MINNESOTA CHEMISTS NEWSLETTER

Department of Chemistry
University of Minnesota, Twin Cities

Spring 1984

A Letter from the Chairman

Larry L. Miller

Among my most important goals as chairman is to establish more active relationships with alumni and friends of the Department of Chemistry. These relationships can be very important to our students and extremely rewarding for the alumni, friends, and faculty. In the past, departments like ours in state universities have not always cultivated these relationships, but the same advantages that accrue to students in private schools apply to students in state universities. Thus, I am pleased to be able to reach you through this newsletter, and I solicit your support.

We resume publication of this letter after a brief hiatus, and you will find a new format. **George Barany** and **Archie Wilson** have put together this new version with the primary intent of making it more readable. In the future, we hope to include more alumni news and we hope that you will contact us so we can pass along information about your activities.

I will not attempt to recount for you all of the special events that have occurred since the last newsletter, but I would like to mention several changes and events that might be of interest to you. Last fall I became chairman, succeeding **Hal Swofford,** who in turn succeeded **John Overend.** Many of you know that John has had some recent health problems and has twice undergone major surgery. He is now recuperating from the second operation and we hope to have him back in the fall. I know that John and Charlotte would love to hear from friends and acquaintances. During Hal Swofford's term, the state and the University experienced difficult financial times, and Hal's leadership was most important. Fortunately, the Department of Chemistry was not dramatically affected by these difficulties and the picture is now much brighter.

One of our positive recent accomplishments has been the upgrading of our undergraduate advising systems. The new approach instituted by **Lou Pignolet** involves three prime advisers: currently **Bill Fristad,** Lou Pignolet, and Hal Swofford. One of them is available at all times during the day — every day. These prime advisers are well versed in solutions to bureaucratic problems and in useful approaches to student problems in general, so they provide a knowledgeable and accessible faculty contact. Each student also has a secondary adviser with whom he or she can develop a closer relationship over a period of years.

The department has also continued to pay a lot of attention to undergraduate research. With the help of a grant from SOHIO we continue to sponsor outstanding students from around the country as Lando researchers in the summer. In addition, many of our own undergraduates do research. **Wayland Noland,** for

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Happy 90th Birthday, Piet Kolthoff!

Everyone loves a birthday party, and when the center of attention is marking a 90th year, the occasion is particularly momentous and special. More than 200 invited guests, including several who had traveled hundreds of miles, gathered in the elegant Coffman Union lounge on Saturday, February 11, 1984, to honor and extend their affection to **Izaak Maurits Kolthoff,** known to his friends as "Piet." The activities were widely noted in the media, and in addition a scientific appreciation written by **Herbert A. Laitinen** and **Edward J. Meehan** appeared in *Analytical Chemistry,* **56,** 248A (1984).

At the reception, Herb, who studied with Piet in the late 1930s and is now graduate research professor at the University of Florida, Gainesville, reminisced, with a mixture of love and awe, about the student-mentor bonds. Ed, a longtime faculty colleague and now professor emeritus at the University of Minnesota, recounted the myth of Piet's "retirement" (133 papers published since 1962) and presented him with a beautiful engraved crystal decanter. Also making brief comments were chemistry department chairman **Larry L. Miller** and academic vice president

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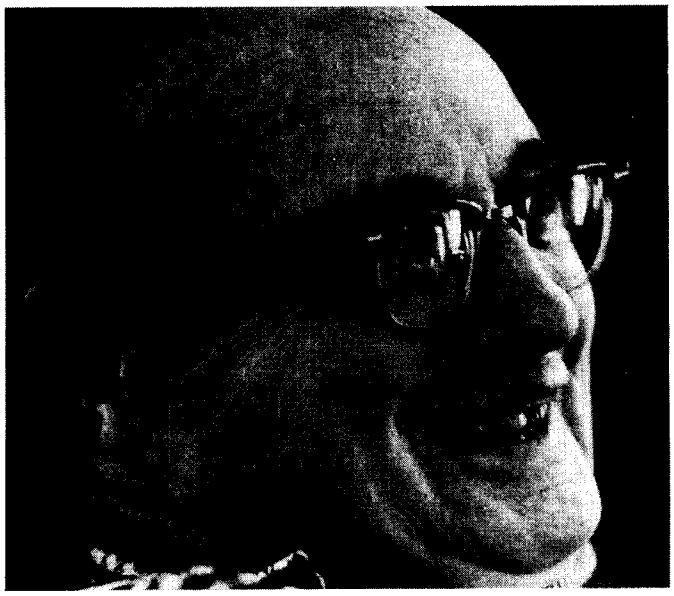

Izaak Maurits Kolthoff

Chairman

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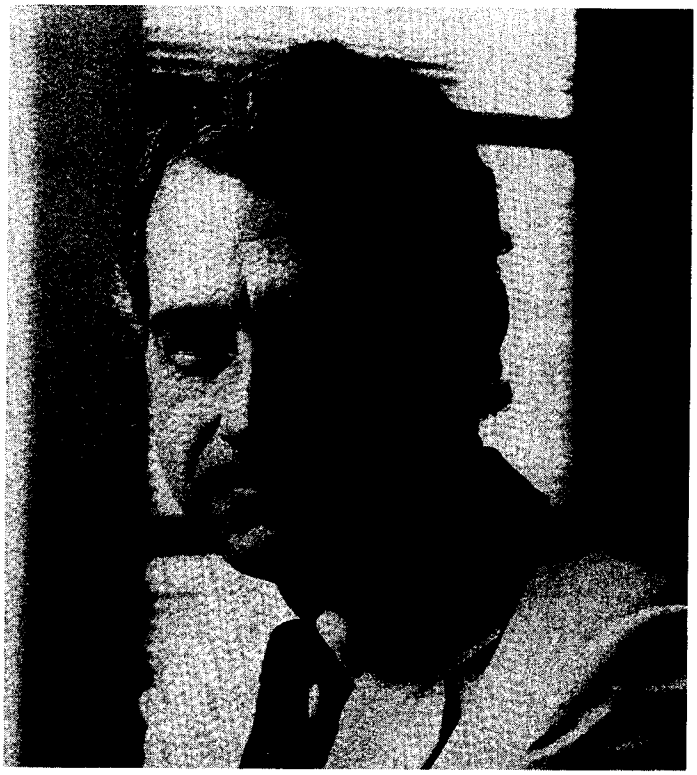
example, always has a very active crew. In the past year there was a significant development in support of undergraduate research. Professor Emeritus **Gladstone B. Heisig** has had a lifelong interest in undergraduate education, and after his retirement in 1959 he established a fund to support undergraduate research by chemistry majors. Last winter, Professor Heisig's son, **Charles Heisig,** and daughter, **Doris Terwilliger,** made a generous contribution to the Heisig Fund on behalf of their father. The endowment is now sufficient to allow the award of two G. B. Heisig Undergraduate Research Fellowships this spring. Although Professor Heisig is unable to travel, we are hopeful that Charles Heisig and Doris Terwilliger will be here to present these awards. Professor Heisig recognized an important need, and we are very pleased to be able to do more to encourage our undergraduates. With tuition rates as high as they are now, endowed awards become more important and are very much appreciated.

On the side of graduate education, our program continues to prosper. We attract about 50 new graduate students each year and they are as good as they have ever been. We currently have five National Science Foundation fellows from national competition. Employment opportunities are now good and both Ph.D. and postdoctoral students are finding suitable positions. As you might expect, some of our most active corporate recruiters are alumni. This year we saw **Dale Holecek** (Shell), **Lee Zehner** (W. R. Grace), **Brian Rushton** (Air Products), **Newman Bortnick** (Rohm & Hass), **Curt Marcott** and **Thomas Miller** (Procter & Gamble), **Mike McGuiggan** (SOHIO), **Ray Stewart** (Raychem), **Steve Willging** (Henkel), **Steve Lindberg** and **Gary Hagen** (Amoco), **Barbara Cedarberg** (3M), **Foss Smith** and **Jim Schreck** (Union Carbide), **Craig Murchison** (Dow Chemical), **Dan Getman** (Monsanto), **John Talley** (General Electric), **Deni Rose** (Western Electric), and **Bob Batdorf** (Bell Laboratories).

In 1983 we were fortunate to receive a substantial bequest from the estate of one of our alumni, **Elmore Northey,** to support graduate research. Dr. Northey was director of research and a longtime employee at American Cyanamid and received an Outstanding Achievement Award from the University of Minnesota in 1955.

As you might expect, most of our support comes from research grants, and the faculty continues to be very active. During the calendar year 1983, grant income was $3.9 million. This is a splendid record considering the tight budgets of federal granting agencies. One of the largest grants was for the Regional Instrumentation Facility for Surface Analysis. The National Science Foundation has established this center to provide access to modern instrumentation for users in the region. The center accepts samples for analysis from other academic institutions and provides analyses to industrial firms for a fee. **Bob Hexter** and **John Evans** are involved in managing the center, which includes X-ray photoelectron, Auger, and secondary ion mass spectrometers.

The faculty continue their good works and continue to be recognized by awards (see detailed article on page 5). Especially noteworthy is that **Bryce Crawford** is now a Regents' Professor of Chemistry. He continues to be active in the National Academy of Sciences and will continue as its home secretary for the next three years. Also worthy of mention is that our young faculty have achieved so much special recognition. **George Barany, Paul Barbara, John Evans, Wayne Gladfelter,** and **Larry Que** have won among them a Presidential Young Investigator Award, three A. P. Sloan Fellowships, a Searle Scholars Award, and two NIH



Chairman Larry Miller

(National Institutes of Health) Career Development Awards. They are terrific!

In the current administration, **Doyle Britton** is vice chairman, **Lou Pignolet** is director of undergraduate studies, and **Wayne Gladfelter** is director of graduate studies. Among the most prolific of our faculty are **Don Truhlar** and **Ed Leete.** Don and his coworkers published 49 papers (long ones!) in two years. One of these was the first accurate prediction of a chemical reaction rate from first principles, i.e., only the Schroedinger equation; the prediction was subsequently confirmed experimentally. As for Ed, in 1983 he published six single-authored papers from work he did in the lab on topics such as ethylene and cocaine biosynthesis. In collaboration with his wife, Sheila, he was involved in the biosynthesis of their fourth child in the past six years!

In a quick look at the future, the legislature has recently provided construction money for the renovation of Smith Hall (the old chemistry building). **Stuart Fenton** has been guiding the $21 million project, which will begin this fall. Although the project will put a crimp on our work for the next few years (half the building will be vacated at a time), when completed, it will provide us with a modern teaching and research facility. It should be great!

Finally, I would restate my hope that you will become more interested in and closely involved with our department and our students. I look forward to working with you.

Brasted for President

Professor **Robert C. Brasted** was elected by the Council of the American Chemical Society at the April 1984 St. Louis meeting to be on the ballot as one of two candidates for the 1986 presidency of the society. The election will be in October 1984. Professor Brasted is a distinguished educator who holds many prestigious awards for excellence in teaching. He has been a member of the faculty since 1947 and director of the General Chemistry Program since 1957.

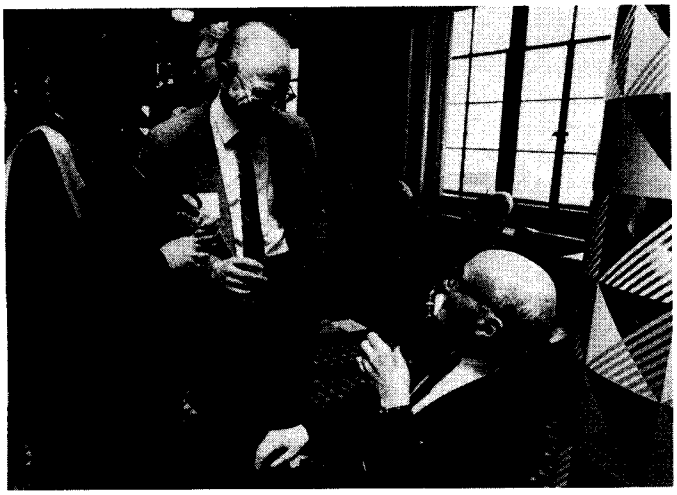
Kolthoff Birthday

(continued from page 1)

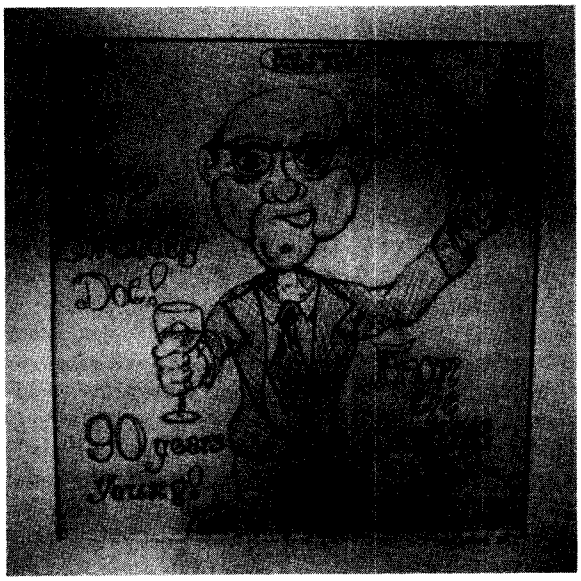
Kenneth H. Keller, who quoted President **C. P. Magrath's** words, "you remain as one of the brightest stars ever to shine in the University's constellation of gifted faculty."

Professor Kolthoff reminisced about the negotiations with Samuel C. Lind and Lotus D. Coffman that brought him to Minnesota from his native Netherlands 57 years ago, and held everyone's attention with a mysterious tale about the exhumation of Mata Hari's daughter. Although he was too modest to say so on his own, it is a documented fact that some 1,100 chemists can trace their scientific lineage, through as many as five generations, to Piet Kolthoff. Kolthoff closed by mentioning two very special associates, **Miran T. Chantooni,** who has been his right hand in the laboratory since 1955, and **Christa Elguther,** his secretary for 32 years.

As the string quartet began playing the familiar birthday melody, the whole group spontaneously broke into song. One could not help being moved at the thought that Piet Kolthoff, who had created an area of chemistry and a school of scientific investigation, a man of great accomplishments and unshakable integrity, was probably sitting there planning his next experiment!



Paul and Gerda Gassman greet Kolthoff at birthday reception.



Cartoon of Kolthoff

A Message from the Editors

George Barany and **Archie Wilson**

The Department of Chemistry last put out an annual newsletter to alumni in April 1981; that was issue No. 10. The information for No. 11 was collected and all set to go when, in the middle of a statewide fiscal crisis, the president of the University of Minnesota imposed a ban on publications. Thus, we have not had the opportunity to interact with you, our loyal alumni and kind friends, for three years. However, this downtime has allowed us to reconsider our mode of communication, and we hope that the reacquaintance will be that much more salutary.

We have attempted to highlight some of the exciting happenings of recent years. Obviously, the treatment must be selective and sketchy, but hopefully it is interesting and informative. We seek to continue and extend the new format on an annual basis, to share with you not only the hard statistics of excellence, but also the human and amusing episodes that make the enterprise enjoyable. Toward this end, we are particularly interested for future issues in hearing from you about your activities and accomplishments, and we will try to faithfully transmit them. We also hope to bring you interviews with eminent alumni, and are even considering on-the-scene reports from the notorious "490" parties.

In closing, we wish to thank particularly **Gladys Olson** and others in the "front office" for dedicated organization of data; several faculty who contributed information and also helped update our alumni files; **Cherie Gustafson** for skilled word processing; and **Sharon Huhn Grimes** of University Relations for editorial assistance. Please write to us, or to Gladys, on your thoughts; we are your representatives and this is your newsletter!

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.

Air Products Foundation, Allied Corporation, AMOCO Chemicals, Celanese, Council for Chemical Research, Dow Chemical, E. I. DuPont de Nemours, H. B. Fuller, Henkel, 3M, Mobil Foundation, Monsanto, Procter & Gamble, Raychem, Smith, Kline & Beckman, SOHIO, Uniroyal, Union Carbide, and UOP Foundation.

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

1982: John Baum, Edward Carr, Barbara Edgar, Wilson Griak, Gregory Gross, William Gumprecht, Cyrus Guss, Ieva Hartwell, Maxine Heinitz, Eugene Johnsen, Kathy Juneau, Lawrence Landucci, William Larson, Blaine McKusick, Jerry Miller, Lyle Overholser, Matthew Petrin, James Prestegard, Thomas Stavros, Roy Tess, Victor Wang, Joseph Warden, Jr., and Lee Zehner.

1983: Charles Bartsch, Larry Brinkman, Edward Carr, John and Barbara Edgar, April Evans, Norman Gill, William Gumprecht, Cyrus Guss, Gary Hagen, Ieva Hartwell, Maxine Heinitz, Alan Johnston, David Johnston, Kathy Juneau, Lawrence Landucci, Blaine McKusick, Jerry Miller, James O'Rourke, Joseph Porwoll, Richard Redington, Theresa Redington, Malcolm Renfrew, Donald Robinson, Adeline Siegel, Thomas Stavros, Lynn Swanson, Roy Tess, Steven Tinker, Susanne Urban, James Wade, Victor Wang, Yueh Wang, Katheryn Wicker, Adeline Wilcox, and Lee Zehner.

Transition State

NEW FACULTY AND STAFF:

Essie Kariv-Miller joined the faculty in 1981 as an associate professor. Professor Miller attended undergraduate school at Hebrew University and received her Ph.D. in chemistry from the Weizmann Institute of Science in Israel in 1967. After earning her degree she was a senior lecturer at Tel-Aviv University. Her research work is in the area of organic electrochemistry.

Larry Que joined the faculty as an associate professor in 1983. He received his undergraduate degree from Ateneo de Manila University in the Philippines with a major in chemistry, and his Ph.D. in 1973 from this department under the direction of Professor Lou Pignolet. After postdoctoral work at M.I.T. and the University of Minnesota's Freshwater Biological Institute, he was an assistant professor at Cornell University. His research area is bioinorganic chemistry.

Marian T. Stankovich specializes in the area of bioanalytical chemistry. She received her bachelor's degree in 1970 from the University of St. Thomas in Houston, Texas, and her Ph.D. in 1975 from the University of Texas (Austin). Following postdoctoral work at the University of Michigan (Ann Arbor) and a stint on the faculty of the University of Massachusetts-Amherst, she joined our department in 1981 as an assistant professor.

Timothy P. Lodge received his Ph.D. in 1980 from the University of Wisconsin-Madison following undergraduate work at Harvard University. His research specialty is in the area of polymer characterization. He joined the faculty in 1982 as an assistant professor with the analytical division.

Stephen Philson joined the staff in 1981 as scientist in charge of the NMR Laboratory. He received his Ph.D. in physics in 1977 from the University of Illinois at Urbana, and worked in the chemistry department at Carnegie-Mellon University before coming to Minnesota.

Edmund A. Larka received his Ph.D. in 1979 from the University of Minnesota under the direction of Professor Ray Dodson. He did a postdoctoral stint at the University College of Swansea in Great Britain and returned here in 1982 as scientist in charge of the Mass Spectrometry Laboratory.

PROMOTIONS:

Peter W. Carr was promoted to professor in 1981. He joined the faculty in 1977 as an associate professor, having previously been on the staff of the University of Georgia. He serves as coordinator of the analytical chemistry specialty area, and his research is in the area of new chromatographic methods.

John F. Evans joined the faculty in 1977 following postdoctoral work at Ohio State University. At Minnesota, he set up a progam in surface analysis and modified electrodes, and he was promoted to associate professor in 1982.

Gary R. Gray was promoted to professor in 1983. He joined the faculty in 1972 as an assistant professor in the biological area, which he now heads. His research is on the structure and immunochemistry of complex carbohydrates, lipids, and glycopeptides, and his group recently achieved a breakthrough by developing a chemical method that simultaneously establishes the linkage position of every sugar residue in a polysaccharide.

Thomas R. Hoye was a teaching fellow at Harvard University before joining the faculty in 1976. In 1982, he was promoted to associate professor. His achievements here include the total syntheses of ancistrofuran, aplysistatin, and invictolide.

Louis H. Pignolet was promoted to professor in 1981 after 11 years on the staff. He studies organometallic complexes for catalysis by a variety of techniques including X-ray crystallography. He is also coordinator of the inorganic division and runs the undergraduate program of the department.

RESIGNATIONS:

In 1982, the Medical School of the University of Rochester in New York State enticed Associate Professor **Richard F. Borch** to accept a chair in pharmacology, and in 1984, they recruited professor **Robert G. Bryant** to head an effort in whole-body NMR imaging. For both, these moves mark a change in research emphasis from their active programs in chemistry.

Associate Professor **Jack Z. Gougoutas** resigned in 1983 to take on full-time responsibilities in X-ray crystallography at the Squibb Institute in New Jersey.

Central Research at DuPont in Wilmington, Delaware, acquired in 1983 the services of two of our young assistant professors, **David A. Dixon,** who is an experimental and theoretical physical chemist, and **William E. Farneth,** who worked in laser photochemistry and physical organic chemistry.

RETIREMENTS:

Doris Berg retired in October 1983 after 23 years as a secretary in the department. She now keeps busy with her artistic pursuits.

Professor **Raymond M. Dodson** retired in August 1983 only to take on a new challenge at Fort Hare University in one of the black republics of South Africa. He began at Minnesota as an assistant professor in 1947, and after achieving tenure went to work for G. D. Searle in 1951. Having invented some of the first oral contraceptives and supervised the program leading to the first antialdosterone, he returned to the department as a full professor in 1960. His research productively covered synthetic and physical organic chemistry, and he was a well-respected teacher with an encyclopaedic command of the subject matter.

Professor **Edward J. Meehan** retired in June 1982. He joined the department in 1939 as an instructor. In 1952 he became a full professor and taught graduate and undergraduate courses in analytical chemistry. His main research interests included the mechanism of emulsion polymerization, free radical reactions, optical methods, particularly light scattering in transparent and absorbing systems, and the chemical aspects of corrosion. He is the author of *Optical Methods of Analysis* and coauthor of *Emulsion Polymerization* and *Textbook of Quantitative Analysis.* He continues to come in regularly to his office in Kolthoff Hall, except on those few good golfing days.

Richard Weizel retired from the chemistry machine shop in October 1983 after 18 years.

DEATHS:

Professor Emeritus **Ernest B. Sandell** died March 9, 1984, at the age of 78. He suffered a massive stroke in Houston, Texas, on his way home to Minneapolis from a geological expedition in Mexico. He was Professor I.M. Kolthoff's first graduate student, earning a Ph.D. in 1932 and joining the faculty immediately after. Professor Sandell's major topics in teaching and research were trace analyses, microchemistry, including the use of the polarizing microscope, and separations, and he was a recognized expert in geochemistry. He gained a worldwide reputation with his book *Colorimetric Determination of Traces of Metals,* the fourth edition of which appeared after his retirement. He was also a coauthor with I. M. Kolthoff of the classic 1936 *Textbook of Quantitative Inorganic Analysis.*

Ovations

The past few years have witnessed an impressive record of local, national, and international recognition for both senior and junior faculty of the department. For example, in 1982 the American Chemical Society bestowed upon **Bryce Crawford, Jr.,** its highest honor, the Priestley Medal, which "recognizes distinguished services to chemistry." The same year, Bryce was named Regents' Professor of Chemistry, which is the University's highest faculty award, and in 1983 he was awarded an honorary doctorate by Hamline University in St. Paul.

The Minnesota Award, given every three years by the Minnesota Section of the American Chemical Society (ACS), was conferred most recently upon **Paul G. Gassman,** and the time before that upon **Robert C. Brasted.** Bob has further been cited for his outstanding teaching and role in ACS affairs by his receipt of the 1980 James Flack Norris Award (Northeastern Section) and the 1982 Carol and Harry Mosher Award (Santa Clara Valley Section). And **I. M. Kolthoff** still collects accolades, as shown by receipt in 1983 of the first ACS Division of Analytical Chemistry Award for Excellence in Teaching.

For his pioneering work in vibrational spectroscopy, **John Overend** was honored with the 1983 Ellis Lippincott Medal. **Larry Miller** received the prestigious J. S. Guggenheim Fellowship, and **Paul Gassman** was elected a Fellow of the American Association for the Advancement of Science. All three of them, Paul, Larry, and John, served in turn as Fellows of the Japan Society for Promotion of Science, involving extended lecture tours in spring 1981, fall 1982, and fall 1983 respectively.

Turning to the younger faculty, **Paul F. Barbara** was one of 13 chemists just named as a National Science Foundation Presidential Young Investigator. This is the inaugural year of competition leading to a five-year award of up to $100,000 per year with industrial matching. Paul and **John Evans, Wayne Gladfelter,** and **Larry Que** are recent (1982, 1983) winners of Alfred P. Sloan Fellowships, which makes for an unusually large proportion of faculty so honored. In 1982, **George Barany** was chosen as one of 16 biomedically oriented researchers given a three-year $150,000 grant from the Searle Scholars Program. Finally, for the period 1982-1987, both George and Larry hold National Institutes of Health Research Career Development Awards.

Good vibrations in Bryce Canyon. Bryce Crawford (l) and John Overend.

A High Priority Message from the Administrative Wastebaskets

TO: All Occupants of Koldoften Hall
FROM: Q.D. McGraw
DATE: November 14, 1983
RE: Gravity Shut-Down

In order to facilitate the moving of certain heavy equipment, not to mention necessary maintenance, renovation, and interior decorating, there will be NO GRAVITY in the above referenced building and its immediate environs this upcoming *Tuesday, November 21, 1938,* between *9 and 11 A.M.* and between *2 and 4 P.M.* Our detailed planning process has identified "state of the physical plant" as an area that requires continual nurturing even in an era of budgetary limitations.

For reasons of safety and to prevent damage to expensive and delicate instrumentation, it is absolutely imperative that the following precautions and regulations be observed:

1. Unless you have adequate working facilities on your ceiling, you should ensure that any materials intended for use on that day be securely attached to a conventional surface. Heavy-duty twine for this purpose will be issued from the Departmental stockroom to all those with *valid* and *current* credit cards. Do *not* use typewriter ribbons or any other supplies taken from the secretarial offices.

2. Water is liable to act in a wildly unorthodox manner. We suggest that you do not open taps, and exercise extraordinary care with hoses to reflux condensers. By *no* means should you flush any toilets.

3. It goes without saying that the lack of a gravitational field must be properly accounted for when making experimental observations normally affected by same. You should be particularly suspicious of all weight-based yeilds that are submitted in the undergraduate teaching laboratories.

4. To contend with students who have even more trouble than usual staying in their seats, faculty should strive to prepare and deliver unusually stimulating lectures.

5. The Koldoften Hall "sandpit" area will be pre-empted on that day in favor of a special practice session by the Goofer football team.

6. The State Bored on Worker's Compensation has issued a ruling that disclaims all liability for personal injury or death caused by any suspensions of the Laws of Nature. Should anything untoward happen to you, we specifically encourage and invite lawsuits as our large legal staff has extensive training and experience in handling all manners of claims.

We apologize for any inconvenience.

Crawford Symposium

An International Symposium on Vibrational Spectroscopy and Chemical Structure in honor of **Bryce Crawford, Jr.,** was hosted by the department May 12-14, 1983. Bryce's pioneering work in molecular spectroscopy, electronic structure, and infrared intensities is well known. Over 200 scientists attended the symposium honoring Professor Crawford's appointment in 1982 as Regents' Professor of Chemistry at the University of Minnesota and his receipt in the same year of the Priestley Medal of the American Chemical Society. Either award alone would have prompted us to celebrate, and the coincidence of these two highest honors simply added to the festiveness.

The symposium was organized by **Paul Barbara, John Overend,** and **Don Truhlar.** The speakers included many distinguished chemists and alumni, among them **S. Califano, W. Fateley, D. Golden, S. Gordon, E. Heller, G. Herzberg, C. Jameson, T. Keiderling, W. Lipscomb, I. Mills, L. Nafie, R. Pariser, E. Parks, G. Parr, W. Person, G. Pimentel, R. Swofford,** and **G. Zerbi.** We take this opportunity to again congratulate Bryce!

Recent Department of Chemistry Graduates

On this page and the next are the degrees awarded by the Department of Chemistry from August 1981 through December 1983. Columns are, from left to right, name of graduate, degree adviser, thesis title, and current place of employment.

Ph.D. Degrees

Michael P. Anderson	Pignolet	"Physical, Chemical and Catalytic Properties of Rh(I) Complexes with P-P, P-N, and P-N-P Ligands"	Air Force Research Labs San Antonio, TX
William E. Barber	Carr	"I. Peak Shape Analysis in HPLC. II. U.V. Visualization of Inorganic Anions by Reverse-Phase Ion-Interaction Chromatography"	Hercules Research Center Wilmington, DE
Frank D. Blum	W. Miller	"Nuclear Magnetic Resonance Studies of Polymer-Solvent and Surfactant-Solvent Systems"	Asst. Professor, Drexel Univ., Philadelphia, PA
Steven M. Bonser	Gassman	"The Synthesis and Chemistry of Trans-Bicyclo[4.1.0]Hept-3-ene"	Eastman Kodak Rochester, NY
Marvin J. Burgess	Gassman	"The Synthesis and Solvolysis of 1-Aryl- and 3-Aryl- and 3-Aryl-N-Chloro-2-Azabicyclo[2.2.1]Heptanes"	Amoco Chemical Corporation Naperville, IL
Sumana Chakrabarti	W. Miller	"Viscoelastic Studies on Stiff Chain Polymers"	Dowell, Tulsa, OK
Yusen Chen	Ellis	"Synthesis and Reactivity of Transition Metal Carbonylates"	Postdoctoral, Chemistry Dept. Iowa State University, Ames, IA
Mindaugas Dautartas	Evans	"Studies of Plasma Polymerized Vinylferrocene Thin Films"	Bell Laboratories Allentown, PA
Joseph Dellaria, Jr.	Hoye	"Total Synthesis of dl-Aplysistatin via the 'Right Approach' and a Model Synthesis of the CDE Rings of Bruceantin"	Postdoctoral, Chemistry Dept., Harvard, Boston, MA
Mark M. Doherty	Gassman	"The Effect of Electron Deficient Carbocations on Neighboring Group Participation"	PPG Industries Barberton, OH
John D. Dwyer	Bloomfield	"A Physical Study of Cholera Toxin and Its Membrane Bound Complex"	Asst. Prof., St. Catherine's St. Paul, MN
Robert A. Eades	Dixon	"Theoretical Studies of the Abstraction Reactions of the Hydrogen Atom with Halogen and Interhalogen Molecules: $H+F_2$, $H+Br_2$, H+ClF, H+BrF, and H+BrCl"	Argonne National Lab Argonne, IL
Mark R. Ellenberger	Dixon	"Dynamics of Chemical Reactions: Ion Cyclotron Resonance and Crossed Molecular Beam Studies"	1396 Sargent Ave. St. Paul, MN
Douglas E. Fjare	Gladfelter	"Synthesis and Reactivity of Carbonyl/Nitrosyl Clusters"	Amoco Chemicals Naperville, IL
Kristi A. Fjare	Ellis	"The Study of Reactive Vanadium Carbonyl Compounds"	Amoco Chemicals Naperville, IL
Daniel Getman	Gassman	"The Synthesis and Transition Metal-Promoted Rearrangements of Sterically Hindered Derivatives of Bicyclo[1.1.0]Butane"	Monsanto St. Louis, MO
Thomas Gill	Mann	"The Photochemistry of Transition Metal Arene Complexes"	Chemistry Dept., Univ. of New Hampshire, Durham, NH
Robert J. Glinski	Dixon	"Reactions of Ozone with Small Organic Molecules and Sulfides: Beam-Gas Chemiluminescence and Crossed Molecular Beam Studies"	Postdoctoral, Univ. of Colorado Boulder, CO
John E. Granrud	Gassman	"N-Acyl-N-Arylnitrenium Ions"	Deceased, Sept. 2, 1983, in a boating accident
Thomas L. Guggenheim	Gassman	"The Study of α-Cyano Carbocations"	General Electric Schenectady, NY
John W. Hull	Gladfelter	"Transition Metal Complexes of Severely Crowded Organic Molecules and o-Xylylenes"	Dow Chemical Midland, MI
Douglas R. James	Lumry	"Specificity Determination in Chymotryptic Catalysis—Thermodynamic Basis"	Postdoctoral, Chemistry Dept. Univ. of Western Ontario
Leo Laux	Overend/ Moscowitz	"The Optical Activity Associated with Molecular Vibrations"	Postdoctoral, Chemistry Dept. MIT, Boston, MA
Sung J. Lee	Gassman	"The Use of [2,3]-Sigmatropic Rearrangements in the Synthesis of Benzo-Substituted Heterocycles"	Bristol Meyers Evansville, IN
Paul H. Lieder	Borch	"The Effect of Diethyldithiocarbamate on the Biological Actions of Cisplatin"	St. Paul-Ramsey Hospital St. Paul, MN
Jiann T. Lin	Ellis	"The Chemistry of the Tetracarbonylmetallate (4-) of Chromium, Molybdenum, and Tungsten, $Na_4[M(CO)_4]$"	Postdoctoral, Chemistry Dept. Univ. of Michigan, Ann Arbor, MI
Andrew S. Magee	Hoye	"A Synthesis of the Quassinoid Carbon Skeleton via an Intramolecular Diels-Alder Reaction"	Postdoctoral, Chemistry Dept. Boston College, Boston, MA
Leo J. Maheu	Pignolet	"Synthesis, Structural Characterization, and Reactivity of Di- and Trithiocarbamate Complexes of Osmium and Ruthenium"	New England Nuclear Boston, MA
Mark E. Mueller	Leete	"Studies on the Biomimetic Synthesis of Antabine"	Postdoctoral, Chemistry Dept. Northwestern Univ., Evanston, IL
Kurt D. Olson	Gassman	"Photochemistry of Strained Polycyclic Hydrocarbons"	Union Carbide Dunbar, WV
David R. Peck	Hoye	"Photochemical Construction of the Acorane Skeleton and a Spirodilactone Route to Venturicidin"	Postdoctoral, Pharmacy Dept. Univ. of Wisconsin, Madison, WI
James R. Persoon	Meehan	"Light Scattering Studies of Colloidal Lead Sulfide"	Honeywell Minneapolis, MN

Joseph P. Porwoll	Leete	"Studies Concerning the Isolation, Purification, and Biosynthesis of Delta^9-Tetrahydrocannabinolic Acid A by Feeding Contiguously Enriched Carbon-13 Putative Precursors"	Freshwater Biological Institute Navarre, MN
Vaughan M. Pultz	Moscowitz	"Vibrational Circular Dichroism Studies of Some Small Chiral Molecules"	Rohm & Haas Philadelphia, PA
Gary L. Rochfort	Ellis	"Synthesis and Reactivity of Transition Metal Carbonylates"	Postdoctoral, Chemistry Dept. Univ. of Nebraska, Lincoln, NB
David Rolf	Gray	"Reductive Depolymerization of Permethylated Polysaccharides"	LecTec Eden Prairie, MN
Wayne J. Rothschild	Lumry	"Thermodynamics of Solution of n-Alkanols in H_2O and D_2O"	IBM, Rochester, MN
Paul Russo	W. Miller	"Solution Behavior of Polymers"	Asst. Professor, L.S.U., Baton Rouge, LA
Mark W. Severson	Overend	"Infrared Spectra of Nitric Oxide and Carbon Monoxide on Platinum"	Asst. Professor, Oakland Univ., Rochester, MI
Marcus W. Thomsen	Farneth	"Infrared Laser Induced Organic Chemical Reactions of Vinylcyclopropane, Bicyclopropyl, and Diethyl Carbonate"	Asst. Professor, Franklin & Marshall College, Lancaster, PA
Chung C. Tso	Pignolet	"Structural and Chemical Properties of Ir(I) and Rh(I) Complexes with P-N-P and P-P-P Ligands"	Chemistry Dept., Rensselaer Polytech Inst., Troy, NY
Dale M. Ullevig	Evans	"Studies of Sputtering Behavior Using AQC/4"	IBM, Rochester, MN
Hsien-Hau Wang	Pignolet	"Chemical Studies of Cationic Polyhydride Iridium with Chelating Diphosphine Ligands and Catalytic Aldehyde Dicarbonylation Reactions"	Postdoctoral, Chemistry Dept. Univ. of Illinois, Urbana, IL
Mark W. Watson	Carr	"Simplex in Gradient Elution High Performance Liquid Chromatography: The Preparation and Characterization of Bio-Compatible High Performance Liquid Chromatography Packing Materials"	DuPont, Wilmington, DE
Stephen M. Willging	Gassman	"Application of X-ray Photoelectron Spectroscopy to Polymer Supported and Homogeneous Transition Metal Catalysts"	Henkel Corporation Edina, MN
JoAnn K. Yamamoto	Borch	"Biomimetic Transformation of Dehydrocholesterol to Vitamin D"	Dow, Midland, MI
John M. Zimmel	W. Miller	"Motion of Rod-Like Molecules"	H.B. Fuller Vadnais Heights, MN

M.S. Degrees

Paul W. Busse	Hoye	"Application of Crown Ether Mediated Enolate Alkylation to Malyngolide Stereochemistry"	Law School University of Minnesota
Rodney D. DeKruif	Noland	"Condensation Reaction of Indole Acetophenones (Substituent Effects and Reaction Conditions)"	Law School University of Minnesota
George R. Dohmann	Leete	"Use of Carbon 13 in Studying Biosynthetic Pathways"	237 N. Middletown Road Pearl River, NY
Christopher Dewey	Ellis	"The Synthesis and Reactivity with Hydrohaloic Acids of the Group 5 Hexacarbonyl Metallates ($M(CO)_6$) (M=V, Nb, Ta)"	RR1 Jones Road Jonesville, WI
James M. Elvecrog	Carr	"A Thermochemical Unsegmented Flow System Based on the Iodide Catalyzed Cerium-Arsenic Reaction"	3M, St. Paul, MN
James E. Fairman	Evans	"Selective Modification of Polymer Surfaces by Nonequilibrium Plasmas"	Control Data, Bloomington, MN
Kristi A. Fjare	Ellis	"The Preparation and Chemistry of Pentacarbonylvanadate (3-) and Some of Its Derivatives"	Amoco Chemicals Naperville, IL
Kathleen Getman	Borch	"Mechanisms of Substitution at C-4 in Cyclophosphamide Derivatives"	Monsanto, St. Louis, MO
John M. Gibson	Kreevoy	"Solvent Extraction and Liquid Membrane Properties of Trioctylphosphate"	Southern Baptist College College City, AZ
Ismail Junuh	Crawford	"Infrared Intensities of Group Frequencies"	returned to Malaysia
Tricia L. Marxen	Pignolet	"Synthesis, Structural Characterization, and Reactivity of 2,2'-Bis(diphenylphosphinobenzideneamino)-6,6'-dimethylbiphenyl Complexes of Rhodium(I) and Iridium(I)"	Tennant Company Minneapolis, MN
Carl D. Neuberger	Hexter	"Quartz Crystal Microbalance and Various Other Surface Study Techniques"	Kroy Minneapolis, MN
Kenneth E. Nietering	W. Miller	"The Morphology of Polymers, Oxides and Surfaces"	Ford Motor, Dearborn, MI
David W. Osten	Gray	"Major Mycolic Acids of Mycobacterium Bovis"	3M, St. Paul, MN
Sheri L. H. Peterson	Bryant	"Applications of ^{59}Co NMR to the Determination of Isotopic Composition of Solvents"	General Mills Minneapolis, MN
Eric Zilley	Borch	"The Synthesis of Potential Anti-Aggregatory Agents"	3M, St. Paul, MN

The following individuals, listed in alphabetical order, received bachelor's degrees with a major in chemistry from August 1981 through December 1983.

Gregory R. Almen, Paul T. Angell, Joanne M. Athman, John T. Bergman, Joel D. Berry, Dale A. Bjorkman, Kirk P. Brown, Scott R. Bryan, Benjamin E. Burrows, Paul J. Christensen, Scott H. Courtney, Clifford C. Deiner, Rajkumar S. Doshi, Clark N. Eid, Jr., Christopher E. Freise, Michael J. Giorgi, Martin L. Hage, David A. Halsrud, James R. Haselman, Christian D. Herter, Derk J. Hogenkamp, Carol A. Ivey, John A. Jackson, James A. Jensen, Roger R. Jensen, Kevin E. Johnson, Jeffrey A. Klang, David G. Kurzweg, William Laidlaw, Thy T. Le, John M. McCluskey, Paul J. Meyer, Jacob I. Mirman, Laura M. Mudrak, Rekha K. Naidu, Steven N. Ndely, Ngoclan T. Phan, Gary M. Phillips, Ronnie J. Scheller, Mark P. Schifsky, David J. Schram, Jay F. Schultz, Liane M. Stoffels, Timothy M. Schwecke, Diane M. Szaflarski, David A. Theiste, Susanne M. Urban, Patricia D. VandeVegt, Paul S. Wehling, Steven D. Weiss, Kelly R. Westman, Norman Whitton, Stephen T. Wild, Laura R. Wolszon, George W. Wowczak, and Kay A. Youngdahl.

Rex T. Skodje, a graduate student in the chemical physics program, celebrates his receipt of a Procter and Gamble Physical Chemistry Graduate Student Prize for fall 1982. The prize is a cash award of $2,500 and was given for his paper, coauthored by Professor Donald G. Truhlar and Dr. Bruce C. Garrett, titled "A General Small-Curvature Approximation for Transition-State-Theory Transmission Coefficients."

Batter Up

One of the joys of summer is the friendly but spirited competition in the chemistry department's own intramural softball league, which plays a round-robin schedule each Wednesday evening. Faculty, students, and staff of both sexes get out their gloves for the playing field and the grills and kegs for the sidelines. Champions for the last two years, according to league commissioners **David Deerfield** and **Richard Smith,** have been a hungry group of beginning graduate students known as the **Infra-Red Sox.** The analytical A team, known as **I. M. Kolthoff (and You're Not)** went from dormat to runner-up in just one year, and **Kagakusha** (Japanese for "chemist"), which stars pitcher **Paul Gassman,** is a perennial powerhouse. Among the other teams are the **Kimwipes** (bio-organic), **Ligand Fielders** (inorganic), **Mephitics** (stunk up the league), **Organomets** (self-explanatory), and **Prolate Ellipsoids** (physical).

Kolthoff Fund

In 1976 an anonymous donor established the **Kolthoff Fund.** This fund has supported a lecture series to bring outstanding scientists to the Twin Cities for a week-long set of lectures.

So, far, we have been visited by: **J. M. Lehn** (Strasbourg, France; fall 1979), **Allen Bard** (Austin, Texas; winter 1980) **Dick Zare** (Stanford; spring 1980), **Frank Westheimer** (Harvard; fall 1980), **Harry Gray** (Cal Tech; winter 1981), **Rudy Marcus** (Cal Tech; spring 1981), **Dieter Seebach** (ETH, Switzerland; fall 1981), **Jack Beauchamp** (Cal Tech; winter 1982), **F. A. Cotton** (Texas A & M; spring 1982), **Cal Giddings** (Utah; fall 1982), **John Brauman** (Stanford; winter 1983), **Y. T. Lee** (Berkeley; spring 1983), **Fred Anson** (Cal Tech; fall 1983), **R. E. Dickerson** (UCLA; winter 1984), and **George Whitesides** (Harvard; spring 1984).

The Kolthoff Fund was also intended to support fellowships for outstanding graduate students. However, the size of the endowment has allowed us to award only one fellowship in the last six years. We hope to be able to award at least one Kolthoff Fellowship each year. With this goal in mind, **Larry Miller** and **Herb Laitinen** have organized a campaign urging friends and alumni to recognize and honor Piet Kolthoff in this special way. Donations should be made out to the *University of Minnesota Kolthoff Fund, P. O. Box 3870, St. Paul, Minnesota 55170.* Also, we recommend that you check with your employer about a matching gift.

This issue was prepared with the assistance of University Relations.

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