

FACULTY PROMOTIONS

Peter W. Carr was promoted to full professor by action of the Board of Regents in 1981. Dr. Carr received his Ph.D. in 1969 from Pennsylvania State University. He joined the faculty of the Department of Chemistry in the fall of 1977 as an associate professor. Professor Carr and his research group are concerned with the development of experimental and theoretical tools for use in chemical analysis. Their efforts focus on the measurement of biochemical compounds (e.g., proteins, enzymes, carbohydrates, and lipids) in naturally occurring matrices by chemical techniques as well as by chromatographic, photometric, electrochemical (particularly ion-selective electrodes), and thermometric methods of analysis. They are also involved in using biochemical materials for the determination of inorganic and organic compounds in the environment.

The group is presently using immobilized enzymes (i.e., enzymes chemically attached to solids by covalent and hydrophobic bonding) for the rapid determination of sugars, amino acids, lipids, and proteins. The goal of this work is to generate new analytical methods which will find application in clinical chemistry laboratories; thus, the techniques must be free of interferences, due to the complex matrices encountered, and must be capable of high sample throughput.

Analytical and clinical applications for affinity chromatography (which is a separation method based on the extreme specificity exhibited by biochemical interactions such as antigen-antibody, enzyme-substrate, and hormone-receptor processes) are also being developed, along with high-speed affinity separations of proteins, using chemically modified, non-compressible, porous glass supports which permit high flow rates and therefore short analysis time. In addition, a novel approach to affinity separations is being developed -- i.e., thin-layer affinity chromatography for the specific determination of individual proteins and the separation of biomedically important isoenzymes, such as creatine phosphokinase and lactic acid dehydrogenase.

Professor Carr's group is also interested in the use of highly selective mobile phase interactions in HPLC. For example, the use of fluorimetric organic extractants and reverse phase chromatography should allow the simultaneous separation and detection of many metals. The development of new chemical methods for the modification of chromatographic supports is being investigated. In particular, the use of inductively coupled plasma polymerization is being explored for use in capillary column gas chromatography.

Recent work has focused on the development of more reliable experimental and theoretical methods of predicting the strength of solute-solvent interactions. In particular the π^* solvatochromic scale of solvent polarity is being examined as the basis for solvent selection in HPLC.

Louis H. Pignolet was promoted to full professor by action of the Board of Regents in 1981. Dr. Pignolet received his Ph.D. in 1969 from Princeton University. He joined the faculty of the Department of Chemistry in the fall of 1970 as an assistant professor and was promoted to associate professor in 1974.

The research interests of Professor Pignolet and his associates include the study of various catalytic reactions using organometallic complexes of, for example, rhodium, iridium, ruthenium, and osmium; and synthetic and mechanistic studies of redox and photochemical reactions of transition metal complexes with sulfur containing ligands. These investigations make use of many modern instrumental techniques, such as X-ray crystallography; multinuclear NMR; UV-VIS-NIR, IR, and mass spectroscopy; magnetic susceptibility; and electrochemistry.

Homogeneous catalytic reactions under current study include the decarbonylation of aldehydes and ketones, the reductive decarbonylation of acid chlorides, the hydrogenation of alkyl halides and olefins, and hydroformylation. Emphasis is being placed on the mechanistic details of these reactions, especially ones with metal cluster catalysts. ^{31}P NMR is proving very useful in these studies. Future work will include high-pressure reactions with transition metal cluster catalysts, the synthesis and catalytic properties of low valent Rh and Ir complexes with nitrogen donor ligands, and the study of the reaction and catalytic chemistry of hydrogen sulfide with organometallic compounds. Experiments are also underway with chiral catalysts for use in asymmetric synthesis.

The redox and photochemistry of iron, ruthenium, and osmium complexes with sulfur-containing ligands is also being examined. Chemical and electrochemical redox reactions are being used to synthesize new complexes with metal-metal bonds and unusual structural and chemical properties. Cyclic voltammetric and flash photolysis techniques are being utilized to determine reaction mechanisms. These reactions lead to interesting synthetic possibilities, and the resulting compounds should prove important as reagents for organic synthesis. In addition, photocatalytic systems are being studied.

FACULTY ADDITIONS

Dr. Essie Miller joined the faculty of the Chemistry Department in the Fall of 1981 as an associate professor. Dr. Miller received her M.S. degree in 1963 from the Hebrew University in Jerusalem. Her Ph.D. Degree in Chemistry was received in 1968 from Weizmann Institute of Science in Rehovoth, Israel. Dr. Miller then joined the faculty of Tel-Aviv University where she continued her research in organic-electrochemistry. Before joining our faculty, Dr. Miller was a visiting professor at Colorado State University and also taught at Macalester College in St. Paul.

FACULTY AWARDS

Professor I. M. Kolthoff received the 1981 Society for Analytical Chemists of Pittsburgh Award at the Society for Analytical Chemists Conference in Atlantic City, March 9-13.

Professor Stuart Fenton received the 1981 George Taylor/Institute of Technology Alumni Outstanding Teaching Award. The award was presented to him at the Institute of Technology Graduation Ceremony, May 27.

Professor I. M. Kolthoff is the recipient of the 1981 Olin-Palladium Medal. He received this medal at a meeting of the Electrochemical Society held in Denver, October, 1981.

Professor Bryce Crawford, Jr., ^{has been chosen to receive} ~~received~~ the American Chemical Society's 1982 Priestley Medal. The Priestley Medal is widely regarded as the highest honor which the ACS can bestow. Its purpose is "to recognize distinguished services to chemistry." The Priestley Medal was established in 1922 and has been conferred on many of the most distinguished contributors to American chemistry, including Samuel C. Line in 1952. The award consists of a gold medal designed to commemorate the work of Joseph Priestley, and a bronze replica of the medal. The medal will be presented to Professor Crawford in April at the ACS national meeting in Las Vegas.

Professor Robert C. Brasted has been named the recipient of the 1981 Mosher Award sponsored by the American Chemical Society's Santa Clara Valley Section. Professor Brasted will be the first recipient named in honor of Professors Harry and Carol Mosher of Stanford University and Stanford Research Institute International respectively. The award is established to: 1) recognize and encourage work in chemistry; 2) advance chemistry as a profession; and 3) recognize service to the American Chemical Society. Professor Brasted will present the award acceptance address at Stanford later this year.

Congratulations!

DEPARTMENT OF CHEMISTRY MINISYMPOSIUM

On Saturday, October 24, 1981, the Department of Chemistry presented a full day minisymposium to which faculty and chemistry majors from the colleges and universities in Minnesota and surrounding states were invited. In addition, local industries from the Twin Cities area were invited to have their staffs attend.

The purpose of the minisymposium was to demonstrate the extensive progress which has been made by the Department of Chemistry over the last six years. This included the fourteen new faculty, 1.5 million dollars in new equipment and fairly extensive renovation of parts of Smith laboratory.

The Department was delighted with the extensive turnout from both the schools invited and from local industry. Fifty minute lectures were presented by Professors Borch, Bryant, Carr, Evans, Gassman, Gentry, Gladfelter, Gray, Hoyer, Mead, Miller, and Pignolet. The department was particularly pleased with the enthusiasm expressed by many of our visitors.

While it is often difficult to correlate cause and effect, it should be noted that our offers of assistantships and fellowships to students from various schools increased 40% this year relative to last year.

LEAVES

Professor William Farneth was granted a single quarter leave for Fall Quarter, 1981. He spent the quarter at Stanford University conducting joint research with Professor Richard Zare on vibrational overtone photochemistry.

Professor Albert Moscovitz was on single quarter leave during Fall Quarter, 1981 in order to complete collaborative research with colleagues at Stanford. During that period, he also gave invited departmental seminars at Stanford University, the University of Nevada, and Syracuse University.

KOLTHOFF LECTURESHIP IN CHEMISTRY

An endowment from an anonymous donor 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 Harry B. Gray, Department of Chemistry, California Institute of Technology, Pasadena, California; February 9-13, 1981.

R. A. Marcus, Arthur Amos Noyes Professor of Chemistry, Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, California; May 12-15, 1981.

Dr. Dieter Seebach, Professor of Organic Chemistry, Eidgenossischen Technischen Hochschule, Zurich, Switzerland; October 19-23, 1981.

LANDO SUMMER FELLOWSHIPS

The Lando 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. Eighteen students were selected and participated in advanced research projects under faculty supervision in the Department of Chemistry. The eighteen students who participated in the summer of 1981 were:

<u>NAME</u>	<u>SCHOOL</u>	<u>ADVISOR</u>
Deidre A. Askew	North Dakota State University Fargo, North Dakota	Lipsky
Laura A. Chung	S.U.N.Y. Brockport Brockport, New York	Stankovich
Kejian Ding	Hamline University St. Paul, Minnesota	Barbara
Mary J. Emond	St. Olaf College Northfield, Minnesota	Fristad
Regina F. Frey	Clarion State College Clarion, Pennsylvania	Dixon
Laura Friday	Coe College Cedar Rapids, Iowa	Carr
William B. Hollenberg	Butler University Indianapolis, Indiana	Mann
Nathan Ihle	Whitman College Walla Walla, Washington	Hoye
Brian J. Johnson	Gustavus Adolphus College St. Peter, Minnesota	Pignolet
Lori K. Johnson	University of Wisconsin River Falls, Wisconsin	Gray
Dan T. Johnston	North Dakota State University Fargo, North Dakota	Lumry
Timothy J. Lee	Colorado School of Mines Golden, Colorado	Farneth
Gregory McDermott	San Francisco State University San Francisco, California	Gladfelter
William D. McGhee	Kansas State University Manhattan, Kansas	Gassman

Tonny T. Nam	Iowa State University Ames, Iowa	Truhlar
Cynthia D. Strong	Whitman College Walla Walla, Washington	Borch
Peter F. Thadeio	Southeastern Massachusetts U North Dartmouth, Massachusetts	Ellis
Patrick W. Townsend	Colorado College Colorado Springs, Colorado	Bryant

POSTDOCTORAL ASSOCIATES

In the following table are listed the persons who held postdoctoral appointments in the Department during 1981.

<u>NAME</u>	<u>INSTITUTION</u>	<u>GRAD YEAR</u>	<u>COLLABORATING PROFESSOR</u>
Abu-Salbi, Najib Nimer	Louisiana State U	1981	Truhlar
Battistel, Ezio Angel	U of Genova	1976	Lumry
Bowden, Edmond Francis	Syracuse U	1981	Evans
Burdenski, Siegfried W.	U of Gottingen	1980	Gentry
Chantooni, Miran	U of Minnesota	1961	Kolthoff
Choi, Hae Tak	Dartmouth College	1980	Lipsky
Cutler, Alan Thomas	U of East Anglia	1979	Borch
Dumas-Bouchiat, Jean-M.	U of Paris	1980	L. Miller
Evans, Joyce B.	U of London	1963	Hexter
Fuji, Kaoru	Kyoto U	1969	Gassman
Goldenberg, Barbara L.	Brandeis U	1982	Hexter
Gregory, Roger B.	U of Sheffield	1980	Lumry
Henis, Neil B.	U of North Carolina	1980	L. Miller
Hickerson, David L.	U of Minnesota	1981	Bryant
Howard, Mark J.	Cambridge U	1981	Gentry
Kari, Bruce E.	U of Minnesota	1981	Gray
Kawamoto, Heizan	Tohoku U	1978	Gassman
Larka, Edmund	U of Minnesota	1980	Hexter
Lau, Aldrich N.K.	U of Nebraska	1980	L. Miller
Macomber, David W.	U of Massachusetts	1981	Gassman
McAuliffe, Michael J.	Columbia U	1981	Gentry
Mei, Elizabeth H.	Michigan State U	1977	Bryant
Morris, Gerard J.	U College, Ireland	1981	Leete
Osterby, Bruce R.	Michigan State U	1981	Gassman
Ramakrishnan, K.	U of Minnesota	1981	Fisher
Saha, Haripada	U of Calcutta	1978	Dahler
Shimizu, Toshio	Nagoya U	1980	Lumry
Zinger, Baruch	Ben-Gurion U	1981	L. Miller

PLACEMENT OF POSTDOCTORAL STUDENTS IN 1981

Bouhoutsos-Brown, Elene F. (Bryant)	Other employment
Fesciyan, Sezar (Dahler)	Assistant Professor, Manhattan U
Isaacson, Alan D. (Truhlar)	Assistant Professor, Miami U, Ohio
Johnston, David C. (Bryant)	H.B. Fuller Co., St. Paul
Jyo, Akinori (Kolthoff)	Returned to Japan
Kitani, Akira (L. Miller)	Academic position in Hiroshima
Nichols, Henry F. (Hexter)	Amoco Chemicals, Tulsa, Oklahoma
Saito, Katsuhiro (Gassman)	Assistant Professor, Nagoya Inst.
Schmalzl, Paul W. (L. Miller)	Allied Chemical Company
So, Ying Hung (L. Miller)	Dow Chemical Company,
Turner, Ralph E. (Dahler)	U of British Columbia - Postdoc

SOHIO UNDERGRADUATE RESEARCH FELLOWSHIP

The Standard Oil Company of Ohio (SOHIO) sponsored two undergraduate research fellowships during the summer of 1981. The recipients of these fellowships were Ms. Diane M. Szaflarski and Mr. Stephan C. Nowicki. These students worked under the direction of Professors Paul Barbara and Louis Pignolet, respectively.

GRANTS

Grants to the faculty members during calendar year 1981 from sources outside the University totaled \$2,721,232 and were received by the following professors:

<u>NAME</u>	<u>PROJECT TITLE</u>	<u>GRANTING INSTITUTION</u>	<u>AMOUNT</u>
Barany, George	New Mild Protection Strategies for Peptide Synthesis	NIGMS	\$87,479
	N^{ϵ} -Dithiasuccinoyl-lysine: An intermediate in the synthesis of anti-cancer pro-drugs.	ACS	2,000
Borch, Richard	Mechanisms of Cyclophosphamide Activation	NCI	70,688
	Reduction of Toxicity in Cancer Chemotherapy	PHS/NCI	98,948
Brasted, Robert	U.S.-Japan Cooperative Science Seminar on Fundamentals of Chemistry for the Non-Major Tertiary Education/Mpls., 10/81.	NSF	7,200
Bryant, Robert	Alkaline Earth Ion Nuclear Magnetic Resonance	NIGMS	94,194
	Biophysical Dynamics: Magnetic Resonance Approaches	NIGMS	98,020
Carr, Peter	Fundamental Studies in Affinity Chromatography	NIGMS	42,300
	Novel LC Multielement Methods for Occupational Health	NIOSH	42,025
Dahler, John	Theory of High-Energy Ion - Atom and Atom=Atom Collisions	NSF	43,800
Dixon, David	Dynamics of Chemical Reactions	NSF	40,000
Ellis, John	The Synthesis and Chemistry of Organo-metallic Anions	NSF	53,000

Evans, John	Development of Reaction Chambers for Use with UHV Surface Analysis Systems	Perkin Elmer	\$ 20,000
Farneth, William	Infrared Laser Induced Organic Reactions	DOE	50,190
Fisher, Jed	Chemical Mechanisms of Reductive Metabolism	NIGMS	48,311
Gassman, Paul	Electrochemical Generated Cyclization Reactions	ACS/PRF	45,000
	Organic Electrochemical Cyclizations	DOW	29,000
	Stereospecific Functionalization of Aromatic Amines	NIGMS	56,012
	Studies of Highly Reactive Molecules and Intermediates	NSF	103,134
Gentry, Ronald	Reactions of Ions With Atomic and Molecular Free Radicals	DOE	52,000
	Chemical Dynamics of Biomolecular Reactive Collisions	NSF	48,000
	Quantum Dynamics of Molecular Interactions	NSF	80,000
Gladfelter, Wayne	Synthesis and Reactivity of Nitrosyl Carbonyl Clusters	NSF	38,000
Gray, Gary	Antitumor Active Components of BCG Cell Walls	NCI	93,160
Hexter, Robert	Metal Surface Corrosion Studies Using Rama and Sims Probes	U.S. Army	57,000
	Surfaces Chemistry Studies Using Raman Probes	Navy	45,150
	Regional instrumentation Facility for Surface Analysis	NSF	195,835

Hexter, Robert	Laser-Induced Luminescence of Small Molecules Absorbed on Metal Particles	3M	\$ 35,000
Hoye, Thomas	Synthesis of Antineoplastic Chemotherapeutic Agents	NCI	91,393
Leete, Edward	Metabolism of Natural Products of Medicinal Interest	NIGMS	89,162
Lipsky, Sanford	The Contribution of Electronically Excited States to the Radiation Chemistry of Organic Systems	DOE	130,000
Livinghouse, Tom	A Novel Annulation Sequence for the Total Synthesis of Alkaloids	ACS/PRF	10,000
Mead, Alden	The Molecular Aharonov-Bohm Effect and Its Role in Quantum Chemistry	NSF	50,000
Miller, Essie	Electroreduction of Tetraalkyl Ammonium Salts, A Useful Alternative to the Birch Reduction	Research Corp.	15,000
Miller, Larry	Organic Electrochemistry	NSF	57,000
	Preparative Organic Plasma Chemistry	NSF	58,006
Moscowitz, Albert	Magnetic Circular Dichroism of Forbidden Transitions in Organic Molecules	NSF	76,762
Overend, John	Infrared Spectroscopy of Adsorbates on Low Area Metal Surfaces	NSF/DNR	86,100
	The Development and Testing of Anharmonic Force Fields for Simple More-Than-Triatomic Molecules	NSF/CHE	61,500

Pignolet, Louis	Catalytic Reactions of Organometallic and Metallosulfur Compounds	NSF/CHE	\$ 58,500
Reynolds, Warren	Control of Toxic Elements in Leaching Processes and Waste Streams	USDI	9,900
	Sulfur-Selenium-Arsenic- Manganese Systems	USDI	9,900
Stankovich, Marion	A Spectroelectrochemical Study of Selected Flavoproteins	NIH	72,563
Truhlar, Donald	Scattering Theory and Calculations for Chemical Reactions and Electron Impact Processes	NSF	65,000
	Variational Transition State Theory	DOE	105,000

Department Equipment Grant

Amino Acid and Peptide Analyzer Instrumentation	NSF	40,540
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Corrosion Research Center Grants

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Evans, John	Investigation of the Corrosion Resistance Imparted to Metal Surfaces by Plasma Processed Polymer Films	\$45,000
Farneth, William	Infrared Laser-Induced Organic Reactions	21,300
Mann, Kent	The Protection of Surfaces Via the Covalent Attachment of Organometallic Transition Metal Complexes	23,248
Miller, Wilmer	Research	34,000

National Institute of Health Grants

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Lumry, Rufus	Molecular Basis of Hemoglobin Function-Normal and Abnormal Hemoglobins	\$67,294
Miller, Wilmer	Cystic Fibrosis Research	30,000
	Hemoglobin Research	28,000

NATO Grant

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Pignolet, Louis	Iridium and Gold Cluster Compounds With Phosphine Ligands	\$ 5,520

National Science Foundation Grants

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Lumry, Rufus	Dynamical Basis of Behavior of Water, Proteins and Water-Protein Systems; Solvent Alternatives for Water	\$ 45,000
	System Approach to Protein Structure	42,986
Evans, John/ Hexter, R.M.	Upper Midwest Regional Surface Analysis Center	352,006

Navy Grant

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Evans, John/ Miller, L.	Study of Plasma Chemistry and Plasma Processing	\$271,666

Petroleum Research Grant

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Mann, Kent	The Photochemical Generation of Species With Multiple Open Coordination Sites	\$10,000

Research Corporation Grant

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Mann, Kent	The Photochemical Generation of Species With Multiple Open Coordination Sites	\$12,000

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 \$75,100.

Atlantic Richfield	\$ 1,000
Celanese	2,000
Dow	3,000
DuPont	18,000
General Mills	1,000
Henkel	3,000
Lubrizol	1,000
Merck	10,000
Mobil	4,000
Monsanto	1,000
Proctor and Gamble	7,500
Standard Oil	9,200
3M	10,000
Union Carbide	3,000
UOP Foundation	1,000
Wilson Griak	400

OTHER SUPPORT

During 1981, the Department of Chemistry was very fortunate in that it received excellent support from its alumni and from other friends. Below is a list of people who sent contributions:

William Bailey	G.W. Petersen
John Baum	William Prichard
Paul Blazer, Jr.	Floyd Ramp
Richard Borch	Steven Riemer
Elva Christiansen	Don Robinson
Thomas Damin	Mark Rustad
Norman Gill	Catherine Ryan
William Gumprecht	Karen Scanlon
Cyrus Guss	Tom Stavros
Ken Hafften	Vernon Stenger
Ron Kagel	Roy W.H. Tess
John Konnert	Steven Tinker
William Krueger	James Wade
William Larson	Robert Williams, Jr.
Jerry Miller	Ellen Wu
Lyle Overholser	Lee Zehner

UNIVERSITY SPONSORED RESEARCH GRANTS TO THE FACULTY

Graduate School Grants to faculty members during calendar year 1981 totaled \$76,945 and were distributed as follows:

<u>NAME</u>	<u>PROJECT</u>	<u>AMOUNT</u>
Barbara, Paul	Excited State Intramolecular Proton Transfer as Studied by Picosecond Spectroscopy	\$10,000
Barany, George	A Mild, Orthogonal Protection Scheme for Solid-Phase Peptide Synthesis	3,800
Carr, Peter	The Applicability of the II* Scale of Solvent Strength on Phase Transfer Partition Coefficients of Various Solids, Liquids and Gases	7,500
Dixon, David	A Beam-Gas Chemiluminescence Study of the Reaction of Ozone With Small Organic Molecules and Silanes	3,455
Ellis, John/ Gladfelter, Wayne/ Pignolet, Louis	Self-Assembly Syntheses of Nitrido Clusters Using High Pressure Reactions	11,190
Fristad, William	Synthetic and Mechanistic Studies of Organofluorosilicates	6,000
Livinghouse, Thomas	An Expedient Approach to Pactamycin via an Internal Nitron Cycloaddition	5,000
Miller, Esther	Laboratory Set-Up	10,000
Overend, John	The Development of Techniques for the Measurement of Vibrational Spectra of Silicon Crystal Surfaces in the Presence of Reactive Plasmas	6,000
Stankovich, Marian	Laboratory Set-Up	20,000

DEGREE	NAME	DATE		THESIS TITLE	ADVISOR	POSITION
		REC'D				
Ph.D.	Blum, Frank D.	12/81		Multinuclear Magnetic Resonance Studies of Polymer-Solvent and Surfactant-Solvent Systems	W. Miller	Assistant Professor Drexel University Philadelphia, PA
Ph.D.	Danielson, Susan	6/81		Part I: Immunochemical Characterization of Polylysine Conjugates Containing Reductively Aminated Cellulose Oligosaccharids. Part II: Structures of the Two Homologous Series of Dialkene Mycolic Acids from Mycobacterium Smegmatics	Gray	Eastman Kodak Rochester, NY
Ph.D.	Dunn, Douglas S.	3/81		Infrared Spectra of Surface Species	Overend	Bell Telephone Lab. Allentown, PA
Ph.D.	Dwyer, John D.	12/81		A Physical Study of Cholera Toxin and Its Membrane Bound Complex	Bloomfield	DuPont Richmond, VA
Ph.D.	Granrud, John E.	12/81		N-ACYL-N-Arylnitrenium Ions	Gassman	3M St. Paul
Ph.D.	Havel, Henry A.	6/81		Vibrational Circular Dichroism Studies in the Carbon-Hydrogen and Carbon-Deuterium Stretching Regions	Overend	Upjohn Co. Control Division Kalamazoo, MI
Ph.D.	Hoye, Rebecca C.	3/81		Synthesis and Reactions of Inside-Outside Bicyclic Compounds	Gassman	On Leave From the University of Minn.

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
Ph.D.	James, Douglas R.	12/81	Specificity Determination in Chymotryptic Catalysis--Thermo- dynamic Basis	Lumry	Dep't of Chemistry U of Saskatchewan
Ph.D.	Jempty, Thomas C.	3/81	Heterogeneous Oxidations: Silica Bound Ferric Chloride vs. Anodic Oxidation	L. Miller	3M St. Paul
M.S.	Junuh, Ismail	8/81	Infrared Intensities of Group Frequencies	Crawford	Teaching in Malaysia
Ph.D.	Maheu, Leo J.	12/81	Synthesis, Structural Character- ization, and Reactivity of Di- and Trithiocarbamate Complexes Osmium and Ruthenium	Pignolet	Postdoctoral Fellow Dept of Chemistry Yale University New Haven, CT
Ph.D.	Mueller, Mark E.	8/81	Studies on the Biomimetic Synthesis of Anatabine	Leete	Postdoctoral Fellow Dept of Chemistry Northwestern U Evanston, IL
M.S.	Neuburger, Carl D.	12/81	Quartz Crystal Micro-Balance and Various Other Surface Study Techniques	Hexter	Film Process Chemist Kroy Industries St. Paul, MN
M.S.	Olsen, Roger A.	3/81	Model Studies on the Reductive Metabolism of Arene Oxides	Fisher	3M St. Paul
M.S.	Oppenhuizen, Mark E.	6/81	Halolactonization of Unsaturated Acids by Chloroperoxidase and Lactoperoxidase: Non-Stereospecificity	Fisher	Agricultural Division Monsanto St. Louis, MO

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
Ph.D.	Ross, Michael R.	6/81	Secondary Ion Mass Spectrometry of Chemically Bound Organosilane Films and Plasma Polymerized Vinyl Ferrocene Films on Conductive and Semi-Conductive Substrates	Evans	Dept of Chemistry St. Johns U Collegeville, MN
Ph.D.	Rothschild, Wayne J.	12/81	Thermodynamics of Solution of n-Alkanols in H ₂ O and D ₂ O	Lumry	Engineer IBM Rochester, MN
Ph.D.	Russo, Paul S.	12/81	Solution Behavior of Stiff Chain Polymers	W. Miller	Postdoctoral Fellow U of Massachusetts Amherst, MA
Ph.D.	Schuette, George F.	3/81	Chemical Dynamics of Ion-Atom Collisions: A Merged Molecular Beam Study	Gentry	Phillips Petroleum Co. Bartlesville, OK
Ph.D.	Venzon, Eileen M.	3/81	Solution Chemistry of Localized Corrosion of Stainless Steels	Meehan	DuPont Wilmington, DE
Ph.D.	Wang, Hsien-Hau	12/81	Chemical Studies of Cationic Polyhydride Iridium Clusters with Chelating Diphosphine Ligands and Catalytic Aldehyde Decarbonylation Reactions	Pignolet	Postdoctoral Fellow U of Illinois-Champaign Urbana, IL

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISOR	POSITION
Ph.D.	Watson, Mark W.	12/81	Simplex Optimization in Gradient Elution High Performance Liquid Chromatography; the Preparation and Characterization of Biocompatible High Performance Liquid Chromato- graphy Packing Materials	Carr	DuPont Wilmington, DE
Ph.D.	Yamamoto, JoAnn K.	8/81	Biomimetic Transformation of Dehydro- cholesterol to Vitamin D	Borch	Postdoctoral Fellow Midland Molecular Institute Midland, MI

DEATHS

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

Paul H. Brinton

Angus Cameron

Dale M. DeLaitsch

Kenneth L. Howard

William T. King, III

William M. MacNevin

Owen A. Moe

Grant W. Smith

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.

Class of 1924

Stephen Darling retired in 1966 from Lawrence University in Appleton, Wisconsin, where he had been head of the chemistry department. His son, Dr. S.D. Darling is a professor of organic chemistry at the University of Akron, in Ohio. Two of his grandchildren are enrolled at the University of Minnesota, but neither is majoring in chemistry.

Class of 1927

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

Class of 1929

R.B. Ellestad is living in retirement in Gastonia, North Carolina.

Class of 1932

Hertha Rumsch Freche is living in retirement in Cleveland, Ohio, after a lengthy career in industry, specializing in non-ferrous metallurgy, and as a university professor of chemistry.

Class of 1934

H. Mauzee (George) Davis was employed at Pennsylvania State University from October 1936 until October 1962. Since 1962 he has been professor of chemistry metallurgy, Emeritus. From 1962 until 1974, he worked in the U.S. Army Research Office and was director of their Metallurgy and Materials Science Division. From 1963 until his retirement in December, 1981, he served as adjunct professor of materials engineering at North Carolina State University in Raleigh. Now retired, he devotes the majority of his time to music.

William Filbert is living in retirement in Woodbury, New Jersey.

Class of 1935

Maxine Burmeister became certified in all high school sciences and mathematics courses in New York State after graduation. From 1954 until her retirement in 1974, she was a science teacher at Duaneburg Central Schools in New York and was head of the science department for ten years. She married John E. Hancock in 1935 and they have four children.

Everett Hoffman is living in retirement in Oak Ridge, Tennessee. Since his retirement from the Department of Energy in 1977, he has been tutoring scientists from other countries in English.

Class of 1936

Isabella Webster joined Medical Mission Sisters in 1937. She got her Doctor of Medicine degree at Woman's Medical College in Philadelphia in 1947. She practiced general medicine in Pakistan and India until 1957. Next, she went to Ghana, West Africa and did leprosy work until 1959. In 1959, she returned to the United States and got her Master's Degree in Public Health from the University of Hawaii. She then spent her next six years in Rome as an assistant to a Superior General. Presently, she is in Kenya, East Africa where she is a health coordinator for the Bishop of Kakawaga.

Class of 1938

Walter Gensler will be retiring at the end of this academic year after being a professor in the chemistry department at Boston University.

Malcolm Renfrew is an emeritus professor of chemistry at the University of Idaho. He is the new chairman of ACS, Division of Chemical Health and Safety, and also the editor of the 1981 issue of Safety in The Chemical Laboratory. He also edits safety columns for the Journal of Chemical Educators.

Class of 1940

Carl S. Miller retired from 3M, Duplicating Products Division, in August, 1977, after 37 years with them. Presently, he is doing volunteer work at the Science Museum of Minnesota and the Historical Society of Minnesota.

Class of 1941

Cyrus Bemmels worked for E.I. duPont in Richmond, Virginia from 1941-42. He then worked for the Permacel Division of Johnson and Johnson from 1943 until his retirement in 1978. He held various positions in the research department and ended up as assistant technical director. He received the Johnson medal for developing a product exceeding \$1,000,000 in sales. He received 13 patents including the basic patent on strand reinforced tape. He also wrote a chapter in Skeit's Handbook on Adhesives.

Erhard Prill is a senior group leader in the Agricultural Formulation Section of Monsanto Agricultural Products Company, St. Louis, Missouri. He is an inventor/co-inventor of over 60 U.S. patents.

Robert Sandelin retired from his position as a steel plant metallurgist and is presently residing in Birmingham, Alabama.

Class of 1943

Joseph Nichols was a senior chemist for Interchemical Corporation from 1943-1949. From 1951-1968 he was director of research, Collagen Products, at Ethicon, Inc., a Johnson and Johnson Company. In 1968 he was president and founder of Princeton Biomedix Inc., initially called Nichols Laboratory until 1969. This company was formed to develop new medical and surgical products and to perform contract research. The company began manufacturing and marketing of clinical chemistry diagnostic reagents in 1972. The company was acquired by Becton, Dickinson and Company in 1976. Dr. Nicholas did consulting work for health care industries from 1976 until 1978. In 1979 he founded Helitrex Incorporated and developed collagen medical and surgical products. Currently they are manufacturing absorbable collagen sponge hemostats and a collagen neurosurgical sponge. Dr. Nichols has over sixty publications and issued patents in the areas of essential fatty acids, quinone and metallic enolates, protective coatings, pharmaceuticals, sutures, and collagen technology.

Class of 1945

D.J. Lehmicke is teaching at the University of Akron's Community College in Ohio since his retirement from Firestone Central Research in 1978.

Class of 1948

Otto Elmer currently is a research scientist in the Rubber Research Division at General Tire and Rubber Company in Akron, Ohio. He has been with them since 1953.

Class of 1948 (continued)

Vaughn Engelhardt has been with duPont Company for 31 years. Presently he works in the Agrichemicals Research Division of the Biochemicals Department at their Experimental Station where he is an associate director of research.

George Matsuyama retired from Bechman Instruments, Inc., in June, 1981. He is currently doing consulting work part time. He is also assisting Lonetics, Inc., where he is working on ion-selective-electrode analytical systems for whole-blood analyses.

Class of 1949

Harry Walker has spent the last ten years on environmental chemistry, especially in the area of the ozone problem. From 1976-1979 he was co-chairman of the Houston Area Oxidants Study (HAOS). Last spring he was elected to the grade of Fellow in the American Institute of Chemical Engineers. He is still working with Monsanto after 32 years. Dr. Walker says he manages to keep active at mountain climbing, whitewater canoeing and shelunking for exercise. He has four children, and two grandchildren.

Class of 1950

Robert Flesch recently retired from 3M Company after 31 years with them. He had been doing research in 3M's Printing and Photographic Division in Minnesota until 1973. In 1974, he was transferred to Atlanta, Georgia, where he worked as plant manager in their Dynacolor Division until his retirement in 1981. He is currently working for Nimslo Corporation in Atlanta where he is doing development of 3D color pictures.

Class of 1951

Howard Drew has been involved in a number of activities in the Research and Development Department at Procter and Gamble in Cincinnati. He has been with Procter and Gamble since 1951 and is currently Director of their corporate Human and Environmental Safety Division.

Class of 1952

Harland Embree is a professor of organic chemistry at San Jose State University in California.

Class of 1952 (continued)

Lester Krogh has been recently appointed as Research and Development Vice President, Industrial and Consumer Sector of 3M, in St. Paul, Minnesota. Formerly, he had held the position of Division Vice President of the Commercial Chemicals Division.

William Lee reports that he has been with SRI International (formerly Stanford Research Institute) since 1954. He works on synthesizing drugs for cancer chemotherapy, devoting much of his time to developing new radiosensitizers.

Class of 1953

J. John Brezinski is currently working in the research and development department of Union Carbide Corporation in South Charleston, West Virginia. Presently, he is section head of their Vinyl Chloride and Poly (Vinyl Bulural) Resins Division.

Class of 1954

John Holum worked as a chemist for Eastman Kodak Company in Rochester, New York after graduation in 1954. He was in the U.S. Army from 1955-56 and is presently working at Augsburg College, department of chemistry, Minneapolis, where he has been since 1957. He keeps active by skiing, backpacking and running. He has three children.

Lowell Peterson works for Henkel Corporation where he is director of their Basic Development Division.

Richard Ramette joined the faculty at Carleton College in 1954 and served as chemistry chairman from 1960-1972. He is now the Laurence M. Gould Professor of Chemistry. His research interests are in thermodynamic studies of aqueous equilibria. For 11 years he served as science adviser for the Food and Drug Administration. He has served as secretary and as president of the Midwestern Association of Chemistry Teachers in Liberal Arts Colleges, and in 1977 he was chairman of the ACS Division of Chemical Education.

Class of 1958

James Markham is Associate Dean for Sciences at Villanova University in Pennsylvania. He is also chairman of the Student Award committee of the Federation of Analytical Chemistry and Spectroscopy Societies.

Sister Mary Thompson received her Master's Degree in 1958 from the University of Minnesota. She then went on to the University of California, Berkeley, where she received her Doctorate in 1964. Presently, she is a professor of chemistry and chair of the department of chemistry at the College of St. Catherine in St. Paul. She is also a Councilor for the Minnesota Section of the American Chemical Society.

Class of 1959

Charles Hammer worked for Procter and Gamble (Miami Valley Research Labs) in Ohio after graduation in 1959. He was in the U.S. Air Force from 1959-1961 and later became a postdoctoral fellow at Brandeis University in Massachusetts, 1961-1963. He served as director for the FDA Institute of Advanced Analytical Chemistry from 1963-1974. Presently, he is a professor in the organic and analytical division of chemistry at Georgetown University in Washington, D.C.

Robert Rinehart, Jr. says Rinehart Labs continues a steady expansion with their work shifting from regulatory edict mandated analyses to work in support of consumer product development.

Donald Robinson is a senior research chemist at Pennwalt Corporation in Collegeville, Pennsylvania. He has been with them for 13 years and his work involves both synthesis and physical testing. He currently has two patent applications.

Class of 1960

William C. Kuryla is presently the Corporate Manager of Applied Toxicology at Union Carbide Corporation in South Charleston, West Virginia.

Thomas Reddy currently is director of technology, Power Conversion, Inc., Mount Vernon, New York.

Lowell Smith works for Monsanto Company in St. Louis, Missouri.

Class of 1961

Kenneth Emerson is a professor of chemistry at Montana State University in Bozeman. He was at Jilin University in mainland China this past year for six weeks giving lectures on solid state chemistry.

Class of 1962

Larry Bresina currently works at 3M Company in St. Paul. He is a senior development specialist for them.

Class of 1963

Charles L. Braun is a professor of chemistry at Dartmouth College in Hanover, New Hampshire. He is co-chairman of the 1982 Gordon Research Conference. Professor Braun reports the following infor-

Class of 1963 (continued)

mation concerning three of his classmates:

Joe Conrad is a professor of chemistry at the University of Wisconsin, River Falls.

Marian Lowe is a professor of chemistry at Boston University.

Gene Reck is a professor of chemistry at Wayne State University in Detroit, Michigan.

Wilfred Nelson is a professor of inorganic chemistry at the University of Rhode Island and is doing research in various aspects of applied spectroscopy.

Class of 1964

Sandra Galitski LaBella is currently working in research in the medical school at the University of Rochester in New York. She is involved in biochemistry relating to genetic diseases of the blood. She is also busy raising two children.

Class of 1966

Michael Gross is director of the National Science Foundation Midwest Center for Mass Spectrometry. He is also a professor at the University of Nebraska in Lincoln.

Class of 1967

J.F. Dooley is a senior research investigator and head of the clinical pathology laboratory in the Department of Drug Safety Evaluation at Pfizer Central Research. He is also a clinical associate professor in the department of laboratory medicine at the University of Connecticut School of Medicine. He also teaches graduate toxicology at Quinnipiac College in Hamden, Connecticut. His research interests primarily are in clinical chemistry and enzymology, instrumentation, toxicology and in vitro models for drug toxicity assessment.

Dennis Johnson is a professor in the chemistry department at Iowa State University in Ames.

Anthony Yapel is manager of Biokinetics Research at the 3M Central Research Biosciences Laboratory in St. Paul.

Class of 1968

Gerald Doyle currently is a research associate in Corporate Research Laboratories at Exxon Research and Engineering Company in Linden, New Jersey, where he has been employed since 1967.

Elmar Jancis is employed at Uniroyal Chemical Company in Naugatuck, Connecticut. His work has mostly been in the plastics and anti-degradant field and it has resulted in fourteen patents being issued to him. He has three sons.

Michael Jarcho is presently working in El Cajon, California.

Kenneth MacKay is director of research at Henkel Corporation in Minneapolis. Henkel is a large detergent and chemical company based in Dusseldorf, West Germany. It acquired General Mills Company, Inc., in 1977.

G. Paul Richter is a professor in the chemistry department at West Virginia Wesleyan College in Buckhannon.

Class of 1969

Arlin Gyberg is a member of the chemistry department at Augsburg College in Minneapolis. He is chairman-elect of the Minnesota section of the American Chemical Society, 1981-82.

Charles W. Hobbs currently is director of Acrylonitrile for Monsanto Company in Chesterfield, Missouri.

Tesuo Kakehi is currently working for Sanyo Chemical Industries, Ltd., in Tokyo, Japan. He was promoted to member of the board in 1981. He works as a general manager of their International Division and also of their Business Planning and Development Division.

Richard Sauers is currently working for duPont, Research and Development Division, in Delaware.

Class of 1970

Charles Grudzinskas joined American Cyanamid in 1970 as a research chemist in the prostaglandin group. He later was appointed group leader, antiinflammatory/antiallergy chemical group in 1973 and became the group leader of the prostaglandin group in 1974. In 1979 he was appointed project director and later became group project manager in 1981 in the newly formed operations planning section. He is also a registered U.S. Patent Agent.

James Maysilles works for the U.S. Bureau of Mines in Washington, D.C.

Class of 1971

John Olson is teaching organic and general chemistry at Camrose Lutheran College in Alberta, Canada. He also teaches organic chemistry at Concordia College in Edmonton. He keeps busy with school, square dancing and taking care of his four-year old daughter.

Kathryn Olson teaches general chemistry at Camrose Lutheran College in Alberta, Canada. She also keeps busy with things like church activities, square dancing and taking care of her daughter.

Class of 1972

Greg Schwing presently works in the Research and Development Division of duPont in Delaware.

Joseph Warden is presently on a sabbatical leave (1981-82) at University College in London and is a scientist-in-residence there in the Chemistry Division of Argonne National Laboratory.

Class of 1973

Charles Grisham is currently with the University of Virginia in Charlottesville. He is a current recipient of a Research Center Development Award from the National Institutes of Health.

Richard Jackson is currently working for duPont, Research and Development Division, in Delaware.

Class of 1974

John Maurus joined Pan-Technic, Inc., in 1974 and worked as a research associate until June, 1980. In 1980, he joined Probe, Inc., in Northbrook, Illinois, where he currently is working. His work involves evaluation of losses and follow-up investigations of fires and explosions. He is also a member of the International Association of Arson Investigators and the National Fire Protection Association.