



UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Chemistry
Kolthoff and Smith Halls
207 Pleasant Street S.E.
Minneapolis, Minnesota 55455

No. 10

MINNESOTA CHEMISTS NEWSLETTER

April 1981

Dear Alumni and Friends:

The past year has again witnessed significant advances in the scientific and professional prowess of the Department of Chemistry at the University of Minnesota. We are confident that this trend, started six years ago under the guidance of Professor Paul Gassman, will continue into the indefinite future.

Our building program for the basement of Kolthoff Hall, and renovation program for Smith Hall should get started when this biennial legislature (1981) completes its work in late May or early June. We expect that \$926,000 will be appropriated to complete and furnish approximately 6,000 square feet in the basement of Kolthoff Hall, and further, we also anticipate that \$1,600,000 will be allocated to develop working drawings for the total renovation of Smith Hall. We are anxious to get these two projects started because of rapidly escalating building costs. Keep your fingers crossed.

Our faculty compliment is now reaching its full capacity. We now have 11 new assistant professors on board, and all of their respective research programs are well underway; the Department is truly a beehive of activity. We have added two women faculty members this year. Professor Marian Stankovich (analytical chemistry) joined us in January of 1981 and Dr. Esther Kariv Miller (organic electrochemistry) will take up her duties and responsibilities this coming September. Dr. Stankovich joined us as a tenure track assistant professor while Dr. Miller is coming as a tenured associate professor. It was particularly difficult to fill our analytical opening because of the demand in this area. We feel fortunate to have attracted both women to Minnesota. Next year (1982), when Professor Ed Meehan retires, it will be necessary to again recruit another analytical chemist. If you know of persons who might be both qualified and interested, please let us know.

Our Department instrumentation and outside research support continues to grow. Excellent individual and group efforts have produced a second year (1980) where external funding exceeded \$3 million. In addition, we have recently submitted a proposal to the National Science Foundation for a Departmental Laser Facility. We surely do need our additional space to house people and equipment.

The Department has again had a change in the chairmanship. Professor John Overend had to step out last summer (1980) for medical reasons. I took over as acting chairman at the beginning of fall quarter, 1980, and became permanent chairman shortly after the beginning of this calendar year. Only minor changes in the mode of operation have taken place. However, since I served as vice chairman under both Paul Gassman and John Overend, no continuity has been lost and I believe that our Department will continue to improve as a place where students can obtain an excellent education at the undergraduate, graduate and postdoctoral levels. There is no doubt that our alumni and friends have been instrumental in helping with all of our improvements. We thank you for your past support and hope that we can continue to count on you in the future.

With best wishes,

H. S. Swofford, Jr.
Professor and Chairman

FACULTY ADDITIONS

Dr. George Barany joined the faculty as an assistant professor with the organic and bio-organic specialty areas. He received his Ph.D. in 1977 from Rockefeller University in New York. He then spent an additional three years at Rockefeller as a post-doctoral researcher. Dr. Barany's research interests include peptide synthesis, protecting groups and he is generally interested in attacking problems of biological interest from a chemical angle.

Dr. Paul F. Barbara joined the department in the fall of 1980 as an assistant professor. He received his B.A. degree from Hofstra University in New York and his Ph.D. from Brown University in Rhode Island in 1978. From 1978 - 1980, Dr. Barbara held a postdoctoral fellowship with Bell Laboratories in New Jersey. His field of research is picosecond spectroscopy of ultra fast photochemical reactions. He is a joint member of the organic and physical chemistry specialty areas.

Dr. William E. Fristad, who received his bachelors degree from the College of St. Thomas in St. Paul in 1975 and his Ph.D. from Ohio State in 1979, joined the faculty as an assistant professor in the fall of 1980. He spent 1979 - 1980 in a post-doctoral position at the Imperial College of Science and Technology in London, England. He is a member of the organic specialty area and his research interests include synthetic methods and organometallics.

Dr. Tom S. Livinghouse joined the faculty in the fall of 1980 as an assistant professor. He received his bachelors degree and masters degree from Rice University in Houston in 1979. He spent 1979 - 1980 in a postdoctoral position at Stanford University in Palo Alto, California. Dr. Livinghouse is a member of the organic specialty area and his research interests are natural product synthesis and the development of new synthetic methodology.

Dr. Marian T. Stankovich joined the department in January of 1981 as an assistant professor. She received her B.A. Chemistry degree from the University of St. Thomas in Houston, Texas in 1970. Following her undergraduate training, she attended the University of Texas at Austin and obtained the Ph.D. degree in analytical chemistry working under the direction of Professor Allen J. Bard in 1975. She was a postdoctoral scholar with Professor Vincent Massey in the Biochemistry Department at the University of Michigan, Ann Arbor, from 1975 to 1977. Dr. Stankovich joined the Chemistry Department at the University of Massachusetts, Amherst, in 1977 as an assistant professor. She has a very strong research background in the application of spectroelectrochemical techniques to the study of flavoproteins.

FACULTY AWARDS

Professor Robert C. Brasted won the James Flack Norris Award for "Outstanding Achievement in the Teaching of Chemistry". The award included a citation and \$2,000 presented by the Northeastern Section of the American Chemical Society. Only four persons in the history of the three major instruction awards (ACS Award in Chemistry and Education, The Chemical Manufacturing Association Award in College Chemistry Teaching, and the James Flack Norris Award) have received all three, of which Dr. Brasted is one.

Professor Richard Borch received the 1980 Institute of Technology Alumni Society Award as Outstanding Teacher in the Institute of Technology at the Society's annual banquet in November. Earlier in 1980, at the IT Commencement in June, he was the recipient of the George Taylor Alumni Society Award for distinguished teaching.

These awards are indeed an honor to Professors Brasted and Borch as well as to the Department of Chemistry at the University of Minnesota.

DEATHS

As a result of our alumni survey, we have learned of the following deaths.

Reynold C. Fuson

K. A. Kobe

Wesley Herr (1981)

THIRTEENTH ANNUAL MIDWEST THEORETICAL CHEMISTRY CONFERENCE

On May 9 and 10, 1980, the Thirteenth Annual Midwest Theoretical Chemistry Conference was held in the Department of Chemistry of the University of Minnesota. The conference was attended by 109 scientists from 12 states and 1 foreign country. A total of 77 talks and poster papers were presented, including 20 by members of our department. The meeting was hosted by the Department's theoretical chemists, Professors Dahler, Davis, Dixon, Mead, Moscowitz, Prager and Truhlar.

LEAVES

Professor J. Doyle Britton spent the 1979-1980 academic year on sabbatical leave doing research and studying with Professor J. B. Dunitz at the Swiss Federal Institute of Technology in Zurich, Switzerland.

Professor Wayland E. Noland spent the 1979-1980 academic year on sabbatical leave in residence at the University of Minnesota.

Professor Edward Leete spent Fall Quarter 1980 on a quarter leave presenting lectures and attending conferences in England, Spain, Switzerland and Germany.

Professor Donald G. Truhlar spent Fall Quarter 1980 on quarter leave in residence at the University of Minnesota.

Professor C. Alden Mead spent the 1980-1981 academic year on sabbatical leave doing research in collaboration with Professor Fred Schlögl at the Institut für Theoretische Physik B, Rheinisch-Westfälische Technische Hochschule Aachen, West Germany. The topic of this research is "The Principle of Increasing Mixing Character in Irreversible Statistical Mechanics".

KOLTHOFF LECTURESHIP IN CHEMISTRY

An endowment from an anonymous doner was received by the Department of Chemistry in recognition of I. M. Kolthoff's scientific achievements while on staff at the University of Minnesota. Professor Kolthoff is an emeritus professor with the Department still active in research and publication of these results.

The following distinguished chemists were guests of the Department while presenting a week long lecture series:

Professor Jean-Marie Lehn, Université Louis Pasteur, Institute De Chimie, Strasbourg, France; September 20 to September 24, 1979.

Professor Allen J. Bard, Department of Chemistry, The University of Texas at Austin, Austin, Texas; March 11 to March 14, 1980.

Professor Richard M. Zare, Department of Chemistry, Stanford University, Stanford, California, May 20 to May 23, 1980.

Professor Frank H. Westheimer, Department of Chemistry, Harvard University, Cambridge, Massachusetts; October 20 to October 24, 1980.

LANDO SUMMER FELLOWSHIPS

The Lando (the late Maximillian N. Lando was a University of Minnesota chemistry graduate, B.S. 1902, who left a large endowment to the University) Summer Research Fellowship Program sponsored by the Department of Chemistry, was conducted again this summer. The program was for outstanding undergraduate students who have completed three years of undergraduate study in chemistry or related fields. Students were selected from a national competition. Twelve students were selected from 80 applications and participated in advanced research projects under faculty supervision in the Department of Chemistry. The twelve students who participated in the summer of 1980 were:

<u>NAME</u>	<u>SCHOOL</u>	<u>ADVISOR</u>
Margaret Blohm	Russell Sage College Troy, New York	Gladfelter
Jonathan Emery	Southeastern Massachusetts U North Dartmouth, Massachusetts	Dahler
Roger Grev	University of Minnesota Morris, Minnesota	Truhlar
Monica Handwerk	University of Colorado Boulder, Colorado	Dixon
Robin Hochberg	Barnard College New York, New York	Kreevoy
Dean Hoglen	Carson-Newman College Jefferson City, Tennessee	Gassman
Steve Humphrey	University of Arkansas Fayetteville, Arkansas	Mann
Coleen Kingston	University of Wisconsin River Falls, Wisconsin	Fisher
Diana Kleve	State University of New York Brockport, New York	L. Miller
Mark Listemann	Colorado State College Colorado Springs, Colorado	Pignolet
Brian Reid	Marietta College Marietta, Ohio	Truhlar
Majorie Van De Stouwe	Barnard College New York, New York	Kreevoy

UNDERGRADUATE RESEARCH PARTICIPATION PROGRAM

The Department sponsored a summer research program for outstanding undergraduates which was funded by faculty research grants. The program was directed and organized by Professor John E. Ellis. The eight participants who were at Minnesota for ten weeks were:

<u>NAME</u>	<u>SCHOOL</u>	<u>ADVISOR</u>
Sarah Kelly	Carleton College Northfield, Minnesota	Bryant
William Leonard	St. Olaf College Northfield, Minnesota	Ellis
Lynda McDowell	University of Minnesota Morris, Minnesota	Carr
Carmen Nitsche	University of Minnesota Minneapolis, Minnesota	Kreevoy
Daniel Nordquist	Winona State University Winona, Minnesota	Gray
Kirk Robarge	University of Minnesota Minneapolis, Minnesota	Hoye
Mark Shelendich	University of Minnesota Minneapolis, Minnesota	Gassman
Steven Weiss	University of Minnesota Minneapolis, Minnesota	Mann

POSTDOCTORAL ASSOCIATES

In the following table are listed the persons who held postdoctoral appointments in the Department during 1980.

<u>NAME</u>	<u>INSTITUTION</u>	<u>GRAD YEAR</u>	<u>COLLABORATING PROFESSOR</u>
Abbate, Sergio	Universita di Milano	1974	Moscowitz
Battistel, Ezio	University of Genova	1976	Lumry
Borah, Babul	London University	1976	Bryant
Bouhoutsos-Brown, E.	Michigan State University	1979	Bryant
Chantooni, Miran	University of Minnesota	1961	Kolthoff
Choi, Hae Tak	Dartmouth College	1980	Lipsky
Etzler, Frank	University of Miami	1978	Lumry
Fesciyan, Sezar	Belfer Grad Sch of Science	1972	Dahler
Gurira, Rogers	Penn State University	1973	Carr
Fukui, Moto	Tokyo University	1969	L. Miller
Himeno, Sadayuji	Kyoto University	1977	Kolthoff
Huang, Harry	Rensselaer Polytechnic	1977	Gray
Gregory, Roger	University of Sheffield	1980	Lumry
Henis, Neil	U of North Carolina	1980	L. Miller
Hoye, Rebecca	University of Minnesota	1980	Gassman
Isaacson, Alan	U of California - Berkeley	1978	Truhlar
Jhon, Myung	University of Chicago	1974	Dahler
Johnston, David C.	University of Minnesota	1979	Bryant
Jyo, Akinori	Kumamoto University	1971	Kolthoff
Kitani, Akira	Hiroshima University	1979	L. Miller
Liu, Kopin	Ohio State University	1977	Gentry
Miura, Takashi	Tokyo Metropolitan U	1979	Gassman
Mullins, Michael	University of Wisconsin	1978	Gassman
Murdock, Thomas	University of North Dakota	1977	Gassman
Nichols, Henry	University of Oklahoma	1977	Hexter
Saito, Katsuhiko	Tohoku University	1974	Gassman
Schmalzl, Paul	University of Nebraska	1979	L. Miller
Shirley, William	North Carolina State U	1978	Bryant
So, Ying Hung	Colorado State University	1977	L. Miller
Suzuki, Eiji	Magoya University	1971	Gassman
Turner, Eric	U of British Columbia	1978	Dahler
Willis, John	University of Connecticut	1978	L. Miller
Valone, Steven	U of North Carolina	1980	Truhlar/Mead

PLACEMENT OF POSTDOCTORAL STUDENTS IN 1980

Borah, Babul (Bryant)	Georgetown University, Washington, DC
Etzler, Frank (Lumry)	Asst Professor, East Carolina University
Gurira, Rogers (Carr)	Grinnell College, Iowa
Himeno, Sadayuki (Kolthoff)	Returned to Japan
Huang, Harry (Gray)	Research position in Taiwan
Jhon, Myung (Dahler)	Asst Professor, Carnegia-Mellon University
Liu, Kopin (Gentry)	Research position - U of Atlanta
Murdock, Thomas (Gassman)	H. B. Fuller Company, St. Paul, MN
Shirley, William (Bryant)	Wayne State University - postdoc
Suzuki, Eiji (Gassman)	Asst Professor - Meijo U, Magoya, Japan
Willis, John (L. Miller)	Other employment

GRANTS

Grants to the faculty members during calendar year 1980 from sources outside the University totaled \$2,489,203 and were received by the following professors:

<u>NAME</u>	<u>PROJECT TITLE</u>	<u>GRANTING INSTITUTION</u>	<u>AMOUNT</u>
Barany, George	A Mild, Orthogonal Protection Scheme for Solid-Phase Peptide Synthesis	Research Corp	\$22,000
Barbara, Paul	The Vibrational Dynamics of Dissociation Reactions as Detected by Overtone Spectroscopy	Research Corp.	20,000
	An Experimental Study of Large Amplitude Torsional Dynamics in Photochemical Isomerizations	ACS/PRF	20,000
Borch, Richard	Reduction of Toxicity in Cancer Chemotherapy	PHS/NCI	77,644
Bryant, Robert	Alkaline Earth Ion Nuclear Magnetic Resonance	PHS/NIGMS	42,527
	Cross Polarization NMR of Rare Spins in Protein Systems	PHS/NIGMS	35,296
	Solvent and Small Solutes in Tissue and Proteins	PHS/NIGMS	58,176
Carr, Peter	Novel LC Multielement Methods of Occupational Health	NIOSH	68,718
Crawford, Bryce	Vibrational Intensities and Band Shapes in Liquids	NSF	20,500
Dahler, John	Theory of High Energy Ion-Atom and Atom-Atom Collisions	NSF	43,809
	Theory of the Liquid-Vapor Interface	ACS/PRF	15,000
Dixon, David	Dynamics of Chemical Reactions	NSF	35,000
Ellis, John	The Synthesis and Chemistry of Organo-metallic Anions	NSF	50,300

Farneth, William	Infrared Laser Induced Organic Reactions	DOE	46,340
Fisher, Jed	Chemical Mechanisms of Reductive Metabolism	HEW	54,983
	Redox Chemistry of Arene Oxides	Research Corp	11,000
	Enzymatic Loci of Chlormaphenicol Action	ACS/PRF	10,000
Fristad, William	Synthetic and Mechanistic Studies of Organofluoro-silicates	Research Corp	12,300
	Manganese (III) in Organic Synthesis	ACS/PRF	10,000
Gassman, Paul	Purchase of High Field Multinuclear Nuclear Magnetic Resonance Equipment	NSF	146,000
	Stereospecific Functionalization of Aromatic Amines	NIH	43,060
	The Chemistry of Bent Bonds	NSF	79,992
Gentry, Ronald	Quantum Dynamics of Molecular Interactions	NSF	94,000
	Chemical Dynamics of Biomolecular Reactive Collisions	NSF	48,000
	Reactions of Ions with Atomic and Molecular Free Radicals	DOE	48,000
Gray, Gary	Antitumor Active Components of BCG Cell Walls	Nat'l Cancer Institute	100,993
Hexter, Robert	Surface Chemistry Studies Using Fluorescence Probes	DAAG	46,000
	Regional Instrumentation Facility for Surface Analysis	NSF	147,280
	Metal Surface Corrosion Studies Using Rama and SIMS Probes	DAAG	53,000

Hoye, Thomas	Synthesis of Anti-neoplastic Chemo-Therapeutic Agents	USPHS	63,041
Kolthoff, I. M.	Applications of Crown Ethers and Cryptands in Chemical Analysis	NSF	67,314
Kreevoy, Maurice	The Effect of Medium and Structure on Proton and Hydride Transfer	NSF	98,400
Leete, Edward	Metabolism of Natural Products of Medicinal Interest	NIH	85,335
Lipsky, Sanford	The Contribution of Electronically Excited States to the Radiation Chemistry of Organic Systems	DOE	80,000
Livinghouse, Tom	A Novel Synthesis of Vernolepin via Vinyl Boronate Esters	Research Corp	13,000
Mann, Kent/ Evans, John	A Study of Energy Conversion Devices Using Photoactive Organometallic Electrocatalysts	DOE/SERI/DE	56,868
Miller, Larry	Electrochemical Medicinal Syntheses	NSF	50,000
	Preparative Organic Plasma Chemistry	NSF/DAR	55,124
	Organic Electrochemistry	NSF	55,000
	Organic Electrode Surfaces	ACS/PRF	15,000
	Electrochemical Medicinal Synthesis	NIH	92,925
Miller, Wilmer	Cholesteric Biopolymer Liquid Crystals	NIH	58,174
Moscowitz, Al	Magnetic Circular Dichroism of Forbidden Transitions in Organic Molecules	NSF	78,404

Overend, John	The Contributions of FF Nonbonded Inter- actions to Vibrational Anharmonicity in SF ₆ CF ₄ and Related Molecules	NSF	30,700
Pignolet, Louis	Catalytic Thermal and Photochemical Decarbonylation Reactions and the Redox Photo- chemistry of Metal-Sulfur Complexes	NSF	43,000
Truhlar, Donald	Scattering Theory and Calculations for Chemical Reactions and Electron Impact Processes	NSF	50,000
	Variational Transition State Theory	DOE	37,000

INDUSTRIAL GRANTS TO THE DEPARTMENT

The following industrial organizations have made grants to the Department for fellowship and unrestricted use. Faculty and students greatly appreciate this support, for without it many deserving and talented students would not be able to complete successfully their research programs. This industrial support totaled \$89,500.

Amoco	\$7,500
Celanese	2,000
Dow	1,000
DuPont	28,000
Exxon	3,000
Henkel	3,000
Lubrizol	1,000
Merck	1,000
Mobil	4,000
Monsanto	1,000
Proctor & Gamble	6,500
SOhio	8,000
3M	20,500
Union Carbide	3,000

UNIVERSITY SPONSORED RESEARCH GRANTS TO THE FACULTY

Graduate School Grants to faculty members during calendar year 1980 totaled \$159,706 and were distributed as follows:

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Barany, George	A Mild Orthogonal Protection Scheme for Solid-Phase Peptide Synthesis	\$15,000
Barany, George/ Fisher, Jed/ Gray, Gary	Amino Acid and Peptide Analyzer Instrumentation	15,000
Barbara, Paul	Vibrational Dynamics of Chemical Reactions	20,000
Ellis, John	Direct Production of Organo-metallic Anions from "Naked" Transition Metal Anions Generated from Metal Atom Reductions	1,500
Fisher, Jed	Laboratory Set-up	7,000
Fristad, William	Laboratory Set-up	12,500
Gassman, Paul	Contribution from Graduate School for High-field NMR Spectrometer for School of Chemistry	50,000
Gladfelter, Wayne	Homogeneous Catalytic Hydrogenation of Aromatic Hydrocarbons	14,000
Gray, Gary	Structural Characterization of Host-Specific Pathotoxins from Helminthosporium Maydis and Their Site of Action in Southern Corn Leaf Blight	5,454
Livinghouse, Thomas	Laboratory Set-up	12,500
Mann, Kent	Catalysis of the Water Gas Shift Reaction in Homogeneous Solutions by Dinuclear Rhodium Isocyanide Complexes	3,000
Miller, Wilmer	Mechanism of Network Formation in Thermally Reversible Gels, Particularly Sickel Cell Hemoglobin	3,752

FACULTY TRIPS

Robert C. Brasted

- March 12-16 "The Foreign Students Guide -- A Resource for Foreign Students Wishing to Study in the United States", American Chemical Society International Activities Meeting, Houston, Texas
- August 21 - September 6 "Teaching Excellence by Committee Decree", Washington State University; "Chemistry of Heterocyclic Sulfur-Nitrogen Species and Thiazyls", University of Idaho; "From Yokohama to Leningrad via the Trans-Siberian Railroad - Catalysis in Akademgorodok", University of Idaho
- November 13-14 "Teaching Excellence by Committee Decree", "The Fine Line Between Basic and Applied Research Heterocyclic Sulfur-Nitrogen Compounds and Thiazyls" Award Address, James Flack Norris Award of the Northeastern Section of the American Chemical Society, Wellesley College, Boston, Massachusetts
- November 29 - December 6 "The Role of the American Chemical Society in International Activities", Global Seminar on Development, New Delhi, India

Robert G. Bryant

- January 10 "Multinuclear NMR in Biophysical Chemistry", St. Olaf College, Northfield, Minnesota
- March 20 "²⁵Mg NMR", Experimental NMR Conference, Tallahassee, Florida
- March 28 "Multinuclear NMR in Biophysical Chemistry", Montana State University, Bozeman
- May 18 - 23 "Multinuclear NMR in Biophysical Chemistry", NMR Symposium, University of Delaware, Newark
- May 29 "Recent Developments in Nonspin $\frac{1}{2}$ NMR", Iowa State University, Ames
- August 24 - 31 "²⁵Mg NMR Investigations of the Magnesium Ion-Polyelectrolyte Problem", American Chemical Society, Las Vegas, Nevada

Peter W. Carr

- March 24 "Fundamental and Analytical Applications of Immobilized Enzymes", Distinguished Lecturer Series Horizons in Analytical Chemistry, University of Denver
- April 1 "New Approaches to Chromatographic Solvent Theory", Purdue University, West Lafayette, Indiana
- September 26 - October 1 "Nonlinear Kinetic Effects in Flow Analysis", FACSS Meeting, Philadelphia, Pennsylvania
- October 1 "Flow Injection Analysis", DuPont Experiment Station, Wilmington, Delaware
- October 14 - 15 "New Approaches to Chromatographic Solvent Theory", University of Illinois, Urbana
- November 12 - 15 "Fundamental Aspects of Immobilized Enzymes in Analytical Chemistry", University of California, Riverside

Lawrence E. Conroy

- March 24 "Determination of Carbohydrates and Primary Amines in River Water", Division of Environmental Chemistry, American Chemical Society National Meeting, Houston, Texas

Bryce L. Crawford

- January 4 - 9 "Communicating Science" panel discussion, Advancement of Science Annual Meeting, San Francisco, California
- May 8 "Relaxation in Liquids Studied from Infrared Band Shapes", inaugural Paul C. Cross Memorial Lecture, University of Washington, Seattle
- August 4 - 7 Eulogy for Professor Takehiko Shimanouchi, VII International Conference on Raman Spectroscopy, Ottawa, California

John F. Evans

- January 25 "Routes to Chemically Modified Electrode Surfaces Using Nonequilibrium Plasma Chemistry", University of Arizona, Tucson

January 29	"Charge Transfer Photoelectrochemical Reduction of Alky Halides Using Plasma Polymerized Vinylferrocene Electrodes", Gordon Research Conference on Electro-Chemistry, Santa Barbara, California
February 14	"Multi-Technique Analysis of Chemically Modified Surfaces", Iowa State University, Ames
June 20	"Preparation, Characterization and Use of Plasma Polymerized Electroactive Polymer Electrodes", Solar Energy Research Institute, Golden, Colorado
August 12	"Sputtering Yields and Rates for Organic and Organometallic Thin Films", Gordon Research Conference on Analytical Chemistry, New Hampton, New Hampshire
October 3	"Matrix Effects in the Sputtering of Ni-Fe Alloys", Midwest Universities Analytical Chemistry Conference, Ames, Iowa
October 30	"Fundamentals of Surface Analytical Particle Spectroscopies and Their Application to the Analysis of Chemically-Modified Surfaces", Carleton College, Northfield, Minnesota

William E. Farneth

January 15	"Infrared Laser Chemistry of Cyclopropane Derivatives", 3M Company, St. Paul
August 18	"Infrared Laser-Induced Reactions of Cyclopropane Derivatives", IUPAC Physical-Organic Chemistry Meeting, Santa Cruz, California
August 21	"Infrared Laser-Induced Reactions of Bicyclopropyl", IBM Laser Chemistry Symposium, San Jose, California
September 23	"Infrared Multiphoton Activation of Organic Reactions: Principles and Prospects", Dow Chemical Company, Midland, Michigan

Jed Fisher

October 11- 17	"Recent Progress on the β -Lactamase", International Symposium on Biochemical Basis of Drug Action, Queretaro, Mexico
----------------	---

Paul G. Gassman

- January 22 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, University of Indiana,
Bloomington
- February 7 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Virginia Polytechnic
Institute and State University, Blacksburg,
Virginia
- February 15 "Factors Influencing Carbonium Ion Stability",
Lutz Lecturer, Department of Chemistry, Univer-
sity of Virginia, Charlottesville, VA
- April 21 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Georgia Institute of
Technology, Atlanta, Georgia
- April 22 "Recent Advances in the Synthesis and Reactions
of Highly Strained Ring Systems", Department of
Chemistry, Emory University, Atlanta, Georgia
- April 23 "Factors Influencing Carbonium Ion Stability",
Agricultural Chemical Research Center, American
Cyanamid Corporation, Princeton, New Jersey
- April 24 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Princeton University,
Princeton, New Jersey
- April 25 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Hope College, Holland,
Michigan
- July 23 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Northwestern University,
Evanston, Illinois
- July 25 "The Synthesis and Reactions of Bicyclo[1.1.0]-
butane Derivatives", "The Synthesis and Reactions
of (i,o)-Bicyclo[n.2.2]alkadiene Derivatives",
Department of Chemistry, Northwestern Univer-
sity, Evanston, Illinois
- July 30 "The Synthesis and Reactions of (i,o)-Bicyclo-
[n.2.2]alkadiene Derivatives", T. R. Evans
Research Center, Diamond Shamrock Corporation,
Painesville, Ohio
- August 25 "The Synthesis and Rearrangement of Highly
Strained Polycyclic Systems", Symposium on
Strained Ring Chemistry, 180th American
Chemical Society Meeting, Las Vegas, Nevada

November 5 "Factors Influencing Carbonium Ion Stability",
Research Laboratories, Union Carbide Corporation,
South Charleston, West Virginia

November 19 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, Rice University,
Houston, Texas

November 20 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, University of Texas,
Austin

November 21 "Factors Influencing Carbonium Ion Stability",
Department of Chemistry, University of Houston,
Texas

W. Ronald Gentry

April 24 "Molecular Dynamics of Experiments with Pulsed
Molecular Beams", Michigan Technological
University, Houghton, Michigan

August 17 - 31 "Few-Body Molecular Collisions", 1980 Inter-
National Conference on Few-Body Problem, Eugene
Oregon; "The Dynamics of Vibrational Predissoc-
iation of van der Waals Molecules, San Jose, CA

September 8 "Pulsed Molecular Beam Studies of Energy Trans-
fer Collisions and Unimolecular Fragmentation",
University of Waterloo, Ontario

October 8 "Pulsed Molecular Beam Experiments", Air Force
Office of Scientific Research, Cambridge,
Massachusetts

October 10 "Pulsed Molecular Beam Experiments", Brown
University, Providence, Rhode Island

October 20 "Pulsed Molecular Beam Studies of Fundamental
Unimolecular and Bimolecular Processes", Univer-
sity of Southern California

October 21 "Reactions of H_2^+ with First-Row Atoms", Univer-
sity of Southern California

October 22 "Pulsed Molecular Beam Experiments", University
of California, Irvine

October 23 "The Dynamics of the Reactions of H_2^+ with
First-Row Atoms", California Institute of
Technology

November 5 - 7 "Molecular Beam Studies of the Reactions of H_2^+
with First-Row Atoms", Midwest Regional American
Chemical Society Meeting, Lincoln, Nebraska

Wayne L. Gladfelter

- March 3 - 4 "Bi- and Polynuclear Isocyanide Complexes of Nickel", J. T. Baker Chemical Company, Phillipsburg, New Jersey
- March 23 - 26 "Synthesis and Reactivity of Mixed-Metal Clusters", National American Chemical Society Meeting, Houston, Texas
- June 25 - 27 "Metal Complexes of Sterically Congested Molecules. Synthesis and Characterization of Tricarbonyl (octamethylnaphthalene)-chromium(O)", 1980 National Science Foundation Organo-Metallic Chemistry Workshop, Northwestern University, Evanston, Illinois
- August 24 - 28 "Nitrosyl Carbonyl Clusters. Synthesis and Characterization of $[\text{FeRu}_3(\text{CO})_{12}\text{NO}]^-$ ", "Metal Complexes of Sterically Congested Molecules. Synthesis and Characterization of Tricarbonyl(octamethylnaphthalene)chromium-(O)", National American Chemical Society Meeting, Las Vegas, Nevada

Gary R. Gray

- March 23 "Chemistry of Immunostimulant Mycolic Acids", Department of Biochemistry, University of Minnesota, Duluth
- April 11 "Mycobacterial Agents in Cancer Immunotherapy", "Synthesis of Antibiotic Deoxysugars", Winona State University, Winona, Minnesota.
- May 1 "The Importance of Research in Undergraduate Education", "Mycobacterial Agents in Cancer Immunotherapy", Northern State College, Aberdeen, South Dakota
- June 1 "Structures of the Two Homologous Series of Dialkene Mycolic Acids from Mycobacterium smegmatis", American Society of Biological Chemists Meeting, New Orleans, Louisiana
- June 3 "Identification and Localization of Non-Carbohydrate Substituents in Polysaccharides", American Society of Biological Chemists Meeting, New Orleans, Louisiana

Robert M. Hexter

- June, 1980 "Surface Enhanced Raman Effect", University of Padua and University of Firenze, Italy

December 18 "The Surface Center at the University of Minnesota", 3M Company Technical Forum, St. Paul, Minnesota

Thomas R. Hoyer

March 6 "Natural Product Synthesis - Approaches to Quadron and Megaphone", St. Olaf College, Northfield, Minnesota

March 23 - 27 "Regio and Stereoselectivity in the Ene Reaction of N-Phenyl-1,2,4-triazoline-3,5-dione with α,β -Unsaturated Carbonyl Substrates", National American Chemical Society Meeting, Houston, Texas

July 14 - 18 "Total Synthesis of d,l-Ancistrofuran", Gordon Conference on Organic Reactions and Processes, New Hampton, New Hampshire

August 24 - 28 "Synthetic Approaches to Megaphone", National American Chemical Society Meeting, Las Vegas, Nevada

September 19 "Acyclic Stereocontrol in the Synthesis of Cyclic Natural Products", University of Wisconsin, Eau Claire

November 21 - 22 "Intramolecular Cycloaddition Reactions in Natural Product Synthesis", Hope College, Holland, Michigan

December 18 - 29 "Stereochemical Consequences of Remote Substituents in Intramolecular Cycloaddition Reactions", Rensselaer Polytechnic Institute and "Stereochemical Consequences of Kinetic vs. Thermodynamic Regulation in Natural Product Synthesis", General Electric Company's Research and Development Center, Cleveland, Ohio

Edward Leete

March 7 "Biosynthetic Studies Using ^{13}C -NMR", University of Illinois, Chicago Circle Campus, Department of Pharmacognosy

May 25 - 30 "Synthesis of Putative Precursors of Secondary Natural Products Labeled with Stable Isotopes - C-13 and N-15", 28th Annual Meeting of the American Society of Mass Spectrometry, New York

- June 9 - 11 "The Use of ^{13}C -NMR in Biosynthetic and Mechanistic Studies", 63rd Conference of the Chemical Institute of Canada, Ottawa
- September 21 - 27 "Biosynthesis of the Pyrrolidine Rings of Nicotine and Scopolamine from $[1-^{13}\text{C}, N\text{-methylamino-}^{15}\text{N}]\text{-N-methylputrescine}$ Studied by Means of ^{13}C -NMR", 12th IUPAC Meeting on the Chemistry of Natural Products, Tenerife, Spain
- October 2 "Recent Work on the Biosynthesis of Cocaine and the Tobacco Alkaloids", University of Leeds, Department of Organic Chemistry
- October 14 "The Biosynthesis and Biomimetic Synthesis of the Tobacco Alkaloids and Ethylene", University of Reading, Department of Botany
- October 21 "Recent Work on the Biosynthesis of Cocaine", Hofmann La-Roche Company, Basel, Switzerland
- October 28 "The Use of ^{13}C -NMR to Study Biosynthetic Pathways", University of Munich, Germany, Department of Plant Pathology
- November 3 - 5 "The Use of Nuclear Magnetic Resonance for Studying the Biosynthesis of Natural Products", 13th Congress of the Pharmaceutical Society of the DDR, Leipzig

Sanford Lipsky

- August 24 - 26 "Ionization and Excitation in Non-polar Fluids", Radiation Chemistry Symposium at the National American Chemical Society Meeting, Las Vegas, Nevada

Rufus W. Lumry

- September 1 - 14 "Interpretation of Calorimetric Data from Cooperative Systems", "Dynamical Aspects of Small-Molecule Protein Interaction", 6th Annual La Cura Conference, Rome, Italy
- May 18 - 31 "Some Ways to Use Thermodynamic Information to Characterize Linkage Systems", Biophysical Discussion on Proteins and Nucleoproteins, Airlie House, Virginia
- August 3 - 8 "Hydrophobic Hydration is Entropically Restricted", Haldeman School, New Hampshire

Larry L. Miller

- May 11 - 13 "Anodic Cleavage of Benzyl Ethers", Electro-Chemical Society Meeting, St. Louis, Missouri
- May 16 - 24 "Gas Phase Electrochemistry", EUCHEM Conference on Organic Electrochemistry, Rodez, France
- June 15 - July 5 "Two New Devices for Performing Organic Reactions", Gordon Conference on Radical Ions", Wolfsboro, New Hampshire; "Electrocatalysis of NADH Oxidations", Bendor, France
- September 10 - October 10 "Two New Devices for Performing Organic Reactions", Weizmann Institute, Rehovot, Israel
- November 1 - December 15 "Organic Electrochemistry, Hebrew University Jerusalem, Technion, Haifa, Ben-Gurion University - Beer Sheva, Makduslium Chemical Company - Beer Sheva, Weizmann Institute, Rehovot, Israel

Wilmer G. Miller

- January 16 "Adhesion of Vinyl Polymers to Oxide Surfaces", 3M Company, St. Paul, Minnesota
- March 19 "Some Aspects of Polypeptide Liquid Crystals", Kent State University, Liquid Crystal Institute, Kent, Ohio
- March 24 - 27 "Structure and Stability of Lyotropic Polypeptide Liquid Crystals", American Physical Society Meeting, New York City
- August 18 - 22 "Spin-Label Studies of Polymer Motion at or Near an Interface", Gordon Conference on the Science of Adhesion, New Hampton, New Hampshire
- September 12 "Polyamino Acid Lyotropic Liquid Crystals", University of Massachusetts
- October 27 - 31 "Applications of EPR to the Synthesis, Degradation, and Modification of Synthetic Polymers, and Their Adhesion to Solid Surfaces", Society for Applied Spectroscopy Conference, Chicago, Illinois
- December 16 "Polymeric Liquid Crystals", Dow Chemical Company, Midland, Michigan

Albert J. Moscowitz

- May 9 - 10 "A Charge Flow Model for the Interpretation of Vibrational Circular Dichroism", "Magnetic Circular Dichroism - Some Theoretical Consideration", 13th Annual Midwest Theoretical Conference, University of Minnesota
- June 4 - 6 "Vibrational Optical Activity", American Chemical Society Great Lakes Regional Meeting, Western Illinois University
- June 16 - 20 "The Role of Charge Flows in Vibrational Rotational Strengths", "The Vibrational Circular Dichroism of Some Alcohols", "Vibrational Analysis of a Series of Optically Active Deuterated Phenyl Ethanes" and "The Vibrational Circular Dichroism Spectra of Neopentyl Halides", 34th Annual Symposium on Molecular Spectroscopy, Ohio State University

Wayland E. Noland

- August 25 "2-Addition of Pyrroles to Dimethyl Acetylenedicarboxylate: Michael-Type Adducts and Diels-Alder Products", National American Chemical Society Meeting, Las Vegas, Nevada

John Overend

- January 17 "Surface Infrared Spectroscopy", SOhio, Cleveland, Ohio
- January 23 "Surface Infrared Spectroscopy", Georgia Tech, Atlanta, Georgia
- March 20 - 23 "An Infrared Spectroscopic Study of the Chemisorption of Nitric Oxide on Platinum, Illustrating a New Technique Suitable for High Temperature, High Pressure Applications in Surface Science", Iowa State University, Ames
- April 18 "IRRAS Spectroscopy of Low-area Surfaces", Dow Chemical Company, Midland, Michigan

Louis H. Pignolet

- January 2 "Homogeneous Catalysis Using Transition Metal Complexes", Carleton College, Northfield, Minnesota

March 25 "Synthesis, Structure and Reactivity Properties of Dithiocarbamate Complexes of Ruthenium and Osmium", National American Chemical Society Meeting, Houston, Texas

April 2 "Recent Advances in X-ray Crystallography", 3M Company, St. Paul, Minnesota

June 5 - 7 "The Effect of Chelating Diphosphine Ligands on Catalytic Decarbonylation Reactions Using Rhodium and Iridium Homogeneous Catalysts", 1980 Biennial Division of Inorganic Chemistry Symposium, Guelph, Ontario

August 4 - 8 "Synthesis, Reactivity and Structure of Several Polyhydride Cluster Complexes of Iridium", Inorganic Gordon Research Conference, New Hampton, New Hampshire

Stephen Prager

August 24 - 29 "Meeling of Polymer-Polymer Interfaces", National American Chemical Society Meeting, Las Vegas, Nevada

November 7 "Meeling of Polymer Interfaces", National Bureau of Standards, Boulder, Colorado

December 21 "Meeling of Polymer Interfaces", Weizmann Institute, Rehovot, Israel

December 29 "Voronoi Models of Microemulsion Systems", Weizmann Institute, Rehovot, Israel

Warren L. Reynolds

March 22 - 26 "Kinetic Studies of Demetallation of Tri-valent Metal-Porphin Complexes", National American Chemical Society Meeting, Houston, Texas

August 24 - 28 "Internal Return, Solvent Exchange and Ligation Reactions in a Transition State of Dissociative Interchange (I_d) Reaction", American Chemical Society Meeting, Las Vegas, Nevada

Donald G. Truhlar

March 25 "Rotational and Vibrational Energy Transfer in Electron-Diatom and Atom-Diatom Collisions", Division of Chemical Physics' Symposium on Inelastic Molecules, New York, New York

March 26	"Electrostatic Potentials for Electron Scattering: Test of Theoretical Models Against Experiment", National American Chemical Society Meeting, Houston, Texas
April 9	"Variational Transition State Theory", Purdue University, West Lafayette, Indiana
April 11	"Variational Transition State Theory", Yale University, New Haven, Connecticut
May 6	"Theory of Electron Scattering", Drake University, Des Moines, Iowa
May 9	"Variational Transition State Theory and Vibrationally Adiabatic Transmission Coefficients for Chemical Reaction Rates and Kinetic Isotope Effects", 13th Midwest Theoretical Chemistry Conference, University of Minnesota
September 26	"Variational Transition State Theory", University of New Orleans, Louisiana
October 7	"Variational Transition State Theory", University of Utah, Salt Lake City
October 20	"Variational Transition State Theory, Chemistry and Nuclear Chemistry", group seminar, Los Alamos Scientific Laboratory, Los Alamos, New Mexico
October 30	"Variational Transition State Theory", Combustion Research Contractors' Meeting, Argonne National Laboratory, Argonne, Illinois
 <u>Archie S. Wilson</u>	
April 9 - 10	"Plutonium, Friend or Foe?" University of Minnesota, Morris
November 5 - 9	"Procedures for the Diagnosis of Instruction Outcomes", Midwest American Chemical Society Regional Meeting, Lincoln, Nebraska

FACULTY PUBLICATIONS

"Kinetics and Mechanism of the Thiolytic Removal of the Dithiasuccinoyl (Dts) Amino Protecting Group", G. Barany and R. B. Merrifield, J. Am. Chem. Soc. 102, 3084-3095 (1980).

"The Mass Spectral Characterization of Dithiasuccinoyl (Dts) Amines and Amino Acids", G. Barany, D. V. Bowen, R. B. Merrifield, in "Proceedings of Twenty-Eighth Annual Conference on Mass Spectrometry and Allied Topics, New York, New York", pp. 692-693 (1980).

"The Explicit Analysis of Consecutive Pseudo-first-order Reactions: Application to Kinetics of Thiolysis of Dithiasuccinoyl (Dts) Amino Acids", G. Barany, Anal. Biochem. 109, 114-122 (1980).

"Direct Picosecond Observation of Condensed Phase Vibrational Relaxation", P. F. Barbara, P. M. Rentzepis, and L. E. Brus, J. Chem. Phys. 72, 6802 (1980).

"Photochemical Kinetics of Salicylidene Aniline", P. F. Barbara, P. M. Rentzepis and L. E. Brus, J. Amer. Chem. Soc. 102, 2786 (1980).

"Intramolecular Proton Transfer and Excited State Relaxation in 2-(2-hydroxyphenyl) Benzothiazole", P. F. Barbara, L. E. Brus and P. M. Rentzepis, J. Amer. Chem. Soc. 102, 5631 (1980).

"A Picosecond Time-Resolved Fluorescence Study of S-Tetrazine Vibrational Relaxation in Solution", P. F. Barbara, L. E. Brus, and P. M. Rentzepis, Chem. Phys. Lett. 69, 447 (1980).

"Practical Aspects of Quantitative CIDNP Using FT NMR", R. G. Lawler and P. F. Barbara, J. Magnetic Resonance 40, 135 (1980).

"Effect of Diethyldithiocarbamate Rescue on Tumor Response to cis-platinum in a Rat Model", R. F. Borch, J. C. Katz, P. H. Lièder and M. E. Pleasants, Proc. Natl. Acad. Sci. USA 77, 9, 5441 (1980).

"Directional Preferences of Approach of Nucleophiles to Sulfonium Ions", D. Britton and J. D. Dunitz, Helv. Chim. Acta 63, 1068-1073 (1980).

"Geometric Constraints on the Distortion of Planar Rings", D. Britton, Acta Cryst. B36, 2304-2305 (1980).

"¹⁷NMR Studies of Carbonic Anhydrase", K. D. Rose and R. G. Bryant, J. Amer. Chem. Soc. 101, 21 (1980).

"Can Proton NMR of Water Unambiguously Measure the Water-Iron Interaction in Hepatic Microsomal Cytochrome P-450", J. L. Holtzman, E. H. Jeffrey, R. G. Bryant, W. J. Cygan and R. P. Mason in Microsomes, Drug Oxidations and Chemical Carcinogens, M. J. Coon, A. H. Cooney, R. W. Estabrook, H. V. Gelboin, J. R. Gillette and P. J. O'Brien, eds., Academic Press, New York (1980).

"Water-Protein Interactions: NMR Results on Hydrated Lysozyme", R. G. Bryant and W. M. Shirley in Water in Polymers, S. P. Rowland, ed., ACS Symposium Series 127, pp. 147-156 (1980).

"Dynamical Deductions from NMR Measurements at the Water-Protein Interface", R. G. Bryant and W. M. Shirley, *Biophys. J.* 32, 3 (1980).

" ^{25}Mg NMR Applications to Problems in Biophysical Chemistry", D. M. Rose, L. Bleam, P. A. Tovo, T. M. Record, Jr., and R. G. Bryant in Biochemical Structure Determination by NMR, A. Bothner-By, J. Glickson and B. D. Sykes, eds., Marcel Dekker, Inc., New York (1980).

" ^{25}Mg NMR in DNA Solutions: Dominance of Site Binding Effects", D. M. Rose, M. L. Bleam, M. T. Record, Jr., and R. G. Bryant, *Proc. Natl. Acad. Sci. USA* 77, 6289 (1980).

"Immobilized Enzymes in Analytical Chemistry", L. D. Bowers and P. W. Carr, Chapter 4 in Advances in Biochemical Engineering by A. Fiechter, ed., Vol. 15, Springer-Verlag, Berlin (1980).

"Theoretical Evaluation of the Steady-State Response of Potentiometric Enzyme Electrodes", J. E. Brady and P. W. Carr, *Anal. Chem.* 52, 977 (1980).

"A Fundamental, Predictive Approach to Dipole-Dipole Interaction Based on the Solute's Dipole Moment and the Solvent's Dielectric Constant", P. W. Carr, *J. Chromatography* 194, 105 (1980).

"The Effect of Nonlinear Detector Response on the Peak Height, Area and Higher Statistical Moments of Chromatographic Peaks", P. W. Carr, *Anal. Chem.* 52, 1746 (1980).

"A Catalytic Thermochemical Unsegmented Flow System Based on the Iodide Catalyzed Cerium-Arsenic Reaction", J. M. Elvecrog and P. W. Carr, *Anal. Chim. Acta* 121, 135 (1980).

"Immobilized Enzymes in Analytical and Clinical Chemistry", P. W. Carr and L. D. Bowers, Vol. 53 in Chemical Analysis Series edited by P. J. Elving, J. D. Winefordner and I. M. Kolthoff, Wiley-Interscience, New York, 1980.

"Multicomponent UV Spectral Analysis of Aquatic Organics", W. J. Maier and L. E. Conroy, *Proc. International Congress on Analytical Techniques in Environmental Chemistry*, Barcelona, Spain, J. Albaiges, ed. (1980).

"Determination of Organically-Combined Chlorine in High Molecular Aquatic Organics", M. McCahill, L. E. Conroy and W. J. Maier, *Environ. Sci. and Tech.* 14, 201 (1980).

"Determination of Carbohydrates and Primary Amines in River Water", L. E. Conroy, W. J. Maier and Y. T. Shih, Chapter in Chemistry of Water Reuse, Vol. 1, Ann Arbor Science Publishers, Inc., Ann Arbor, Michigan (1980).

"Impact Parameter Theory for Quasi-One-Electron Systems: ns-np Excitation, Alignment and Orientation in $\text{Be}^+/\text{Mg}^+-\text{He/Ne}$ Collisions", S. E. Nielsen and J. S. Dahler, J. Phys. B: Atom. Molec. Phys. 13, 2435 (1980).

"Coherent Scattering Law for Dilute Polymer Solutions: Continued Fraction Formalizm", M. S. Jhon, S. Fesciyan, J. S. Dahler, J. Poly. Sci.: Poly. Phys. Ed. 18, 529-536 (1980).

"Dynamics of a Finite Harmonic Oscillator Chain with a Surface Impurity", J. Budimir, M. S. Jhon and J. S. Dahler, Surf. Sci. 93, 175-191 (1980).

"From the Zwanzig-Feshback Method to the Landau-Zener Approximation, a Systematic Time Dependent Approach", R. E. Turner and J. S. Dahler, J. Phys. B: Atom. Molec. Phys. 13, 161 (1980).

"Effects of Memory on the Coherent Scattering Function for the Rouse-Zimm Model of Dilute Polymer Solutions", S. Fesciyan, M. S. Jhon and J. S. Dahler, J. Polym. Sci., Polym. Phys. Ed. 18, 2077 (1980).

"Collisional Excitations in Quasi-Two-Electron Systems: Mg-He, Ne, Ar and Li, K-Na", S. E. Nielsen and J. S. Dahler, J. Phys. B: Atom. Molec. Phys. 13, 4441 (1980).

"Relative Proton Affinities of 1,6- $\text{C}_2\text{B}_4\text{H}_6$ and 2,4- $\text{C}_2\text{B}_5\text{H}_7$ ", D. A. Dixon, Inorg. Chem. 19, 593 (1980).

"The Electronic Structure of the Lithium Trimer Anion and Cation", J. L. Gole, R. H. Childs, D. A. Dixon and R. A. Eades, J. Chem. Phys. 71, 6368 (1980).

"The Electronic Structure of the Alkyl-lithium Clusters, $(\text{CH}_3\text{Li})_n$, $n=1-6$ and $(\text{C}_2\text{H}_5\text{Li})_n$, $n=1-2$ ", G. D. Graham, S. Richtsmeier and D. A. Dixon, J. Am. Chem. Soc. 102, 5759 (1980).

"The Electron Structure of the Germyl Anion GeH_3^- . A Comparison with Other AH_3^- Species", R. A. Eades and D. A. Dixon, J. Chem. Phys. 71, 3309 (1980).

"Mesomeric Stabilization of Carbonium Ions by α -Cyano Groups. A Theoretical Evaluation of Inductive Versus Resonance Effects of the Cyano Moiety", D. A. Dixon, P. A. Charlier and P. G. Gassman, J. Am. Chem. Soc. 102, 3957 (1980).

"The Theoretical Prediction of the Vibrational Spectra of Group IB Trimers", S. Richtsmeier, D. A. Dixon and J. L. Gole, Proc. Natl. Acad. USA 77, 5611 (1980).

"The Proton Affinity of Ammonia. A Theoretical Determination", R. A. Eades, K. Scanlon, M. R. Ellenberger, D. A. Dixon and D. S. Marynick, J. Phys. Chem. 84, 2840 (1980).

"Synthesis and Properties of Triphenylphosphinepentacarbonylvandadium(O)", J. E. Ellis, R. A. Faltynek, G. L. Rockfort, R. E. Stevens and G. Zank, Inorg. Chem. 19, 1082 (1980).

- "Probing the Structure of Silanized Surfaces with Secondary Ion Mass Spectrometry and Thin-Film Analysis", M. R. Ross and J. F. Evans, in "Silylated Surfaces", D. E. Leyden and W. Collins, eds., Gordon and Breach Science Publishers, New York (1980).
- "The Physical and Chemical Characterization of Electrochemically Reformed Silver Surfaces", J. F. Evans, M. G. Albrecht, D. M. Ullevig, and R. M. Hexter, *J. Electroanal. Chem.* 106, 209 (1980).
- "EC Catalysis of Ascorbic Acid Oxidation Using Plasma Polymerized Vinylferrocene Film Electrodes", M. F. Dautartas and J. F. Evans, *J. Electroanal. Chem.* 109, 301 (1980).
- "Measurement of Sputtering Yields and Ion Beam Damage to Organic Thin Films Using the Quartz Crystal Microbalance", D. M. Ullevig and J. F. Evans, *Anal. Chem.* 52, 1467 (1980).
- "Photoassisted Electrocatalytic Reduction of Chloroform and Carbon Tetrachloride Using Plasma Polymerized Vinylferrocene Film Electrodes", M. F. Dautartas, K. R. Mann and J. F. Evans, *J. Electroanal. Chem.* 110, 379 (1980).
- " β -Lactamase Proceeds via an Acyl-Enzyme Intermediate: The Interaction of the *E. coli* RTEM Enzyme with Defoxitin", J. Fisher, J. Belasco, S. Khosla and J. R. Knowles, *Biochem.* 19, 2895-2901 (1980).
- " β -Lactamase Inactivation by Mechanism-Based Reagents", J. Fisher, J. Belasco, R. Charnas, S. Khosla and J. R. Knowles, *Phil. Trans. R. Soc. Lond. B.* 289, 309-319 (1980).
- "Silanes in Organic Synthesis. 8. Preparation of Vinylsilanes from Ketones and Their Regiospecific Cyclopentenone Annulation", L. A. Paquette, W. E. Fristad, D. S. Dime, and T. R. Bailey, *J. Org. Chem.* 45, 3017-3028 (1980).
- "Silanes in Organic Synthesis. 9. Enesilylation as a Method for 1,2-Carbonyl Migration within Ketones and for Conversion to 1,2-Transposed Allylic Alcohols", W. E. Fristad, T. R. Bailey and L. A. Paquette, *J. Org. Chem.* 45, 3028-3037 (1980).
- "The α -Cyano Group as a Substituent in Solvolysis Reactions. An Evaluation of Inductive Destabilization vs. Mesomeric Stabilization of Cations by the Cyano Moiety", P. G. Gassman and J. J. Talley, *J. Am. Chem. Soc.* 1-2, 1214 (1980).
- "Mesomeric Stabilization of Carbonium Ions by α -Cyano Groups. A Theoretical Evaluation of Inductive vs. Resonance Effects of the Cyano Moiety", D. A. Dixon, P. A. Charlier and P. G. Gassman, *J. Am. Chem. Soc.* 102 3957 (1980).
- "The Addition of Methyllithium to 2,2,4,4-Tetramethylcyclobutan-1-one-3-thione. The Generation and Capture of a Bishomoenolate Anion", P. G. Gassman and M. J. Mullins, *Tetrahedron Lett.*, 2219 (1980).

- "The Effect of α -Cyano Groups on Neighboring Group Participation in Carbonium Ion Reactions", P. G. Gassman and J. J. Talley, J. Am. Chem. Soc. 102, 4138 (1980).
- "Base Treatment of Benzylic Selenonium Salts. [2,3]-Sigmatropic Rearrangements vs. Nucleophilic Displacement", P. G. Gassman, T. Miura, and A. Mossman, J.C.S., Chem. Commun., 558 (1980).
- "A General Approach to Small [n]Paracyclophanes", P. G. Gassman, T. F. Bailey and R. C. Hoyer, J. Org. Chem. 45, 2923 (1980).
- "The Reaction of 1-Chloro-2-alkylcycloalkenes with Organolithium Reagents. A Novel Cyclopropanation Reaction Involving the Generation of Carbenes from Vinyl Halides", P. G. Gassman, J. J. Valcho, G. S. Proehl, and C. F. Cooper, J. Am. Chem. Soc. 102, 6519 (1980).
- "[3.1.1]Propellane", P. G. Gassman and G. S. Proehl, J. Am. Chem. Soc. 102, 6862 (1980).
- "Synthesis and Reactions of 2-Lithio-3-chlorobicyclo[2.2.1]hept-2-ene. Generation of the Trimers of Bicyclo[2.2.1]hept-2-yne", P. G. Gassman and I. Gennick, J. Am. Chem. Soc. 102, 6863 (1980).
- "Solvolysis of Adamantanone Cyanohydrin Sulfonates. An Evaluation of H/ α -CN Versus H/ β -CN Rate Ratios", P. G. Gassman, K. Saito, and J. J. Talley, J. Am. Chem. Soc. 102, 7613 (1980).
- "Temperature Effects on the Bromination of 2-Bromobicyclo[2.2.1]hept-2-ene. The Synthesis of 2,3-Dibromobicyclo[2.2.1]hept-2-ene", P. G. Gassman and I. Gennick, J. Org. Chem. 45, 5211 (1980).
- "Pulsed Molecular Beam Experiments", W. R. Gentry, in Invited Papers of the XI International Conference on the Physics of Electronic and Atomic Collisions, North-Holland, Amsterdam (1980).
- "Pulsed Molecular Beams - A Promising Tool for the Study of Molecular Dynamics and Structure", W. R. Gentry, Comments on At. Mol. Phys. IX, 113 (1980).
- "Synthesis of Tetranuclear Mixed-Metal Clusters Via the Reaction of $[\text{Co}(\text{CO})_4]^-$ with Closed Metal Carbonyl Trimers. Crystal and Molecular Structure of $[(\text{Ph}_3\text{P})_2\text{N}][\text{CoRu}_3(\text{CO})_{13}]$ ", P. C. Steinhardt, W. L. Gladfelter, A. D. Harley, J. R. Fox and G. L. Geoffroy, Inorg. Chem. 19, 332 (1980).
- "Reaction of Tetranuclear Mixed-Metal Clusters with Carbon Monoxide", J. R. Fox, W. L. Gladfelter and G. L. Geoffroy, Inorg. Chem. 19, 2574 (1980).
- "Molecular Dynamics of Mixed-Metal Cluster. ^{13}C and ^1H NMR Studies of $\text{H}_2\text{FeRu}_3(\text{CO})_{13}$, $\text{H}_2\text{FeRu}_2\text{Os}(\text{CO})_{13}$, and $\text{H}_2\text{FeRuOs}_2(\text{CO})_{13}$ ", W. L. Gladfelter and G. L. Geoffroy, Inorg. Chem. 19, 2579 (1980).
- "A Binuclear Nickel(II) Encapsulating Agent for Chloride and Bromide Ions", W. L. Gladfelter and H. B. Gray, J. Am. Chem. Soc. 102, 5909 (1980).

- "Synthesis and Spectroscopic Characterization of $H_3CoRu_3(CO)_{12}$. Crystal and Molecular Structure of the C_3V Isomer", W. G. Gladfelter, G. L. Geoffroy and J. C. Calabrese, *Inorg. Chem.* 19, 2569 (1980).
- "Sulfenyl Transfer Rearrangement of Sulfenimines (Thiooximes). A Novel Synthesis of 7 α -Methoxy Cephalosporins and 6 α -Methoxy Penicillins", E. M. Gordon, H. W. Chang, C. M. Cimarusti, B. Toeplitz, and J. Z. Gougoutas, *J. Am. Chem. Soc.* 102, 1960 (1980).
- "The Crystal Structure of Potassium Phthalate Monohydrate", J. Z. Gougoutas, W. H. Ojala, and J. A. Miller, *Cryst. Struc. Comm.* 9, 519 (1980).
- "The Crystal Structure of (Z)-2,3-Dihydro-N-Methyl-2-(4-nitrobenzoylmethylene)benzothiazole", J. Z. Gougoutas, *Cryst. Struc. Comm.* 9, 529 (1980).
- "The Crystal Structure of 2-((Hydroxymethoxy)Methyl)Thio)Pyridine, 1-oxide", R. D. Haugwitz, B. Toeplitz, and J. Z. Gougoutas, *Cryst. Struc. Comm.* 9, 937 (1980).
- "2-Deoxy-D-arabino-hexose, 2-Deoxy-D-lyxo-hexose and Their 2(R)-Deuterio Analogs", M. Y. H. Wong and G. R. Gray, *Carbohydr. Res.* 80, 87-98 (1980).
- "Phase I Study of Intralesional Immunotherapy with Oil-Attached *Mycobacterium smegmatis* Cell Wall Skeleton and Trehalose Dimycolate", G. Vosika, J. Schmidtke, A. Goldman, R. Parker, E. Ribí and G. R. Gray, *Cancer Immunol. Immunother.* 7, 221-224 (1980).
- "Affinity Chromatography", G. R. Gray, *Anal. Chem.* 52, 9R-15R (1980).
- "The Physical and Chemical Characterization of Electrochemically Reformed Silver Surfaces", J. F. Evans, M. G. Albrecht, D. M. Ullevig, and R. M. Hexter, *J. Electroanal. Chem.* 106, 209 (1980).
- "X-Ray Microscopy of Thin Muscle Sections", R. M. Hexter, *Ann. N.Y. Acad. Sci.* 342, 330 (1980).
- "The Molecular Dipole Model for Surface Adsorbed Molecules", H. F. Nichols and R. M. Hexter, *J. Chem. Phys.* 73, 965 (1980).
- "Preparation of β -Hydroxy- α -phenylthioesters via Condensation of Aldehydes with α -Phenylthioester Enolate Anions", T. R. Hoyer, M. J. Kurth, *J. Org. Chem.* 45, 3549 (1980).
- "Regio- and Stereoselectivity in the Ene Reaction of N-Phenyl-2,4-triazoline-3,5-diones with α,β -Unsaturated Carbonyl Substrates", T. R. Hoyer, K. J. Bottorff, A. J. Caruso, J. F. Dellaria, *J. Org. Chem.* 45, 4287 (1980).
- "Effect of Temperature on Catalytic Hydrogen Currents of Native and Modified Bovine Serum Albumin", I. M. Kolthoff and S. Kihara, *Collect. Czech. Chem. Commun.* 45, 669-678 (1980).

"Transfer Activity Coefficients in Various Solvents of Several Univalent Cations Complexed with Dibenzo-18-crown-6", I. M. Kolthoff and M. K. Chantooni, Jr., Anal. Chem. 52, 1039-1044 (1980).

"Transfer Activity Coefficients of Alkali, Silver, Thallium(I), Chloride and Picrate Ions between Methanol and Propylene Carbonate", M. K. Chantooni, Jr., and I. M. Kolthoff, J. Chem. Engineering Data, 25:3, 208-211 (1980).

"Relationship between Transfer Activity Coefficients, S_1 , S_2 , of Cryptate 2.2.2 Complexes and Their Stability Constant in Various Solvents", I. M. Kolthoff and M. K. Chantooni, Jr., Proc. Natl. Acad. Sci. USA 77, 5040-5042 (1980).

"Use of a pH Difference to Pump an Anion Across a Non-aqueous Phase", P. F. Thelander, L. A. Hasledalen and M. M. Kreevoy, Chem. Ed. 57, 509-511 (1980).

"Structures and Isotopic Fractionation Factors of Complexes, $A_1HA_2^{-1}$ ", M. M. Kreevoy and T. M. Liang, J. Am. Chem. Soc. 102, 3315-3322 (1980).

"The Rate of Decomposition of $NaBH_4$ in Basic Aqueous Solutions", M. M. Kreevoy and R. W. Jacobson, Ventron Alembic, Issue #15, page 2.

"Biosynthesis of Alkaloids", E. Leete, Biosynthesis 6, 120-234 (1980).

"Biosynthesis of the Hemlock Alkaloids and other Alkaloids Studied with Isotopes", E. Leete, Archia Tis Pharmakeutikis 34, 20-31 (1980).

"Stereospecificity of Enzymatic Dehydrogenation during Tiglate Biosynthesis", R. K. Hill, S.-W. Rhee, E. Leete, B. A. McGaw, J. Am. Chem. Soc. 102, 7344-7348 (1980).

"The Use of ^{13}C NMR in the Study of the Biosynthesis of Natural Products, Especially Alkaloids", E. Leete, Rev. Latinoamer. Quim. 11, 8-16 (1980).

"The Incorporation of Ornithine-[2,3- $^{13}C_2$] into Nicotine and Nornicotine established by NMR", E. Leete and M.-L. Yu, Phyto-Chemistry 19, 1093-1097 (1980).

"The Alkaloids, Alkaloids Derived from Ornithine, Lysine and Nicotinic Acid", E. Leete, Encyclopedia of Plant Physiology, New Series, Vol. 8. Secondary Natural Products, Edited by E. A. Bell and B. V. Charlwood, pp. 65-91, Springer-Verlag (1980).

"Incorporation of [2- ^{14}C , 2', 3'- $^{13}C_2$]Tryptophan in Vindoline Established by ^{13}C NMR", E. Leete, J. Nat. Products 43, 130-135 (1980).

"Mechanism of the Formation of Quinoline from N-Methylacetanilide Studies Using ^{13}C -Labeled Substrates", E. Leete, Canad. J. Chem. 58, 1806-1809 (1980).

- "Biosynthesis of Cocaine and Cuscohygrine in Erythroxylon coca", E. Leete, J. Chem. Soc. Chem. Commun., 1170-1171 (1980).
- "A Comparison of the Effects of n-perfluorohexane on the Fluorescence and Photoionization Quantum Yields of TMPD", K. Lee and S. Lipsky, Radiat. Phys. Chem. 15, 305 (1980).
- "Comment on Photoionization of Organic Molecules in Liquid Media", H. Choi and S. Lipsky, Radiat. Phys. Chem., Sept. 1980.
- "Dynamical Aspects of Small Molecule Protein Interaction". R. Lumry, Bioenergetics and Thermodynamics: Model Systems. D. Reidel Publishers, London, ed. by A. Braibanti, 435-452 (1980).
- "Interpretation of Calorimetric Data from Cooperative Systems", R. Lumry, Bioenergetics and Thermodynamics: Model Systems. D. Reidel Publishers, London, ed. by A. Braibanti, 435-452 (1980).
- "Some Ways to Use Thermodynamic Information to Characterize Linkage Systems", R. Lumry, E. Battistel and C. Jolicœur. Proteins and Nucleoproteins: Structure, Dynamics and Assembly. Biological Discussions. Biophysical Journal 32, 648-655 (1980).
- "X-Ray Structural Characterization of $H_3[Rh_4(bridge)_8Cl]_4 \cdot nH_2O$. The Photoactive Species in the Production of Hydrogen from Aqueous Solutions", K. R. Mann, M. J. DiPierro and T. P. Gill, J. Am. Chem. Soc. 102, 3965 (1980).
- "The Photochemical Generation of a Reactive Transition Metal Fragment. The Photochemically Induced Arene Replacement Reactions of the $FeCp(p\text{-xylene})^+$ ", T. P. Gill and K. R. Mann, Inorg. Chem. 19, 3007 (1980).
- "Solar Energy Storage Reactions. Thermal and Photochemical Redox Reactions of Polynuclear Rhodium Isocyanide Complexes", I. S. Sigal, K. R. Mann and H. B. Gray, J. Am. Chem. Soc. 102, 7252 (1980).
- "Photoassisted Electrocatalytic Reduction of Chloroform and Carbon Tetrachloride Using Plasma Polymerized Vinylferrocene Film Electrodes", M. F. Dautartas, K. R. Mann and J. F. Evans, J. Electroanal. Chem. 110, 379 (1980).
- "Crystal Structure Analyses of $Rh_2(bridge)_4(BPh_4)_2 \cdot CH_3CN$ and $Rh_2(TM4\text{-}bridge)_4(PF_6)_2 \cdot CH_3CN$. Further Electronic Spectral Studies of Binuclear Rhodium(I) Isocyanide Complexes", K. R. Mann, J. A. Thich, R. A. Bell, C. L. Coyle and H. B. Gray, Inorg. Chem. 19, 2462 (1980).
- "Comment on the Recent Controversy over the Theory of Chirality Functions", C. A. Mead, Theoret. Chim. Acta (Berlin) 54, 165 (1980).
- "Superposition of Reactive and Nonreactive Scattering Amplitudes in the Presence of a Conical Intersection", C. A. Mead, J. Chem. Phys. 72, 3839 (1980).
- "Comment on 'Detection of Spurious Avoided Crossings'", C. A. Mead, J. Chem. Phys. 72, 6817 (1980).

"The Molecular Aharonov-Bohm Effect in Bound States", C. A. Mead, Chem. Phys. 49, 23 (1980).

"Electronic Spin-Orbit Interaction and the Molecular Aharonov-Bohm Effect", C. A. Mead, Chem. Phys. 49, 33 (1980).

"Some Comments on the Possibility of Achieving Asymmetric Synthesis from Achiral Reactants in a Rotating Vessel", C. A. Mead, A. Moscovitz, J. Am. Chem. Soc. 102, 7301 (1980).

"The Permutation Group in Physics and Chemistry", C. A. Mead, J. Am. Chem. Soc. 102, 7624 (1980).

"Direction Cyanation of Aromatics", Y.-H. So and L. L. Miller, J. Am. Chem. Soc. 102, 7112-7120 (1980).

"An Electrode Modified with Polymer-Bound Dopamine Which Catalyzes NADH Oxidation", C. Degrand and L. L. Miller, J. Am. Chem. Soc. 102, 5728 (1980).

"A Poly-p-nitrostyrene on Platinum Electrode. Polymer Charging Kinetics and Electrocatalysis of Organic Dihalide Reductions", J. B. Kerr, M. R. Van De Mark and L. L. Miller, J. Am. Chem. Soc. 102, 3383 (1980).

"Mechanism of Anodic Cleavage of Benzyl Ethers", J. W. Boyd, P. W. Schmalzl and L. L. Miller, J. Am. Chem. Soc. 102, 3856 (1980).

"Oxidative Coupling Reactions Using Silica-Bound Ferric Chloride", L. L. Miller, T. C. Jemphy and Y. Mazur, J. Org. Chem. 45, 749 (1980).

"Oxidation of Silylhydroquinone Silyl Ethers to Quinones", R. F. Stewart and L. L. Miller, J. Am. Chem. Soc. 102, 4999 (1980).

"Conformation and Mobility of Adsorbed Polymers by ESR Spectroscopy" T. M. Liang, P. N. Dickson and W. G. Miller in Polymer Characterization by ESR and NMR, A. E. Woodward and F. A. Bovey, eds., ACS Symposium Series 142, Washington, DC, p. 142 (1980).

"Spin Label Studies of Polymer Motion at or Near an Interface in Molecular Motion in Polymers by ESR", W. G. Miller, W. T. Rudolph, Z. Veksli, D. L. Coon, C. C. Wu and T. M. Liang; R. F. Boyer and S. E. Keinath, eds., Harwood Academic Publishers, New York (1980).

"On the Roles of Liquid Crystals and Micelles in Lowering Interfacial Tension", E. I. Franses, J. E. Puig, Y. Talmon, W. G. Miller, L. E. Scriven and H. T. Davis, J. Phys. Chem. 84, 1547 (1980).

"Nature of Large Aggregates in Supercooled Aqueous Solutions of Sodium Dodecyl Sulfate", E. I. Franses, J. T. Davis, W. G. Miller and L. E. Scriven, J. Phys. Chem. 84, 2413 (1980).

"Cycloaddition Reactions of Indenes. I. Adducts of 1H-Indene-3-carboxylic Acid with Ethylenic Dienophiles", W. E. Noland, L. Landucci and V. Kameswaran, J. Org. Chem. 45, 3456-3461 (1980).

- "Cycloaddition Reactions of Indenes. 2. Reactions with Dimethyl Acetylenedicarboxylate and Maleic Anhydride", W. E. Noland, V. Kameswaran and L. L. Landucci, *J. Org. Chem.* 45, 4564-4572 (1980).
- "2-Addition of Pyrroles to Dimethyl Acetylenedicarboxylate: Michael-Type Adducts and Diels-Alder Products", W. E. Noland and C. K. Lee, *J. Org. Chem.* 45, 4573-4582 (1980).
- "Preparation and Bromination of a 3a,6-Dihydroindole", W. E. Noland, K. J. Kim, C. K. Lee, S. K. Bae and C. S. Hahn, *J. Org. Chem.* 45, 4582-4584 (1980).
- "Infrared Spectra of NO Adsorbed on a Low-Area Pt Surface in the Presence of High-Pressure Gas-Phase NO", D. S. Dunn, W. G. Golden, M. W. Severson and J. Overend, *J. Phys. Chem.* 84, 336 (1980).
- "Infrared Spectra of ^{14}NO and ^{15}NO on a Low-Area Pt Surface at Elevated Temperatures", D. S. Dunn, M. W. Severson, W. G. Golden, and J. Overend, *J. Catalysis* 65, 271 (1980).
- "Oxidative Addition of Acid Chlorides to Cationic Rhodium(I) Complexes of Chelating Diphosphines", M. F. McGuiggan, D. H. Doughty and L. H. Pignolet, *J. Organometallic Chemistry* 185, 241 (1980).
- "The Crystal and Molecular Structure of the Novel Mixed-Valence Complex μ -bis(N,N-Diethyldithiocarbamato)-bis(n,N-diethyldithiocarbamato)dicarbonyl diruthenium(II,III) Tetrafluoroborate", L. H. Pignolet and S. H. Wheeler, *Inorg. Chem.* 19, 935 (1980).
- "Chemical and Electrochemical and Structural Properties of Some Novel Dithiocarbamato Complexes of Osmium(IV)", S. H. Wheeler, and L. H. Pignolet, *Inorg. Chem.* 19, 972 (1980).
- "Cationic Polyhydride Cluster Complexes of Iridium with Chelating Diphosphine Ligands. X-Ray Crystal and Molecular Structures of $[\text{Ir}_2(\text{H})_5(\text{DPPP})_2](\text{BF}_4)$ and $[\text{Ir}_3(\text{H})_7(\text{DPPP})_3](\text{BF}_4)_2$ and their Dynamic NMR Properties", H. H. Wang and L. H. Pignolet, *Inorg. Chem.* 19, 1470 (1980).
- "Chemical and X-Ray Structural Properties of Bio(bis(diphenylphosphino)methane)carbonylrhodium(I) Tetrafluoroborate", L. H. Pignolet, S. C. Nowicki and A. L. Casalnuovo, *Inorg. Chem.* 19, 2171 (1980).
- "Formazanyl Palladium Compounds. Synthesis and Structure of Bis(1,3,5-Tri-p-Tolylformazanyl)Palladium", A. R. Siedle and L. H. Pignolet, *Inorg. Chem.* 19, 2052 (1980).
- "Carbonyl Adducts of Bis(1,4-bis(diphenylphosphino)butane)rhodium-(I) Cation. Crystalline and Molecular Structure of $[\text{Rh}_2(\text{DPPP})_3(\text{CO})_4](\text{PF}_6)_2$ ", L. H. Pignolet, D. H. Doughty, S. C. Nowicki, M. P. Anderson and A. L. Casalnuovo, *J. Organomet. Chem.* 202, 211 (1980).

"Synthesis and Reactivity of Several Trithiocarbamate Complexes of Osmium(III) and the Crystalline and Molecular Structures of $[\text{Os}_2(\text{S}_3\text{CNMe}_2)_2(\text{S}_2\text{CNMe}_2)_3]\text{PF}_6$ and $\text{Os}_3(\text{S}_5)(\text{S}_3\text{CNEt}_2)_3$ ", L. J. Maheu and L. H. Pignolet, J. Am. Chem. Soc. 102, 6346 (1980).

"Diffusion Controlled Reactions on (2-1)lattice", S. Prager and H. L. Frisel, J. Chem. Phys. 72, 2941 (1980).

"Macromolecules in Nonhomogeneous Velocity Gradient Fields", S. Prager, W. J. H. Aubert and M. Tirrell, J. Chem. Phys. 73, 4103 (1980).

"Solvent Exchange and Anation of (Dimethyl sulfoxide)pentaammine-cobalt(III) Perchlorate in Dimethyl Sulfoxide", W. L. Reynolds and M. Seif El-Nasr, Inorg. Chem. 19, 1006 (1980).

"Demetallation of $\alpha, \beta, \sigma, \delta$ -Tetrakis(p-sulfophenyl-porphiniron(III) in Mineral Acid-Alcohol-Water Media", W. L. Reynolds, K. Kooda, B. Florine, N. Johnson and K. Theilman, International J. Chem. Kin. 12, 97 (1980).

"Spectroelectrochemical Method for Studying the Redox Properties of Flavoenzymes", M. T. Stankovich, Extended Abstracts, Electrochemical Society, 157th Meeting, Spring 1980.

"Confirmation of Thermodynamic Theory for Dilute Molten Alloys, Both Ordered and Random", H. S. Swofford, G. Elliott and D. Conant, High Temp. Science, 1980.

"Investigation of the Assumptions of the Multiple-Scattering Method for Electron-Molecule Scattering Cross Sections", J. R. Rumble and D. G. Truhlar, J. Chem. Phys. 72, 3206-3210 (1980).

"Variational Transition State Theory. Primary Kinetic Isotope Effects for Atom Transfer Reactions", B. C. Garrett and D. G. Truhlar, J. Am. Chem. Soc. 201, 2559-2570 (1980).

"Comparison of Local-Exchange Approximations for Intermediate-Energy Electron-Molecule Differential Cross Sections", K. Onda and D. G. Truhlar, J. Chem. Phys. 72, 1415-1417 (1980).

"Generalized Transition State Theory. Calculations for the Reactions $\text{D} + \text{H}_2$ and $\text{H} + \text{D}_2$ Using an Accurate Potential Energy Surface: Explanation of the Kinetic Isotope Effect", B. C. Garrett and D. G. Truhlar, J. Chem. Phys. 72, 3460-3471 (1980).

"State-to-State Cross Sections for Elastic and Inelastic Electron Scattering by N_2 at 20-35 eV, Including Resonant Enhancement of Vibrational Excitation", K. Onda and D. G. Truhlar, J. Chem. Phys. 72, 5249-5262 (1980).

"Improved Canonical Variational Theory for Chemical Reaction Rates. Classical Mechanical Theory and Applications to Collinear Reactions", B. C. Garrett and D. G. Truhlar, J. Phys. Chem. 84, 805-812 (1980).

- "Matrix Effective Potential for Electronic Response in Electron Scattering with Application to He at 30-400 eV Impact Energy", D. G. Truhlar and K. Onda, *Physics Lett.* 76A, 119-120 (1980).
- "Comparison of Local Exchange Potentials for Electron-N₂ Scattering", J. R. Rumble, Jr. and D. G. Truhlar, *J. Chem. Phys.* 72, 5223-5227 (1980).
- "New Approaches to the Quantum Mechanical Treatment of Charge Polarization in Intermediate-Energy Electron Scattering", K. Onda and D. G. Truhlar, *Phys. Rev. A* 22, 86-100 (1980).
- "Comparison of Convergence for the Schwinger, Optimized Anomaly-Free and Optimized Minimum-Norm Variational Methods for Potential Scattering", D. Thirumalai and D. G. Truhlar, *Chem. Phys. Lett.* 70, 330-335 (1980).
- "Improved Treatment of Threshold Contributions in Variational Transition State Theory", B. C. Garrett, D. G. Truhlar, R. S. Grev, and A. W. Magnuson, *J. Phys. Chem.* 84, 1730-1748 (1980).
- "Application of Variational Transition State Theory and the Unified Statistical Model to $H + Cl_2 \rightarrow HCl + Cl$ ", B. C. Garrett, D. G. Truhlar, and R. S. Grev, *J. Phys. Chem.* 84, 1749-1752 (1980).
- "Comparison of Variational Transition State Theory and the Unified Statistical Model and Vibrationally Adiabatic Transmission Coefficients to Accurate Collinear Rate Constants for $T + HD \rightarrow TH + D$ ", B. C. Garrett, D. G. Truhlar, R. S. Grev and R. B. Walker, *J. Chem. Phys.* 73, 235-240 (1980).
- "Quantum Mechanical Study of Elastic Scattering and Rotational Excitation of CO by Electrons", K. Onda and D. G. Truhlar, *J. Chem. Phys.* 73, 2688-2695 (1980).
- "New Version of Program for Calculating Differential and Integral Cross Sections for Quantum Mechanical Scattering Problems from Reactance and Transition Matrices", K. Onda, D. G. Truhlar and M. A. Brandt, *Computer Phys. Commun.* 21, 97-108 (1980).
- "Variational Transition State Theory, Vibrationally Adiabatic Transmission Coefficients, and the Unified Statistical Model Tested Against Accurate Quantal Rate Constants for Collinear $F + H_2$, $H + F_2$, and Isotopic Analogs", B. C. Garrett, D. G. Truhlar, R. S. Grev, A. W. Magnuson and J. N. L. Connor, *J. Chem. Phys.* 73, 1721-1728 (1980).
- "Use of Vibrationally Adiabatic Basis Functions for Inelastic Atom-Molecule Scattering", N. M. Harvey and D. G. Truhlar, *Chem. Phys. Lett.* 74, 252-256 (1980).
- "SCF-CI Calculations for Vibrational Eigenvalues and Wavefunctions of Systems Exhibiting Fermi Resonance", T. C. Thompson and D. G. Truhlar, *Chem. Phys. Lett.* 75, 87-90 (1980).
- "Excitation of the Asymmetric Stretch Mode of CO₂ by Electron Impact", D. Thirumalai, K. Onda and D. G. Truhlar, *J. Phys. B* 13, L619-L622 (1980).

"Quasiclassical Trajectory Calculations and Quantal Wavepacket Calculations for Vibrational Energy Transfer at Energies above the Dissociation Threshold", J. C. Gray, G. A. Fraser, D. G. Truhlar and K. C. Kulander, J. Chem. Phys. 73, 5726-5733 (1980).

"Variational Transition-State Theory", D. G. Truhlar and B. C. Garrett, Accounts of Chemical Research 13, 440-448 (1980).

"Profiles in Learning. I. How Well do We Teach", R. C. Brasted, J. Chem. Ed. 57(1), 82-88 (1980).

"The Rate of Decomposition of NaBH_4 in Basic Aqueous Solutions", M. M. Kreevoy and R. W. Jacobson

GRADUATES - 1980

On the following pages are listed the names, theses, advisors and positions of those students who graduated in 1980 with an M.S. or Ph.D. degree.

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
Ph.D.	Caruso, Andrew	8/80	Studies Toward the Total Synthesis of Aplysistatin and the Total Synthesis of Ancistrofuran	Hoye	Postdoctoral Fellow c/o Dr. J. Polonsky, CNRS Institute de Chemie des Substances Naturelles 91190 Gif Sur Yvette France
Ph.D.	Christensen, Dale	8/80	Chemical Effects in Ion Scattering Spectrometry	Mossotti	IBM Department 557 Rochester, MN
Ph.D.	Christensen, Leif	10/80	Organic Electrochemistry Applied to Synthesis	L. Miller	G. D. Searle & Co. Skokie, IL
Ph.D.	Dittenhafer, Mark	11/80	Elucidation of Electro-chemically Assisted Cerium Catalyzed Based Hydrolysis Reactions of Vitamin B ₁₂ A	Swofford	Dow Chemical Midland, MI
M.S.	Doherty, Mark	3/80	Thesis Study of the Kinetics and Thermodynamics of Triaryl Phosphine Oxidation with Hydrogen Peroxide	Siegel	University of Minnesota Minneapolis, MN
M.S.	Hayes, Thomas	6/80	Studies of Highly Reduced Vanadium Carbonyl Compounds	Ellis	Research Chemist Medtronics 6700 Shingle Creek Pkwy MS-6202 Brooklyn Center, MN
Ph.D.	Hedlund, Lenas	6/80	A Study of Polymer-Solvent Interactions by Nuclear Magnetic Resonance	W. Miller	Research Chemist IBM Rochester, MN
Ph.D.	Hershberger, Martin	6/80	The Photophysics of Indoles and Biological Applications	Lumry	Clorox Technical Center PO Box 493 Pleasanton, CA

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
M.S.	Keough, Louise	8/80	Approaches toward the Synthesis of dl*Quadrone	Hoye	Graduate Student Department of Chemistry Colorado State University Ft. Collins, CO
Ph.D.	Kurth, Mark	7/80	Total Synthesis of dl-3- Bromo-8-Epicaparrapi Oxide and dl-Aplysistatin and Synthetic Progress Toward Megaphone	Hoye	Postdoctoral Fellow 58, Chemin Ami-Argand 1290 Versoix Switzerland
Ph.D.	Lanphear, Jane	3/80	The Iron Catalyzed Oxidative Decarboxylation of Alpha-Keto Acids: A Partial Model for Prolyl Hydroxylose	Siegel	Research Laboratories Building 82 Eastman Kodak Company Rochester, NY
Ph.D.	Larka, Edmund	3/80	The Reaction of $3\Sigma^-$ Sulfur Monoxide with Non-conjugated Dienes: The Use of Thirane Oxides	Dodson	Research Fellow Surface Analysis Center University of Minnesota Minneapolis, MN
M.S.	Lo, Vincent Ka Lin	6/80	Triphenylmethylum and tris- (-Bromophenyl) ammonium Ion Induced Cyclization Reactions	Hoye	GC Analyst
Ph.D.	McDonell, James	6/80	Biosynthesis of Pyrrolidine Alkaloids Employing Carbon-13- nitrogen-15 Labels; Studies on an Unusual Example of Magnetic Nonequivalence	Leete	Research Chemist Economics Laboratory St. Paul, MN
M.S.	Pawlosky, Robert	6/80	A Synthesis of 1-aminocyclo- propane-1-carboxylic Acid and Its Oxidation to Ethylene	Leete	Department of Plant Pathology University of Minnesota St. Paul, MN
Ph.D.	Proehl, Gary	8/80	Studies Leading to the Synthesis of [3.1.1]- Propellane	Gassman	Research Chemist Eastman Kodak Company Building 82 Rochester, NY

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
Ph.D.	Rose, Deni Murk	10/80	Magnesium-25 Nuclear Magnetic Resonance as a Probe of Metal Ion Interactions with Biological Macromolecules	Bryant	Western Electric Company PO Box 900 Princeton, NJ
Ph.D.	Stickelmeyer, Mary	3/80	Infrared and Raman Relaxation Studies of Liquids	Crawford	Westvaco Research Labs Johns Hopkins Road Laurel, MD
M.S.	Tovo, Patricia	12/80	The Interactions of Mg(II) with Nucleotides-Magnesium-25 Nuclear Magnetic Resonance	Bryant	Honeywell Minneapolis, MN
M.S.	Wann, Steven	8/80	A Test for the Limits for the Concentrated, Acid-Catalyzed Hydrolysis of Acetals	Kreevoy	Institute of Paper Chemistry Appleton, WI

ALUMNI HAPPENINGS

We were delighted to hear from many of our alumni in response to our recent correspondence. We have attempted to include a few of the highlights of the responses. We hope to hear from many of you in the next few months in order to include an update for your friends in next year's newsletter.

Class of 1927

Grace DeVaney Chapman retired in 1965 from the National Academy of Sciences in Washington, DC. She was then employed by the Food and Drug Administration in Washington until retiring (again) in 1974.

Leslie Stone retired after thirty three plus years with the E. I. duPont de Nemours & Company at five different research and production locations followed by seventeen plus years in technical consulting work. His main activity now is lots of reading plus attending various technical and general meetings.

Class of 1929

R. B. Ellestad retired in 1974 after 32 years of employment with Lithium Corporation of America. This included 18 years at Minneapolis, followed by 14 years in North Carolina, where he still lives.

Class of 1934

William F. Filbert retired from the duPont Company in 1972 and reports no changes in status since the last report.

Class of 1935

Everett J. Hoffman retired in 1977 from the Department of Energy. Since his retirement he has been engaged in various volunteer activities including a program for teaching English to some of the foreign visitors to Oak Ridge, Tennessee, where he resides. Many of them come there for a year to work at one of the nuclear installations, and they, or their spouses, need some assistance in adjusting to a new kind of life in a strange land. Dr. Hoffman writes that this is very interesting and rewarding as well as being a good way to acquire new friends.

Class of 1937

Frank S. Griffith writes that he has been retired for eight years. He enjoys his large garden and modest orchard in Germansville, Pennsylvania. He keeps busy during the summer months gardening and preserving food. Dr. Griffith also writes that they now have three Ph.D.'s and one M.D. in his immediate family.

Class of 1938

Francis W. Martin retired in 1976 from Corning Glass Works after 36 years of service. Since his retirement he has served as a consultant for Corning. Dr. Martin writes that he has three children and one grandchild (at last!).

Malcolm M. Renfrew is an emeritus professor of chemistry at the University of Idaho but serves part time as patent director for the University's Idaho Research Foundation, Inc. He continues as safety editor of the Journal of Chemical Education. Dr. Renfrew was elected this past fall to the Committee on Committees, Membership Chairman of the Division of Chemical Health and Safety, he is an associate member of the Council Committee on Chemical Safety and is councilor for the Washington/Idaho Border Section of the American Chemical Society. He writes that last October he visited the highlands and islands of Scotland, including a pause at Strontian, the source of the ore from which Humphrey Davy isolated strontium.

Class of 1939

Jack Anthes retired in October of 1978 after 25 years with Dravo Corporation in Pittsburgh. He and his wife Frances now live in their new house in Minnesott Beach, North Carolina. They are located a block from the three mile wide Neuse River and 25 miles from the Atlantic Ocean. Dr. Anthes has done some consulting for his former employer in 1979 and 1980.

Class of 1940

James W. Horner, Jr., retired from the Ashland Chemical Company on April 30, 1980.

J. W. Opie retired from General Mills, Inc. in Minneapolis, Minnesota in 1980.

Class of 1941

Harold E. Zaugg retired from organic-medicinal research at Abbott Laboratories in February of 1981, after 40 years -- the only job he's had since leaving the University of Minnesota.

Class of 1942

J. Keith Lawson has been with the Monsanto Company at Research Triangle Park, North Carolina since 1961. He has been the local ACS section secretary-treasurer, chairman and councilor. Dr. Lawson also helped organize the local sub-section polymer group. He writes that he married Ruth Mitchell and has four children (Carol, Margo, June and Douglas) and enjoys tennis, running, music (like bagpipe music) and translating scientific Russian.

Class of 1943

John A. King writes that after having been technical director of American Cyanamid Company's Agricultural Division from 1961-1970 (with responsibility for chemical and biological research, development, technical service, manufacturing support and product registration with the FDA, USDA and EPA plus state agencies of crop pesticides, animal feed additives, veterinary products and compound fertilizers), and for the past 10 years, 1971 to date, has been involved exclusively in outside-source product acquisitions, globally, as Director of Licensing. He seeks and considers products and processes at any stage of their existence (laboratory-demonstrated, in research, in development, or on the market) from any source, anywhere. He travels about half the time, having made twelve trips in 1980 all over the world. He writes that if any Newsletter reader has something believed to be of possible interest to him, he will be delighted to hear of it.

Virgil Boekelheide is working at the Department of Chemistry at the University of Oregon in Eugene.

Class of 1944

Everett M. Schultz was employed by the Medicinal Chemistry Department of Sharp and Dohme in 1944 which later became Merck Sharp and Dohme Research Laboratories in 1953. He is the inventor or co-inventor of 30+ patents and retired in 1975.

Walter Harris is an emeritus professor of chemistry at the University of Alberta in Edmonton, retiring in September of 1980. He is also an elected fellow of the AAAS.

Class of 1945

D. J. Lehmicke retired in May of 1978 from Firestone Central Research in Akron as a research associate. He is now teaching three lab courses (2 chemistry and 1 physics) at the University of Akron's Community College.

Class of 1948

Vaughn A. Engelhardt has been with the duPont Company since he left the University of Minnesota. He has spent most of his career with the Central Research and Development Department, but in December of 1979 he transferred to the Agrichemicals Research Division of the Biochemicals Department at the Experimental Station where he is an associate director of research with responsibility for two research sections.

Otto C. Elmer has been at General Tire & Rubber Company since 1953. He writes that their central research lab is located on the outskirts of Akron, right off I-76 West. He says that he would be happy if any of the old fellows come nearthere, to call him (216) 798-4021.

Class of 1949

Kataro Murai is a senior research investigator in analytical research at the Pfizer Control Research labs in Orono, Connecticut. He has received word from Southern Illinois University at Carbondale that R. T. Arnold will be retiring at the end of this academic year.

Wesley J. Dale, professor of chemistry at the University of Missouri Kansas City, has returned to teaching and research after nineteen years of service in various administrative posts; department chairman and Assistant to the Dean of the College of Arts and Sciences, University of Missouri-Columbia; Head, Evaluation group of the National Science Foundation's "Centers of Excellence" program and Graduate Dean, Provost, and Acting Chancellor at the University of Missouri - Kansas City.

Howard L. Dinsmore is presently a professor of chemistry at Florida Southern College in Lakeland, Florida.

Class of 1951

Lewis Katz is a professor of chemistry at the University of Connecticut. He is involved in research on structure of mixed metal oxides, teaching physical chemistry and x-ray crystallography. He chaired the University Senate Executive Committee and Presidential Search Advisory Committee at the University of Connecticut in Storrs.

Ralph E. Kelly recently transferred to Hercules in Europe as the director of research and development.

Paul Sollman retired from G. D. Searle at age 60 after 29 years of service. He then moved to Key West, Florida and is finding formal retirement much more difficult than working. He moved back to Wilmette, Illinois and is now employed in research and development at Regis Chemical Company in Morton Grove, Illinois.

Class of 1952

Lester C. Krogh is the Vice President of the Commercial Chemicals Division of the 3M Company in St. Paul, Minnesota. He is the Chairman of the Board of the National Home Fashions League (NHFL) Educational Foundation. He recently attended the Presidential Conference of the American Chemical Society.

Paul N. Richardson has worked for duPont for 28 years. After a 14 year period of doing technical service work he transferred back to do research work again. Last April he was promoted to research associate. All of his professional work has been associated with plastics. For the past eight years he has been working with nylon.

Class of 1953

Robert G. Lockwood is a research specialist with the Packaging Systems Division of the 3M Company in St. Paul, Minnesota. He has just completed 26 years with 3M in December of 1980. His specialty area is organic polymer chemistry. Dr. Lockwood is also serving his 15th year on the City Council of Mendota Heights, Minnesota - 11 years as councilman and 4 years as mayor.

Class of 1954

Lowell E. Peterson is currently Director of Basic Development at the Henkel Corporation in Minneapolis, Minnesota.

Paul Toren presently is a senior research specialist at the 3M Company in St. Paul, Minnesota.

Class of 1955

John E. Franz has been employed at Monsanto for 25 years. His present position is Distinguished Fellow. He works with bio-organic synthesis of herbicides and plant growth regulators. He discovered Roundup[®] herbicide and received the IR-100 award in 1977 for this accomplishment. He also discovered nitrile sulfides and has published several papers concerning this 1,3-dipole. Dr. Franz is the author/co-author of 25 publications, has been awarded 60 U.S. patents and more than 300 foreign patents.

D. C. MacWilliams continues to do research in most aspects of polymers. He is also involved in scale up of processes and has designed and started up a small plant in Chile this past year. He is heavily involved in the assessment of chemical reactivity hazards, especially as they affect plants and processes.

Harry E. Reiff has been with Smith Kline and French Labs since 1955. His present title is Director, Technical Planning, Research and Development.

Class of 1956

Charles D. Wright has performed research in rocket fuels and polymers since joining 3M in 1956. He holds 13 patents including the discovery of four new organic functional groups which contain nitrogen-fluorine bonds. New polymers include soluble cyclopolymers from 1,6-heptadienes. His development efforts have contributed to a unique encapsulated adhesive for threaded bolts and nuts and to a new timely low density cabin sealer for commercial and military jet aircraft. He is currently a senior research specialist in the Adhesives Division of 3M.

Johan Coetzee has been elected chairman of the Commission on Electro-analytical Chemistry of the International Union of Pure and Applied Chemistry.

Class of 1957

William H. Gumprecht has been with duPont for the past 23 years at the Jackson Laboratory, Chambers Works, in Deepwater, New Jersey. He is currently engaged in fluorochemicals research and process development with the "Freon" Products Division of the Petrochemicals Department. He has been a senior research chemist since 1966.

Class on 1958

James J. Markham is presently employed at the Department of Chemistry at Villanova University in Pennsylvania.

Ronald F. Lange is presently an assistant professor at Fitchburg State College entailing instruction in general applied chemistry, organic and biochemistry including lectures and lab experimentation. He is also working toward a Management Business Administration degree. As a research chemist for the E. I. duPont de Nemours & Company from 1959 to 1973, Dr. Lange was instrumental in developing Qiana crepe and broadcloth fabrics which was an immediate success in the European market and is now successful in the U.S. In another commercial success, he solved colorfastness problems for nylon and modified nylon 66 dyed fabrics. The keys here were syntheses of anti-oxidants stable and non-extractable to heat and finishing in production processes. As with Qiana, patents were obtained and marketing followed.

Class of 1959

Laurance A. Knecht is teaching analytical chemistry and general chemistry at Marietta College in Marietta, Ohio.

Donald N. Robinson has completed 11 years as senior research chemist at Pennwalt Company. His research work in the past year has included the study of poly(vinylidene fluoride), known as "Kynar" and blends with other compatible polymers and fibers. This involves melt-processing, molding, and characterization or evaluation by physical testing.

Daryl L. Ostercamp returned this past fall from Saudi Arabia to resume his regular position as professor of chemistry at Concordia College in Moorhead, Minnesota, where he has been since 1960. For the past three years, beginning in September of 1977, he has been professor of chemistry at the University of Petroleum and Minerals, Dhahran, Saudi Arabia.

Class of 1960

William C. Kuryla is presently the Associate Corporate Director of Applied Toxicology at the Union Carbide Corporation after 20+ years in their Divisional Research and Development area.

Class of 1962

Russell N. Grimes has been elected Secretary-Treasurer of the Inorganic Chemistry Division of the American Chemical Society in 1980. He also was appointed chairman of the Department of Chemistry at the University of Virginia effective in September of 1981.

Class of 1963

Ray Farm was an analytical chemist at Dow Chemical Company in Midland, Michigan from 1963 to 1967. He began in the Central Research Laboratory at 3M in St. Paul, Minnesota in 1967. He is currently a senior research specialist in the Analytical Research Labs with responsibility for the areas of Commercial Products and Functional Group Analysis.

Charles L. Braun is a professor of chemistry at Dartmouth College in Hanover, New Hampshire. He has just completed a sabbatical year leave with A. C. Albrecht at Cornell. His research interests include photoionization of molecules in condensed phase, photoconductivity, fluorescence quenching approaches to the conformational dynamics of chain molecules.

Wilfred H. Nelson has been a professor of chemistry since 1977 at the University of Rhode Island. He spent the 1979-80 academic year on a sabbatical leave to the National Research Council (Canada) and Stanford University.

Class of 1964

Norman W. Gill is presently working for the To-Tennant Company as a Technical Service Manager, chemical floor treating materials in the Twin Cities metropolitan area. He is the chairman elect of the Minnesota Section of the American Chemical Society.

S. J. Harr is presently employed by Texaco, Inc. in White Plains, New York.

Brandon H. Wiers current position is that of Section Head in the Research and Development Services Division of Procter & Gamble. His responsibilities include management of a portion of the company's math and statistics service and a portion of the Technical Information and Technical Library service. His public service has been an avocation beginning in 1969. This lead to an appointment in 1976 to an unexpired term on the Council of the City of Forest Park, Ohio. In November of 1977 he was elected to a full four-year Council term, and in December of 1979 he was chosen mayor for a term to expire November 30, 1981.

Ronald O. Kagel is presently working for the Dow Chemical Company as manager of their Environmental Regulatory Affairs - Water. His function at Dow is one of a scientific-para legal nature (he writes that that means 3-piece suits are allowed but not 3-piece pin-stripped suits. Pin-stripped suits are reserved for lawyers and are one step

Class of 1964 continued

away from the broader stripe most of their clients wear!) Dr. Kagel is chairman of the Government Regulations Committee of the Coblenz Society, chairman of the Publications Committee of the Society of Applied Spectroscopy and liaison coordinator of the ASTM Committee D-19 on Water.

Class of 1965

Art Coury currently is manager of Polymer Development at Medtronic, Inc., Energy Technology Division in Brooklyn Center, Minnesota. Dr. Coury serves as chairman of the Awards Subcommittee of the Minnesota Section of the American Chemical Society, and is an instructor at North Hennepin Votech School teaching "Polymer Science and Technology" and also at the Polymer Institute, Detroit University teaching "Medical Uses of Polyurethanes".

Class of 1966

Michael L. Gross is a professor of chemistry at the University of Nebraska in Lincoln. He is also Director of the National Science Foundation Regional Center for Mass Spectrometry. He writes that the emphasis of the center is a new triple analyzer mass spectrometer for MS/MS applications and other high resolution mass spectrometers.

Frank J. Wilary is employed by Medtronic, Inc. as director of their Ceramic/Metallurgical Operations.

Class of 1967

Gary E. Glass holds a position as senior research chemist with the U.S. Environmental Protection Agency, Environmental Research Labs in Duluth, Minnesota. He presently is involved in the susceptibility of aquatic and terrestrial resources of Minnesota, Wisconsin and Michigan to impacts from acid precipitation.

Lawrence L. Landucci is employed by the U.S. Forest Products Lab in Madison, Wisconsin as a research chemist. In general, his field of study is the chemistry of novel pulping processes. He is currently involved in elucidating the mechanism of the redox catalysis of delignification of wood by anthraquinone. During the past two years he has had several breakthroughs in this area -- one is that it was found that anthrhydroquinone reacts with quinone methides (pulping intermediates) of lignin models to form novel adducts which they postulate to be key intermediates in the catalysis. Even more importantly, they have since shown that these novel adducts also are formed in the lignin polymer, thus lending convincing evidence of their proposed mechanism.

Class of 1967 continued

Robert Berg is a senior chemist in the Industrial Laboratory at Eastman Kodak Company in Rochester, New York, where he has been employed for the 13 years since graduation. His current assignment is with the Polymer Characterization and Testing section and includes problem solving and trouble shooting of existing production processes as well as the characterization of new polymers in the production area. Previous assignments have included work with g.c./mass spectroscopy, electron microprobe analysis, ion scattering spectroscopy and gel permeation chromatography.

Anthony F. Yapel was appointed manager of Biokinetics Research at the 3M Central Research Biosciences Laboratory in 1978. Dr. Yapel is a member of the University of Minnesota Institute of Technology Alumni Society Board of Directors. He is also a member of the St. John's National Alumni Board of Directors.

Class of 1968

James C. Mickus received the 1980 Distinguished Service Award from Cargill, Inc. for "continually lending his talents and technical services to NFIA with energy and enthusiasm that is infectious".

Dennis C. Johnson is a professor of chemistry at Iowa State University in Ames, Iowa.

G. Paul Richter spent the summer of 1980 at the University of Idaho working on fluorine-sulfur compounds in Dr. Jean'ne Shreeve's research group. His present position is professor and acting Chairman of the Chemistry Department, West Virginia Wesleyan College. Dr. Richter writes that he spends a lot of summer time with his wife Marge, keeping up the 12m X 25m vegetable garden, 6 blueberry bushes and 12 fruit trees.

Class of 1969

Richard F. Sauers is presently working at the Biochemicals Department of the duPont Company as a research supervisor and holds six issued U.S. patents.

George F. Detrick is currently Market Planning Manager of Building Products and Metal Decorating - Industrial Coatings at the Rohm and Haas Company in Philadelphia, Pennsylvania.

Dennis Konasewich, since graduation from the University of Minnesota, has worked in Canada, the United States and South America in the field of environmental pollution. Recently he completed a six year assignment with the International Joint Commission to deal with water pollution problems along the U.S.-Canada border. He now has his own consulting firm and works jointly with the consultants at EVS Consultants Ltd. He married the girl he met at the University of Minnesota and now have two beautiful children.

Class of 1970

Norval C. Kenten is the Director of Pre-Professional and Graduate Studies at Texas Wesleyan College in Fort Worth.

Class of 1971

Larry Bresina writes that he is presently a senior development specialist at the 3M Company in St. Paul, Minnesota.

Tom Stavros was promoted to Director, Environmental Health Laboratory of the Wausau Insurance Companies in Wausau, Wisconsin in 1977.

Gary E. Timm is currently section chief in the Test Rules Development Branch, Office of Toxic Substances, U.S. Environmental Protection Agency. The branch assesses the adequacy of human toxicity, environmental effects and chemical fate information on chemicals in commerce. He supervises an interdisciplinary group of toxicologists, chemists and ecologists who perform these assessments and develop testing policy and regulations. He recently was the recipient of a Bronze Medal for distinguished service to EPA which was awarded on December 6, 1980.

Class of 1972

Lynda Weber writes that she is presently living in Rochester, New York.

Class of 1973

Charles M. Grisham joined the faculty at the University of Virginia in 1975 and during this past year was promoted to associate professor of chemistry. He also writes that last year he was awarded a Research Career Development Award from the National Institutes of Health. His research interests include the active site structure and mechanism of action of membrane transport ATPases and the endo/exo nucleases involved in DNA repair.

Class of 1974

Philip M. Hoekstra is presently a chemist in the development group at Buckman Laboratories in Memphis, Tennessee. They are a company manufacturing specialty industrial chemicals, especially for use in the pulp and paper industry. He has worked at Buckman for 1½ years, prior to which he taught in a senior high school for five years.

Duane J. Erdmann is a research supervisor at duPont's Rochester, New York Photo Products plant responsible for diffusion transfer and graphic arts products. His special research interests center around monodisperse silver halide emulsions, related processes, and metallic dopants for novel and slow photographic response.

Class of 1974 continued

John Maurus is currently the director of Probe, Inc., which was organized in 1980 to determine cause and origin of fires. Clients include insurance companies, attorneys and law enforcement agencies. He is also employed by Process Design Associates, Inc., Chicago, Illinois, which is an engineering and architectural firm with worldwide industrial clients. He is engaged in air pollution consultation with this firm.

Class of 1975

Michael Knoll was promoted to associate professor of chemistry at Vincennes University, Illinois. He presented a paper entitled "Teaching Chemical Nomenclature to the First-Year Student" before the 64th Two-Year College Chemistry Conference at Prince George's Community College.

Class of 1976

Maxine Heinitz writes that she is presently employed by the Food and Drug Administration in Minneapolis, Minnesota.

Martha Minich has notified us that she is now living in Upper Montclair, New Jersey.

Class of 1978

Murray Brockman is presently a research chemist with the E. I. duPont de Nemours, Inc. facility in Waynesboro, Virginia.

LATE AND ADDITIONAL ALUMNI HAPPENINGS

A very big and special thank you goes to Frank Griffith, class of 1937, who sent the Department a monetary gift to help defer the cost of printing of this newsletter. Your gift was most appreciated, Dr. Griffith!!

Leo Spillane, class of 1942, writes that he is presently the President and Chief Executive Officer of Gulf States Asphalt Company in Houston, Texas. He was the 1980 recipient of the Outstanding Achievement Award granted by the Institute of Technology, University of Minnesota.

Leo Topol, class of 1952, is employed by Rockwell International, Environmental Monitoring and Services Center in Newbury Park, California, as Program Manager of Acid Precipitation Studies.

D. C. MacWilliams, class of 1955, continues to do research in most aspects of polymers. He is also involved in scale up of processes and has designed and started up a small plant in Chile this past year. He is heavily involved in the assessment of chemical reactivity hazards, especially as they affect plants and processes.

T. W. Gilbert (Bill), class of 1956, writes that following graduation he worked at the Oak Ridge National Laboratory for one year. He then went into academic work at the Pennsylvania State University. In 1960 he came to the University of Cincinnati and has been there since. In 1978 he achieved the rank of Professor of Chemistry.

Charles W. Hobbs, class of 1969, has worked with the Monsanto Co. since leaving Minnesota. His first three years were spent in basic catalyst research, synthesis and evaluation of solid state/phase systems. At that point he moved into the commercial side of the business and has held a number of assignments in marketing, sales, financial planning, energy planning and currently is business director-worldwide for acrylonitrile.

George Woodbury is presently a professor of physical chemistry at the University of Montana in Missoula.

Kent Rush writes that he is laboratory head at the Eastman Kodak Company in Rochester, New York.

Ruth Blanco writes that after having her second girl born in Baton Rouge (her first was born in Minneapolis while she was finishing her research for her thesis), she started working at Louisiana State University as a Research Associate with Dr. Richard Gandour. The work that she did with Dr. Gandour is in the process of being published. She resigned from that job in August of 1980 and accepted a position with Shell Chemical Company in Geismar, Louisiana. She is very proud to now say that as a woman, mother and wife she can pursue her career as a chemist.

Russell N. Grimes wrote pointing out the existence of a "Minnesota Mafia" at the University of Virginia in Charlottesville: Dick Sundberg (class of 1962), Professor and former Department Chairman; Charlie Grisham (class of 1972), just promoted to Associate Professor with tenure; and himself (class of 1962). In a faculty of 25, this is worthy of note!

Friends are looking for Dr. Roy W. Tess who retired from Shell Chemical Company in Houston in 1979. If anyone knows his present address, please contact us as soon as possible.

Academic types please note: Dr. D. C. MacWilliams writes that a solid grasp of classical fundamentals is vital, not only to one's career but also to one's personal safety. He says please try to teach the practical implications of esoteric theory so students will have an appreciation of how to use concepts.

We enjoyed hearing from many of you. We hope that you will provide us with new information and updates for next year's newsletter. We are also hopeful that next year we will be able to provide information on many of our alumni that we did not hear from in 1980.