekley, Edward F. Levy, Tai-Ming Liang, Steven E. Lindberg, Timothy Lodge, Ted Logan, Kathryn Loseth, Leo Maheu, Harvey Mahlman, Frances Martin, Martin Marietta Corporation, G. Matsuyama, Glen Matthews, Donald R. May, John McBrady, John McCool, C. Peter McGrath, Faith C. McPeak, Carl S. Miller, Essie and Larry Miller, Keith I. Miller, Thomas C. Miller, Mobil Corporation, Joan Mukherjee, Craig Murchison, Rama Murthy, Joseph Nichols, Noxell Foundation, NSP Company, Edine Nygaard.

Eugene Olson, James O'Rourke, James H. Osborn, Dumas Otterson, Lyle Overholser, Robert G. Parr, Lynda L. Parrilla, G.W. Peterson, Ann Pflaum, Leo and Rosalynn Pflaum, George Piercy, Joseph Porwoll, Procter & Gamble, Rebecca Puumula, Robert F. Raffauf, Richard Ramette, Malcolm Renfrew, Reuben Rieke, Donald Robinson, Kenneth Rose, Charles Rosenblum, Robert H. Rosenwald, Indulis Rutks, L.E. Salyards, Robert W. Sandelin, Gary L. Santee, Mark A. Schroeder, George Schuette, Shell Company Foundation, Daniel Shiao, Charles D. Shields, Jane B. Spence,

Leo J. Spillane, Percy Staats, Marian Stankovich, Maurice Stansby, Thomas Stravros, Peter A. Steck, Mark A. Steine, Vernon D. Stenger, Leslie F. Stone, Stephen Strauss, Betty Sullivan, Marlys Sutton, Ann E. Sutton-Johnson, Glen Swanson, Lynn Swanson.

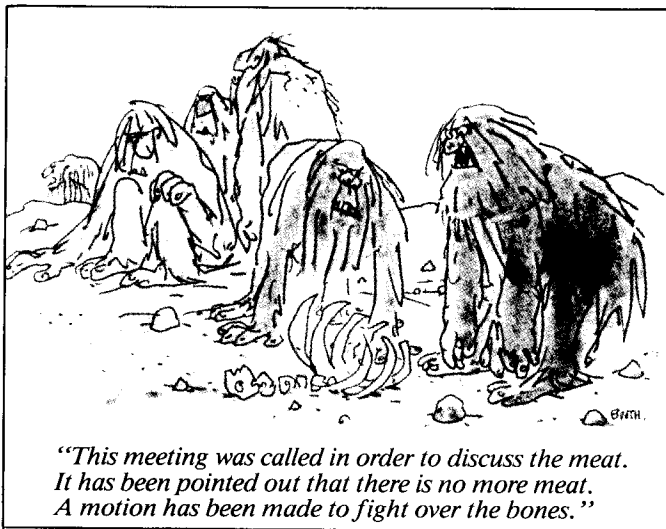
Roy M. Tess, Warren L. Thompson, 3M Company, Hubert J. Tierney, Robert J. Tierney, Sr., Glenn E. Ulllyot, UOP Foundation, Upjohn Company, William and Cordelia T. von Fischer, James J. Wade, George L. Walker, Frederick Wall, Joseph T. Warden, Jr., Stanley Wawzonek, Theodore Wilczek, Stephen Willging, Carl O. Yaeger, Joann Yamamoto, and Anthony Yapel.

Once more, our thanks to all of you for your support!

Renfrew Reports

Malcolm Renfrew (Ph.D. 1938), in response to last year's newsletter, wrote us from Idaho and enclosed a copy of the *Vandalchemist*, which he edits. Renfrew included news of the retirement of Professor **Norman H. Cromwell** (Ph.D. 1939) at the University of Nebraska, Lincoln, and the information that Jean'ne Shreeve (M.S. 1956) was selected as a National Honorary Member of Iota Sigma Pi, the honor society for women in chemistry. There was also news about Professor **George W. Woodbury** (Ph.D. 1964) of the University of Montana, who is writing a text on thermodynamics.

Thank you, Malcolm, for your letter. We hope others will write to us and bring us up to date on their activities.



"This meeting was called in order to discuss the meat. It has been pointed out that there is no more meat. A motion has been made to fight over the bones."

Drawing by Booth: copyright© 1980, The New Yorker Magazine, Inc.

A Typical Faculty Meeting

Recent Department of Chemistry Graduates

The next two pages list degrees awarded by the Department of Chemistry from March through December 1984. Columns are, left to right, name of graduate, degree adviser, thesis, and current place of employment.

Ph.D. Degrees

| | | | |
|------------------------|------------|---|---|
| William E. Barber | Carr | "1. Peak Analysis in HPLC. 2. UV Visualization of Inorganic Anions by Reverse-Phase Ion-Interaction Chromatography" | Hercules Research Center Wilmington, DE |
| Steve J. Bezuk | L. Miller | "Spectroscopies of Organic Plasma" | Sperry St. Paul, MN |
| Donald L. Bodenner | Borch | "Mechanism of Action of Cis-dichlorodiamminoplatinum and Its Potentiation by Diethyldithiocarbamate" | Medical School, Univ. of Minnesota, Minneapolis, MN |
| David Bohling | Mann | "The Electrochemistry and Highly Oxidized Chemistry of Organometallic Isocyanide Complexes" | Air Products Allentown, PA |
| Steven M. Bonser | Gassman | "The Synthesis and Chemistry of Trans-Bicyclo[4.1.0]Hept-3-ene" | Eastman Kodak Rochester, NY |
| James E. Brady | Carr | "Theoretical and Experimental Investigations of Solvato-Chromism" | Postdoctoral, Chem. Eng., Univ. of Minnesota, Minneapolis, MN |
| Brian W. Carlson | L. Miller | "A Study of the Kinetics and Mechanism of the Oxidation of NADH by Ferrocenium Ions and Quinones" | H.B. Fuller St. Paul, MN |
| Albert L. Casalnuovo | Pignolet | "Synthesis, Characterization and Reactivity of Mixed Metal Ir/Au Clusters and Ir Complexes Containing the Ligand 1-(2'-pyridyl)-2-(diphenylphosphino) ethane, PN" | Du Pont Wilmington, DE |
| David W. Deerfield III | Hoye | "Approaches Toward the Synthesis of 3S-3A(2S*,5R*), 6A(2S*,5R*)-3,6-bis(5-chloro-2-piperidyl)-2,5-piperazinedione-dihydrochloride-(cyclo[-streptolulyl-streptolulyl],593A)" | Postdoctoral, Chem. Dept., Univ. of N. Carolina, Chapel Hill, NC |
| Michael J. DiPierro | Mann | "Synthesis and Characterization of Polydentate Isocyanide Transition Metal Complexes" | Postdoctoral, Chem. Dept., Indiana Univ., Bloomington, IN |
| Todd R. Hayes | Evans | "Energetic Ions and Electrons as Probes of Organosilanes Covalently Bonded to Metal Oxide Surface" | AT&T Bell Laboratories Murray Hill, NJ |
| Jeffrey L. Hylden | Overend | "A Charge Flow Model for the Study of Infrared Intensities of Overtone and Combination Bands" | 3319 Weeping Willow Court, #1 Silver Spring, MD |
| Douglas G. Johnson | Farneth | "The Infrared Laser Induced Chemistry of Oxetanes: The Production of Excited State Products" | Asst. Professor, Chem. Dept., Wheaton College, Wheaton, IL |
| Insook Han Lee | Kreevoy | "Marcus Theory of a Perpendicular Effect on X for Hydride Transfer Between NAD ⁺ Analogues" | Asst. Professor, Dept. of Science Ed., Kangwean Natl. Univ., Korea |
| Carmay Lim | Truhlar | "Nonequilibrium Effects in Chemical Kinetics" | AT&T Bell Laboratories Murray Hill, NJ |
| Michael J. McGuiggan | Pignolet | "The Synthesis, Characterization, and Catalytic Properties of Ruthenium and Rhodium Phosphine Complexes" | Standard Oil Independence, OH |
| Amy J. Muller | Carr | "Preparation and Characterization of a High Performance Liquid Affinity Chromatography System" | AT&T Laboratories Holmdel, NJ |
| George W. Prohaska | Evans | "Studies of the Plasma Polymerization of Styrene Vinyl dimethylethoxysilane" | Standard Oil Cleveland, OH |
| Matthew R. Rhodes | Mann | "The Chemistry of the Tetrakis (1,8-diisocyano-p-methane) Dirhodium (+ 2) Cation" | Postdoctoral, Chem. Dept., Univ. of N. Carolina, Chapel Hill, NC |
| Steven C. Richtsmeier | Dixon | "Molecular Beam Studies of Reactive Scattering" | Argonne National Laboratory Argonne, IL |
| Robert E. Rosen | Hoye | "Stereorandom Reactions for the Generation of Stereohomogeneous Molecules: The Formal Total Synthesis of Tirandamycin Acid and Synthetic Efforts Towards Elaiophyllin" | Rohm & Haas Spring House, PA |
| Paul C. Sadek | Carr | "Elucidation of the Factors Responsible for Small Solute Retention and Irreversible Protein Binding in Reversed-Phase High Performance Liquid Chromatography" | Mayo Clinic Rochester, MN |
| Kerin Scanlon | Overend | "Infrared Spectroscopic Studies: Gas-Phase Intensities and Surface Adsorbates" | Dow Chemical Midland, MI |
| John L. Smith | Gassman | "1. Polarity Effects in Olefin Metathesis Catalysis. 2. Photochemically Induced Free-Radical Additions to Strained Polycyclic Hydrocarbons" | Cities Service Oil & Gas Corp. Tulsa, OK |
| Robert E. Stevens | Gladfelter | "Synthesis, Characterization and Reactivity of Metal Carbonyl Nitrosyl Complexes" | Air Products Allentown, PA |

| | | | |
|----------------------|------------------|--|---|
| Todd C. Thompson | Mead/ Truhlar | "Vibronic Effects in Trimeric Clusters of Alkaline Metals, Copper and Hydrogen" | Lecturer, Chem. Dept., Univ. of Minnesota, Minneapolis, MN |
| David Weil | Dixon | "Studies of Organic Ion-Molecule Reactions by Ion Cyclotron Resonance Spectroscopy" | Postdoctoral, Chem. Dept., Univ. of California, Riverside, CA |
| Ronald P. Wirth | L. Miller | "1. Transition Metal Nitro/Nitrosyl Redox Couples: Applications to the Oxidation of Organic Compounds. 2. Synthesis and Reactions of (2-[trimethylsilylmethyl]Benzyl)-Trialkylammonium Iodide o-Xylylene Precursors" | Henkel Minneapolis, MN |
| Lucinda R. Yinger | Reynolds | "The Process of Solvent Interchange for Solventopentaaminecobalt (III) Complexes in Mixed Solvent Systems" | Argonne National Laboratory Argonne, IL |
| Patrick G. Zimmerman | Farneth | "Laser-Induced Heterogeneous Chemistry: 2-Propanol with CuO" | 3M St. Paul, MN |

M.S. Degrees

| | | | |
|---------------------------------|----------------------|--|---|
| Julie McCabe Brady | Evans | "1. Catalysis of the Oxidation of Ascorbic Acid by Ferrocene Derivatives. 2. Program for Calculating the Impedance of RL Circuits" | TA, Dept. of Chem., Univ. of Minnesota, Minneapolis, MN |
| Pamela M. Fier | Barany | "Synthesis of Two Putative Peptides Encoded by Rous Sarcoma Virus RNA" | Molecular Genetics Minnetonka, MN |
| Robert Gremban | Gassman | "The Reaction of Oxiranes with Silyl Cyanides" | Upjohn Kalamazoo, MI |
| Jo Ann Millard | Borch | "Reactivity of Activated Cyclophosphamide Metabolites" | Colon, MI |
| John G. Newman | Evans | "Plasma Etching and Thin Film Analysis of Polymer Coated Electrodes" | 6509 Flying Cloud Drive Eden Prairie, MN |
| Kathryn Pfahl | Ellis | "Synthesis and Reactivity of Transition Metal Carbonylates: I. Synthesis and Reactivity of Cyclopentadienyltricarbonylmetallates(-II) of Niobium and Tantalum. II. Synthesis of Some Methylcyclopentadienyltricarbonylmanganese Derivatives" | Medtronic Coon Rapids, MN |
| Rene Rodriguez | Overend/ Crawford | "Infrared Studies of Adsorbed Species on a Pt Electrode: Adsorption and Inhibition of Carbon Monoxide" | Grad. Student, Chem. Dept., Univ. of Idaho, Moscow, ID |
| Sharon van Den Berghe-Snorek | Stankovich | "Thermodynamic Control of Electron Transfer in D-amino Acid Oxidase by Substrate Binding" | 3606 Chauncey Court Dr. E. Lafayette, IN |

The following people, listed in alphabetical order, received bachelor's degrees with a major in chemistry during the calendar year 1984.

Robert A. Aamodt, William P. Aamodt, Carl W. Aften, Mark B. Anderson, Kevin W. Arms, Leise A. Berven, Bruce Bohnen, Nikolas A. Chaniotakis, Gary D. Cromer, Ann Thi Dinh, Julia E. Doan, Constance L. Hernandez, Lucia J. Lein, Mohsen Morshed, Norma Muhammed, Jeffrey M. Olofson, Peter J. Ramberg, Dale L. Rieger, Duane R. Romer, Paul J. Rothweiler, Scott R. Thompson, Mary K. Trost, Terrence C. Tuominen, and Edith E. Velosa.

Chemistry Students Recognized

We are pleased to announce recipients of undergraduate awards for 1984: **Julia Doan**—J. Lewis Maynard Memorial Prize in Advanced Inorganic Chemistry for outstanding scholastic achievement in advanced inorganic chemistry; **John Link** and **Dale Rieger**—G.B. Heisig Research Fellowship and prizes of \$1,000; **Robert F. Szalapski**—Chemical Rubber Company Freshman Chemistry Achievement Award for outstanding scholastic achievement in freshman chemistry; **Scott R. Thompson**—Undergraduate Award, sponsored by the Division of Analytical Chemistry of the ACS, for outstanding scholastic achievement in analytical chemistry; **Gordon Urbi**—Merck Index Award for outstanding scholastic achievement in organic chemistry; **Paul Vosejпка**—Walter M. Lauer Prize in Advanced Organic Chemistry for outstanding achievement in organic chemistry and the Summa Thesis Grant Award to support his research work, "The *In Situ* Vinylindole Synthesis of Carbazoles—New Dienophiles."

Outstanding teaching assistants for the past two years have been named. They are **Steve Burns**, an organic chemist, for

1982-83, and **Julie Brady**, an analytical chemist, for 1983-84. The awards are chosen by a committee of graduate students from each specialty area, based on nominations from undergraduate students and faculty.

The following graduate students received National Science Foundation Fellowships: **Margaret Blohm**, **Albert Casalnuovo**, **Sandra Mueller**, **Richard Riehle**, **Kevin Roessalet**, **Daniel Singleton**, and **Susan Tucker**.

The following students received academic year corporation fellowships. **Eric Edstrom**—Procter & Gamble; **Leonard Haberman**—3M; **Kenneth Haug**—Du Pont; **Brian Johnson**—Amoco; **Laurie Lynch**—Microelectronics and Information Science; **Amy McNair**—Dosedall; **Ann Mueting**—Allied Chemical; **Daniel Mullen**—Henkel; **Drazen Ostovic**—Dow; **Roland Schulze**—Microelectronics and Information Science; **Joanne Smieje**—Dosedall; **Joseph Suhadolnik**—General Electric; and **Todd Swanson**, Dow.



Photo by Bob Brasted

Lou Pignolet congratulates John Wertz at a reception in the latter's honor held September 23, 1984, at the Bakken Library.



John Overend, October 3, 1928–November 26, 1984. (An obituary written by Bryce Crawford appears in "Transition State" on page 4.)

This issue was prepared with the assistance of University Relations.

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Minnesota Chemists Newsletter
c/o Gladys Olson
Department of Chemistry
115 Appleby Hall
128 Pleasant Street S.E.
University of Minnesota
Minneapolis, MN 55455

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