UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Chemistry
139 Smith Hall
Minneapolis, Minnesota 55455

MINNESOTA CHEMISTS NEWSLETTER

No. 5 January 1976

Dear Alumni and Friends:

The last twelve months have witnessed a rather dramatic change within the Department of Chemistry. Bob Hexter has resigned from the Chairmanship to return full time to teaching and research. After considerable coersion on the part of the University administration and on the part of my colleagues, I reluctantly agreed to replace Bob at the helm. Thus I have found the last four months unbelievably hectic.

The determining factor in my decision to accept the chairmanship was my belief that the University was firmly committed to returning the Chemistry Department to its former stature. The commitment on the part of the University was not only a moral one, but also a financial one. An example of the decision that the University of Minnesota must have a first class Department of Chemistry is reflected in the fact that we have approval to add five new faculty members for the Fall of 1976. Clearly, the strong support of Chemistry by the University administration has injected into the Department a new level of activity, enthusiasm, and spirit of cooperation which should allow us to improve our stature rapidly.

We do not want to imply that the University has suddenly solved all our problems. Associated with the expansion of the faculty will be numerous types of growing pains. Funds (approximately $5 million) will be needed for the extensive renovation of parts of Smith Laboratory, which will be required for the housing of our expanded faculty. Major equipment needs will have to be funded. The graduate enrollment will have to be brought back to its previous level. In regard to graduate enrollment, I am pleased to report that the group entering in the Fall of 1975 was almost twice the size of the class entering two years prior. In addition the quality was excellent.

If we are to take full advantage of the opportunity for improvement which has been provided to us by the University, we will need both the best wishes and active help of our alumni and friends in industry and academies. We sincerely hope that the Department of Chemistry at the University of Minnesota will have a prominent place in your mind. We hope that you will bring to the attention of those who might be prospective graduate students or postdoctorals, the vigorous evolution which is occuring here. For those of you in a position to influence our level of financial support, your help would be most welcome.

With best wishes,

Paul G. Gassman

Otto H. Johnson

June 3, 1899 - October 29, 1975

IN MEMORIAM

Otto H. Johnson, Professor Emeritus, died Wednesday, October 29, 1975 of a heart attack while visiting friends in Indiana.

Otto Hallen Johnson was born June 3, 1899 in Belview, Minnesota. He graduated from Belview High School in 1919 and attended Macalester College in St. Paul until 1920 at which time he enrolled in the University of Minnesota. He obtained his B.S. degree in Chemistry in 1925. In 1926 he obtained a Master's Degree from the University of Minnesota in Agricultural Biochemistry with Professor Leroy S. Palmer. The title of his thesis was: "The Gold Numbers of the Colloidal Constituents of Milk."

From 1926 until 1935 when he entered graduate school in the Department of Chemistry at Minnesota he worked as an assistant chemist at the Washington State Experiment Station at Pullman, Washington. His wife Ruth passed away shortly before his retirement.

In 1939 he received his Ph.D. in physical chemistry with the thesis "Studies in Molecular Structure", with Professor George Glockler and then taught at Crosby-Ironton Junior College, Crosby, Minnesota. Later he served as acting head of the Department of Chemistry at Superior State Teacher's College, Superior, Wisconsin. In 1946 he accepted a position as an assistant professor in inorganic chemistry at the University of Minnesota. He was made an associate professor in 1951 and a full professor in 1957, and retired in 1969 as professor emeritus.

Throughout the some twenty years of distinguished service to the Department of Chemistry of the Institute of Technology he maintained both an active and productive service in undergraduate and graduate teaching. His primary interests were in the Group IVA elements. His graduate students pursued the preparative and structural chemistry of compounds especially of germanium and tin. One of his students developed as an industrial spin-off from research conducted with Professor Johnson, the well known fluoride additive to tooth paste. These basic patents, thus, are a lasting and valuable tribute to the inventive genius of both Professor Johnson and this student. It is further a tribute to Professor Johnson that in his teaching at the undergraduate level he kept his courses alive by interrelating the "theory" with the "practical" drawing on a wealth of personal experiences.

During the all too few years of retirement, time became available for renewing associations with professional and personal friends in Scandinavia. Numerous visits were made to Norway in these years. His associations with university facutly both within chemistry and outside his discipline were continuous, virtually to the day of his death through activities of the University of Minnesota Campus Club.

DEPARTMENTAL ORGANIZATION

Professor Paul G. Gassman was named new chairman of the Department on September 16, 1975. Dr. Gassman replaced Professor Robert M. Hexter, who was chairman from 1969-1975. Dr. Hexter will return to full time teaching and research. Professor Gassman's research interests are in the field of organic chemistry. He will continue with an active research program which has resulted in over 170 publications under his authorship.

Dr. Harold S. Swofford has been appointed to the position of Academic Vice-Chairman. In this position Professor Swofford will be responsible for undergraduate and graduate student advising as well as chairman of the graduate student evaluation and recruiting committee. Professor Swofford will also have prime responsibility for preparing the departmental teaching assignments.

Dr. Archie S. Wilson has been appointed to the position of Administrative Vice-Chairman. Professor Wilson will be responsible for all non-academic personnel and business activities of the Department.

PROMOTIONS

Dr. W. Ronald Gentry has been promoted from an Assistant to an Associate Professor. Professor Gentry joined the faculty in 1970. He received his doctorate from the University of California at Berkeley in 1967.

NEWS OF ALUMNI

Professor Jean'ne M. Shreeve, M.S. 1956, and currently chairman of the Department of Chemistry, University of Idaho, Moscow, Idaho, received the University of Minnesota Outstanding Achievement Award at the Minnesota Alumnae Luncheon on October 14.

Dean Aksel A. Bothner-By, B.S. Chemistry 1943, of the Mellon Institute of Science at Carnegie-Mellon Institute, Pittsburgh, Pennsylvania, received an Outstanding Alumni Achievement Award at the Institute of Technology Recognition Ceremony on June 7. Dr. Norman H. Cromwell, Ph.D. 1939, Regents Professor of Chemistry at the University of Nebraska, Lincoln, Nebraska was honored on the same occasion with an Outstanding Alumni Achievement Award.

Robert W. Sandelin Ph.D. 1941, although retired from Connors Steel Division of Birmingham, Alabama continues to be retained for occasional consulting.

We always welcome from alumni news items which we can place in our next Newsletter. Please send yours to us.

AWARDS

Dr. Gary Gray, assistant professor, has received a coveted Faculty Research Award from the American Cancer Society. The amount of $127,834 is for a five year period and will allow him to devote full time to cancer research.

The Alumni Achievement Award in recognition of service to education and science was presented to Professor Robert Brasted at the winter convocation, 1975, of the George Washington University, Washington, D.C. Professor Brasted also received the George Taylor Educational Development Award at the June Commencement of the University of Minnesota, Institute of Technology. The citation and $1,500 included support to participate in and chair a portion of the IUPAC Madrid Conference on Technology of Education as well as observe the European Community of Education. Support also included a series of lectures to the Chemical Societies of Yugoslovia, Hungary and Czechoslovakia as well as the German Chemical Society on performance measurements (testing programs) as well as research seminars in these countries.

On Thursday, June 5, at a ceremony held in the Campus Club, University of Minnesota, the University of Minnesota served as proxy for the Hebrew University of Jerusalem, and invested Professor Emeritus I. M. Kolthoff with the degree Doctor Philosophiae Honoris Causa.

The 1975 I. M. Kolthoff Scholarship in Analytical Chemistry was awarded to Miss Laura Porter, a graduating chemistry major at the University of Minnesota. The Kolthoff Award, in the amount of $250 is granted in recognition of outstanding achievement and scholarship in Analytical Chemistry. Miss Porter had worked with Professor Kreevoy and Professor Swofford on a research project aimed at improving the commercial synthesis of $NaBH_4$.

At the IT Recognition Ceremony held at Northrup Memorial Auditorium on Saturday evening, June 7, Outstanding Achievement Awards were given to Aksel A. Bothner-By, Dean, Mellon Institute of Science, Carnegie-Mellon University and Norman H. Cromwell, Regents Professor of Chemistry, University of Nebraska.
On the same occasion the Main Engineering building was renamed LIND HALL, in honor and memory of Samuel Coville Lind, Professor of Physical Chemistry, 1926-1947, Director of the School of Chemistry and first Dean of the Institute of Technology.

The Department of Chemistry was awarded $12,000 under NSF's Instructional Scientific Equipment Program. The $12,000 will be matched by the University to purchase an X-ray fluorescent spectrometer to be used in a course in modern methods of analytical chemistry. The successful proposal was written by Professor John Overend and Professor Harold S. Swofford and the principal investigator is Professor Robert M. Hexter. This is the first time the Department has won an ISEP award. It is one of 61 departments to receive one.

LEAVES

For the period September 1 to June 30 Professor Donald G. Truhlar will be on sabbatical leave as he was awarded a Visiting Fellowship by the Joint Institute for Laboratory Astrophysics in Boulder, Colorado. The study, "Scattering Theory and Calculations for Chemical Reactions and Electron Impace Processes" by Professor Truhlar will be supported by an award of $21,000 from NSF.

Professor Lawrence E. Conroy is on sabbatical leave during the academic year 1975-1976 spending the period September 1975 to March 1976 at the Kemisk Institut, Aarhus, Denmark. In March he plans to be at Cardiff, Wales, University College working with Professor R. D. Gillard.

VISITING PROFESSOR

The Department was honored during spring quarter by the presence of Professor Hans Wynberg of the University of Groningen, The Netherlands. Professor Wynberg was a Hill Foundation Visiting Professor and taught a special course, "Asmmetry in Organic Chemistry."

Professor Wynberg was born in Amsterdam, The Netherlands on November 28, 1922. He attended Brooklyn Technical High School 1939-1942 and received a B.A. degree from Cornell University, Ithaca, New York in 1949. In 1952 he received his Ph.D. in Organic chemistry from the University of Wisconsin at Madison. During World War II, he was a member of the O.S.S. and was awarded awarded the Legion of Merit for his services. He spent a year at Minnesota, 1951-1952, as a postdoctoral fellow with Professor W. E. Parham. From 1952-1956, he was an assistant professor at Grinnell College, Iowa. In 1956 he joined the faculty at Tulane University as an associate professor. In 1959 he went to Leiden University as a Fulbright Professor and in 1960 became professor and head of the Department of Organic Chemistry, University of Groningen, The Netherlands.

Professor Wynberg is a member of the American Chemical Society, The Chemical Society, the Royal Dutch Chemical Society, Sigma Xi, Phi Beta Kappa, Phi Lambda Upsilon, and is a Fellow of the New York Academy of Science. He is a dual citizen of the United States (naturalized 1943) and The Netherlands. He is married to Elizabeth Emma Decker and they have four children.

Professor Wynberg has published over 145 papers in organic chemistry and has served in an editorial capacity on a variety of technical publications.

MORE ON THE PICTURE "GRADUATE STUDENTS IN THE SCHOOL OF CHEMISTRY - MAY 1936"

All readers of this Newsletter will recall the picture published in Newsletter #3, January 1974 and the identities of those pictured which was published in last years Newsletter. Identities were thoughtfully provided by some of those who were present for the May 1936 photograph, and during this year additional clarifying data have been provided. Malcolm Renfrew, Ph.D. 1944, and #29 in the picture writes from Moscow, Idaho, that #9 (previously unidentified) is Dr. Richard H. Loeppert, Ph.D. 1940, and currently professor at North Carolina State University, Raleigh, North Carolina. Courtland Agre telephoned from across the Mississippi River at Augsburg College to also state that #9 was Dr. Loeppert.

It came as a shock to George Noponen, Ph.D. 1936, (#40) when he learned from William L. Hammerquist, B. Ch. E. 1930, via ham radio that a report of his demise was in the January 1975 Minnesota Chemists Newsletter. Needless to say he considered the report of his death more than somewhat premature. Dr. Noponen is enjoying the good life in his retirement at White Bear Lake, Minnesota.

Malcolm Renfrew and Edgar L. Piret; Ph.D. (Ch.E.) 1937, wrote to tell us that #25 should be correctly identified as Lawrence F. Jilk, B. Ch.E. 1934 and not Henry Yutzy, Ph.D. 1936, who died several years ago.

Does anyone have, from your Minnesota days, a group picture which you would like to share? We will be glad to print it in the next Newsletter.

In March Professor Ronald E. Barnett gave two talks: "Regulation of Membrane Enzymes" at the Physiology Department of Yale University and "Role of Vitamin E in Membranes" at the VA Hospital in New Haven, Connecticut. At the University of Virginia in April Dr. Barnett gave two talks: "Membrane Structure and Function" in the Biochemistry Department and "The Na^+, K^+-ATPase" in the Department of Chemistry. The "Approaches to Study of Membrane Structures" was the title of a talk given to the Biochemistry Department of Baylor University in November by Dr. Barnett.

Professor Robert C. Brasted presented a seminar on "The Story of a Research Program in Sulfur-Nitrogen Chemistry" to the Department of Chemistry, The George Washington University in February.
In July he attended a meeting of the International Activities Committee of the American Chemical Society in Washington, D.C., as chairman of the Course Materials and Special Topics Subcommittee.
Two papers were presented at the June Great Lakes Regional Meeting of the American Chemical Society, one in the area of "Further Studies on Environmental Aspects of the Pfeiffer Effect-Resolved Metal Complexes as the Pfeiffer Active Species" and "A Survey of Educational Technology in Chemistry at the University of Minnesota."
Professor Brasted completed a series of conferences, seminars, and personal consultations in September which were part of the George Taylor Teacher Development Award of June 1975. These included: The German Chemical Society, Frankfort on the subject of Evaluation Instruments; the Madrid IUPAC Conference on Technology in Chemical Education as well as the Federation of European Chemical Societies (service as chairman and summarizer of the former): Seminars on "Techniques and Technology in Chemical Education" and "Recent Developments in the Chemistry of Cyclosulfur Imides" at Zagreb University, Yugoslavia. The former topic was also presented at the Institute for the Dissemination of Science of Budapest Hungary. The same topic was presented at the Pedagogical Institute, Nitra, Czechoslovakia. "Cyclosulfur Imides" were discussed at the Inorganic Institute of Kaiserslautern University, FRG.
Professor Brasted addressed the Minnesota Section of the American Chemical Society at its October Meeting on the subject of "Recognition and Development of Teaching Excellence - A Committee Development."

Professor Robert G. Bryant gave seminars at the Department of Chemistry, University of Rocherster, Rochester, New York; and at Dupont Central Research. He attended the Experimental NMR Conference in California and presented papers at the Biophysical Society Meeting in Pittsburgh, the Midwest Regional Meeting of the ACS, and the National ACS Meeting in Chicago.

Professor Sidney E. Buttrill, Jr., presented the Departmental Colloquium at SUNY at Stony Brook, New York on October 31. On January 6 - 9 at Los Angeles and Menlo Park, California Dr. Buttrill presented seminars on research being conducted under NSF support.

Professor Bryce L. Crawford, Jr., participated in a seminar at Dow Chemical, Midland, Michigan in the Analytical Science Discussion Group in March. Also in March he gave the Rosetta Briegel Barton Lecture at the University of Oklahoma, Norman, Oklahoma. In April Dr. Crawford attended the Society for Applied Spectroscopy meeting in Springfield, Pennsylvania. At St. Olaf College in Northfield, Minnesota, he gave a seminar in July. Professor Crawford was also invited to give a seminar at Augsburg College in Minneapolis in the fall. The annual meeting of the Midwest Research Institute was attended in May by Dr. Crawford. The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy in Cleveland, Ohio, March and the Molecular Spectroscopy Symposium in Columbus, Ohio, June were attended by Dr. Crawford. Dr. Crawford takes an active role in activities of the National Academy of Science and the National Research Council.

He attended the following activities of the NAS/NRC: Meeting of National Committee for International Congress of Pure and Applied Chemistry, March; Annual Meeting of NAS, Washington, D.C., April; regular meeting of NAS Council, Washington, D.C., June; meeting of NAS Council and NRC Governing Board, Woods Hole, Massachusetts, August; NRC Governing Board, Washington, D.C., September; meeting of the USNC for IUPAC (NRC), Washington, D.C., September; meeting of NAS Council and NRC Governing Board, Washington D.C., November; meeting of NAS Council and NRC Governing Board, Washington, D.C., December.

Professor Crawford serves as a director of the American Chemical Society and in this capacity and in his capacity as Editor of the Journal of Physical Chemistry has attended the following functions: Editors' Conference, Sarasota, Florida, January; Special Board Council Conference, Washington, D.C.; National Meeting ACS, Board and Council Meeting, Philadelphia, Pennsylvania, April; testimony before a US Senate subcommittee, Washington, D.C., May; board meetings, Columbus, Ohio, June; National Meeting ACS, Board and Council Meeting, Chicago, Illinois, August; meeting of subcommittee on publications, Chicago, Illinois, November; board meetings, Mexico City, December.

Dr. John Ellis gave a paper, "Electronically Equivalent Groups in Chemistry" in August at the fall meeting of the American Chemical Society.

COLLOQUIA, ETC. (continued)

Dr. Paul G. Gassman presented the following invited lectures:

January 20: "The Chemistry of Azasulfonium", Department of Chemistry, Northern Iowa University, Cedar Falls, Iowa.

January 27-29: "Transition Metal Promoted Rearrangements of Highly Strained Ring Systems: Ciba-Geigy Corporation, Summit, New Jersey.

February 12: "Recent Advances in Strained Ring Chemistry", Indiana-Kentucky Border Section of the ACS, Evansville, Indiana.

February 24: "The Chemistry of Azasulfonium Salts", North Jersey Section of the ACS, South Orange, New Jersey.

February 25: "Recent Advances in Strained Ring Chemistry", Bell Laboratories, Murray Hill, New Jersey.

March 6: "Chemistry of Azasulfonium Salts", Department of Chemistry, University of Illinois, Urbana, Illinois.

March 7: "Chemistry of Azasulfonium Salts - New Intermediates in Organic Syntheses", Allied Chemical Company, Corporate Research Division, Morristown, New Jersey.

March 18: "Chemistry of Azasulfonium Salts", Department of Chemistry, Johns Hopkins University, Baltimore, Maryland.

April 14: "Substitution via Nitrenium Ions", Plenary Lecture - International Symposium on Nucleophilic Substitution, Pocono Manor, Pennsylvania.

April 18: "Chemistry of Azasulfonium Salts", Rohm and Hass Co., Research Laboratories, Spring House, Pennsylvania.

May 19: "The Chemistry of Azasulfonium Salts", Midland Section of the ACS, Midland, Michigan.

May 29: "Azasulfonium Salts - New Intermediates in Aromatic Substitution", Symposium on New Methods in Organic Synthesis, 7th Central Regional Meeting of the ACS, Morganotwn, West Virginia.

August 22: "The Chemistry of Azasulfonium Salts - Useful Intermediates in Aromatic Substitution", Chevron Research Co., Richmond, California.

August 22: "Transition Metal Complex Promoted Rearrangements of Highly Strained Ring Systems", Chevron Research Company, Richmond, California.

September 25: "Nitremium Ions - Past, Present, and Future", EUCHEM meeting on Nitrogen and Oxygen Intermediates in Reaction Mechanisms and Organic Synthesis, St. Raphael, France.

Professor Gassman also presented the following papers:

"Substituent Effects in the Base Promoted Rearrangements of Aryl Azasulfonium Salts" with B. W. Cue, Jr., and T. Y. Luh, 169th National Meeting of the ACS, April 7-11, Philadelphia, PA.

"Ion Conformation as the Determining Factor in the Ring Expansion of Bicyclo[2.1.0]pentane Derivatives", with W. C. Pike, 9th Great Lakes Regional Meeting of the ACS, June 4-6, St. Paul, MN.

"Highly Strained Polycyclic Ring Systems. The Synthesis and Properties of Inside-Outside (i,o)-Bicyclo[n.2.2]alkane Derivatives", 9th Great Lakes Regional Meeting of the ACS, June 4-6, St. Paul, Minnesota, with T. F. Bailey.

"The Reaction of Organolithium Reagents with 2-chlorobicyclo-[2.2.1]hept-2-ene", with J. J. Valcho, 170th National ACS Meeting, Chicago, Illinois, August 25-29.

"Recent Advances in Strained Ring Chemistry" Chemistry Section, National Science Foundation, Washington, D.C., November 12.

"Azasulfonium Salts - Useful Intermediates in Organic Synthesis", Department of Chemistry, Columbia University, New York, New York, November 13

In October Professor W. Ronald Gentry presented these talks: "Ion-Molecular Reactions in Merged Molecular Beams", "Microscope Examination of Ion-Molecule Reactions in Isotope Hydrogen Systems", and "Vibrational and Rotational Excitation in Ion-Molecule Collisions" at the Gaseous Electronic Conference at Rolla, Missouri. In December he presented the paper, "Ion-Molecule Reactions in Merged Molecular Beams," at the University of Colorado and the paper, "Reactions of D_2^+ with Na and O Atoms" at Tucson, Arizona.

Professor Gary Gray presented a joint seminar with Pharmacy and the Minnesota Membranes Group on "Mycobacterial Components in Tumor Regression" at the University of Minnesota on February 4. Dr. Gray was an invited speaker at the Tenth Joint Tuberculosis Research Conference, US-Japan Cooperative Medical Sciences Program in Big Sky, Montana, September 8-12. At this conference he presented "Chemical Properties of Mycobacterial Cell Walls in Relation to Tumor Supression and Regression". He also attended the Fall meeting of the Society for Complex Carbohydrates October 9 and 10 at Snowbird, Utah. There he presented a paper entitled "The Synthesis of Carbohydrate Containing Antigens and Affinity Columns." In October Dr. Gray presented a paper entitled "Chemically Glycosylated Proteins and Gels" at the Fall meeting of the Society for Complex Carbohydrates at Snowbird, Utah. Dr. Gray presented the seminar: "Mycobacterial Components in Cancer Immunotherapy" at Carleton College on November 14. He gave the same talk at Macalaster College on November 10. He gave the talk, "Chemically Glycosylated Proteins and Gels" at the Medical Biochemistry Department, University of Minnesota on November 25 and at Kallestad Laboratories, Chaska, Minnesota in December.

Professor Robert M. Hexter attended the annual meeting of the Big Ten Chemistry Department Chairmen, January 10-11, held at the O'Hare American Inn, Des Plaines, Illinois. The topics that were discussed were current salary levels and trends at member institutions; general departmental resources and trends in these; teaching assistant stipends and loads; trends in affirmative action, promotion policies and standards, tenure regulations; maintenance of instrumentation- cost and staff help; and overhead costs and return of overhead funds. This meeting, which was initiated by Dr. Hexter in 1971, was attended by all members of the Big Ten.

Professor Maurice Kreevoy presented a lecture, February 14, on Reactions of Borohydride Ion in Acidic Solution at Cleveland State University. He attended the EUCHEM Conference in Padova, Italy on Proton Transfer in Non Ideal Solutions, August 30 through September 5 and gave a paper on "The uv Spectra, Isotopic Fractionation Factors, and Structure of Hydrogen-bonded Complexes." In Zagreb, Yugoslavia, Professor Kreevoy lectured on "Reactions of Borohydride Anions in Acidic Solutions" for the Croatian Chemical Society. September 8 - 10 Dr. Kreevoy attended a Faraday Symposium on Transfer in Stirling, Scotland in honor of Professor R. P. Bell's retirement. At that meeting he gave a paper on "The Reaction Complex in Proton Transfer." That paper will, shortly, appear in written form in the Discussions of the Faraday Society, which will report the proceedings of the Symposium. He then returned to Minneapolis on September 17, after spending several days visiting in and around Oxford. During October 30 - November 3 Professor Kreevoy traveled to the Los Angeles Area. He lectured on "The Nature of the Potential Function for Strong Hydrogen Bonds," November 1 at USC, and on "Borohydride Chemistry in Acidic Solution," at Long Beach State University. The purpose was to publicize our graduate program. Dr. Kreevoy was in Mexico City, November 30 - December 7 to attend the First Chemical Congress of the North American Continent. He gave a paper, "The uv Spectra and Fractionation Factors of Strongly Hydrogen Bonded Complexes".

Professor E. Leete presented seminars at the Ohio State University, Carleton College, and the University of Wisconsin, on "The Use of ^{13}C nmr in Elucidating Biosynthetic Pathways in High Plants." At the Gordon Conference on National Products, Dr. Leete gave the paper, "Biosynthesis of Tropic Acids and Tenellin Solved by the Use of ^{13}C-NMR." At the American Chemical Society Meeting in Chicago, he presented "Determination of the 'Starter' Acetate Unit in the Biosynthesis of Pinidine." Professor Leete attended the 19th Tabacco Chemists meeting at the University of Maryland, October 8-10 and presented a paper entitled "The Incorporation of [2-^{14}C]nicotinic Acid into the Alkaloids of Fresh and Sun-dried *Nicotiana tabacum*". He also participated in the 2nd Philip Morris Science Symposium held in Richmond, Virginia, October 30. During November 30 - December 5 Professor Leete attended the 1st Chemical Congress of the North American Continent held in Mexico City and presented a paper entitled: "Biosynthesis of the Alkaloids of Dendrobium peirardii using ^{13}C-NMR."

Professor Sanford Lipsky presented a talk, "The Perturbation of Molecular Rydberg States" at the VIII International Conference on Photochemistry at the University of Alberta, Edmonton, Canada in August.

Professor Rufus W. Lumry made a site visit requested by ERDA to the Holifield National Laboratory, Biology Division, Oak Ridge, Tennessee, January 27 - 29. He presented the talk, "The Mobile-Defect Hypothesis of Protein Function", at: the University of Missouri, Department of Biochemistry, Columbia; Roscoff, France, June; Swiss Federal Institute of Technology, Biochemistry Laboratory, Zurich, Switzerland, June 10. Also in June he presented the talk, "Moble Defects in Hemoglobin Function", at the Conference on Normal and Sickle Cell Hemoglobins, Bellagio, Italy. Professor Lumry attended the 30th Annual Calorimetry Conference, Seattle, Washington, July 16 - 19. At the Minnesota Symposium on Environmental Stress in St. Paul, September 22 - 25, he presented the talk, "Water Properties Relevant to Environmental Stresses". On December 16, Professor Lumry gave a seminar, "Recent Developments in Molecular Basis of Water Behavior" at 3M Company in St. Paul, Minnesota.

Dr. Mead gave a talk at St. Olaf College, Northfield on July 24 on "Applications of Permutation Group Theory in Stereochemistry." He also presented the talk, "Principle of Increasing Mixing Character" at the Midwest Theoretical Chemistry at Madison, Wisconsin in May and at the Conference on Statistical Mechanics at Schloss Elmau, Garnisch - Parten Kirchen, Germany in October. His German trip was sponsored by the Volkswagen Foundation.

Professor Wilmer G. Miller presented the initial Rubber Division Research Project Award Paper at the 1975 spring meeting of the Rubber Division, ACS, in Cleveland, Ohio. His paper was titled: "The Use of Stable Free Radicals to Determine Motion in Polymeric Systems". The Research Project Award was estabilshed by the Rubber Division to foster "seed" type research in projects allied with the rubber industry. Each year, universities with rubber or polymeric research activities are requested to submit projects for consideration by the Rubber Division. The award winner is requested to present his paper at a divisional meeting. Dr. Miller's recent research accomplishments have been concerned with the physical chemistry of polymer systems. The Project Award paper explores the use of thermally and chemically stable free radicals to measure solvent penetration in rubber. Several additional studies have already been initiated using the techniques developed by this work.
The following talks were given in 1975 by Dr. Miller:

March 6: "Thermo and Dynamics of Polymer Liquid Crystals" Chemistry Department Colloquium, Cornell Univeristy, Ithaca, New York.

March 7: "Thermo and Dynamics of Polyner Liquid Crystals" Chemistry Department Seminar, SUNY, Binghamton, New York.

June 4: "Microstructure of Polymer Latexes upon Exposure to Solvent" Great Lakes Regional Meeting, ACS. St. Paul, Minnesota.

June 16: "Evolution and Folding in Proteins, Globularity in Copolymers" Invited lecture, Gordon Research Conference on Proteins.

November 14: "Polymer Liquid Crystals" Polymer Department Seminar, Case-Western Reserve Univeristy.

December 12: "Incorporation of Nonpolars into Lipid Bilayers" Contributed paper - Membrane Symposium, Mexico City ACS Meeting.

Dr. Wayland E. Noland gave an address on "Chemicals and Food" (a story about food additives) before the Chemical Association of Minnesota at the Thunderbird Motel in Bloomington, Minnesota on September 15. Dr. Noland also gave a paper at the 9th Great Lakes Regional Meeting with S. Bourne and H. L. Patel, "Rearrangements of s-Nitronorbornanes". On May 9 Dr. Noland gave a Chemistry seminar on "Rearrangements of Nitronorbornenes" at the University of Wisconsin - River Falls, River Falls, Wisconsin. The meetings of the Board of Editors, Corporation, and Board of Directors of Organic Syntheses in Chicago on August 24 - 25 in his capacity as Secretary of the Organization.

John Overend spent three months this past summer in Los Alamos, New Mexico, where he worked for ERDA on the National Energy Program. In September at the Los Alamos Laboratory he presented the seminar: "Rotation - Vibration Interaction in Methane."

In April Professor Louis H. Pignolet gave the paper, "Stereochemical and Redox Properties of Tris-Dithiocarbamato Complexes" at Princeton University. Also in April he gave the talk, "Redox and Photochemical Properties of Dithiocarbamato Complexes" at the Inorganic Seminar, MIT; at the Central Research Laboratory, E. I. duPont Company of Wilmington, Delaware; and at the Departmental Seminar of the Lafayette College, Easton, Pennsylvania. Dr. Pignolet presented a paper "X-ray Structure of a Novel Metal-Metal Bonded Diruthenium Complex with Dithiocarbamato Ligands," and chaired a session of the 169th ACS National meeting, Philadelphia, Pennsylvania April 8. Graduate students, advised by Dr. Pignolet, presented the following papers at the 9th Great Lakes Regional meeting of the ACS, June 4 - 6:

"Ligand Exchange Reactions of Tris(Dithiocarbamato) Metal Complexes by NMR", J. R. Heiman and L. H. Pignolet.

"Electron Transfer Reactions between Complexes of Fe(II), (III) and (IV)", M. C. Palazzotto and L. H. Pignolet.

"Redox Properties of Ruthenium Complexes of Dithio-Chelating Ligands", B. M. Mattson and L. H. Pignolet.

Professor Pignolet chaired a session at that meeting.

Professor Warren L. Reynolds presented the talk, "Mechanisms of Inorganic and Organic Substitution Reactions," at the University of Tulsa, April 14; North Central Oklahoma Section of the ACS April 16; and, Wichita State University, April 17.

Professor Harold S. Swofford attended the 23rd Annual Conference of the American Society for Mass Spectrometry at Houston, Texas in May. He presented two papers: "Development of a Cryogenic Separator for CI Analysis of Environmental Air Samples" and "Reagent Gas Cluster Ion Additions to Neutral Molecules." In June Dr. Swofford attended the Ninth Great Lakes ACS Regional Meeting in St. Paul where he presented the two papers above plus the paper, "The Effectiveness of Training in Chemical Instrumentation and Analysis." Professor Swofford was invited to present a seminar, "The Use of Chemical Ionization Mass Spectrometry in Solving Analytical Problems" to the Midwest Research Institute in Kansas City, Missouri.

Professor Donald G. Truhlar presented a seminar at the University of Cincinnati, February 7, on "Trajectory Studies of Threshold Energies and the Production and Utilization of Vibrational Energy by Chemical Reactions." Dr. Truhlar attended the Summer Research Conference on Theoretical Chemistry, Boulder, Colorado, June 23 - 27 where he was invited to present a paper entitled "Prediction of Quantum-State Distribution by a Moment Analysis of Classical Trajectories." He also contributed a paper on "Comparison of Analytic Fits to the Interaction Potential for Vibrational Excitation of H_2 by He Using Semiclassical Collision Theory." The papers: "Theoretical Calculations of the H + Br_2 Reaction Surface," by P. Baybutt, F. W. Bobrowicz, L. R. Kahn, and D. G. Truhlar; "Vibrational Excitation of N_2 by Electron Impact," by M. A. Brandt, D. G. Truhlar and F. A. Van-Catledge; "Semiclassical Approach to the Comparison of Analytic Fits to the He-H_2 Interaction Potential" by J. W. Duff, and D. G. Truhlar; and, "Approximations for the Exchange Potential in Electron Scattering" by D. G. Truhlar and M. E. Riley, were presented at the Eighth Midwest Theoretical Chemistry Conference, University of Wisconsin, Madison, Wisconsin, May 2 and 3. He was co-author of the paper " Theoretical Calculations of the H + Br_2 Reaction Surface" by P. Baybutt, F. W. Bobrowicz, L. R. Kahn and D. G. Truhlar at the Thirtieth Symposium on Molecular Structure and Spectroscopy, Columbus, Ohio, June 17.

Adjunct Professor, Harold Wittcoff, presented a seminar at Carlton College, Northfield, Minnesota, entitled, "Industrial Chemistry." He was also invited to present the official U.S. paper at the FATIPEC (European Association of Coatings Scientists and Technologist) Biennial Congress in Cannes, France in May. Dr. Wittcoff participated in a sumposium at the American Chemical Society Regional Meeting held in St. Paul, Minnesota on June 5 by presenting a talk on undergraduate education entitled "An Experimental Course in Industrial Chemistry -- Curriculum". Dr. Wittcoff also delivered a talk on the teaching of Industrial Chemistry at a symposium entitled "Specialists vs. Generalists -- Trends in Education" at the annual meeting of the Industrial Research Institute at White Sulphur Springs, West Virginia on May 30.

COLLOQUIA, ETC. (continued)

Dr. Wittcoff presented an invited talk at the Gordon Research Conference Chemistry & Physics of Coatings and Films, held in Polymouth, New Hampshire, in July, entitled "A Corrosion Resistant Vehicle -- A New Concept in Functionality". During September Dr. Wittcoff presented a talk to the Japanese Paint Soceity, Tokoyo, Japan, entitled "The U.S. Coatings Industry: Its Response to Pollution", and also to the Japanese Engineering Adhesives Association, Tokoyo, entitled "Polyamide Resin-Based Hot Melt Adhesives." On Decemver 9 and 11, Dr. Wittcoff addressed the Houston and Dallas Societies for the Federation of Coatings Technology. His subject was, "The Versamid-Epoxy Resin System -- Its Response to Change." Professor Wittcoff presented a seminar at St. John's University in Collegeville on December 3, entitled "Industrial Chemistry."

A POTPOURRI OF ACTIVITIES

Professor Edward Leete won a Midas Muffler in the St. Paul Winter Carnival 4th Annual King Boreas cross-country ski race. In the 1st Annual Chai Marathon held on the East River Road on November 9 Professor Leete came in 4th (1st old man over 40).

The cover of the 60th anniversary issue of the Minneapolis Athletic Club Gopher was a full color reproduction of a water color by Professor John Overend of the front of the club building.

Dr. Harold Wittcoff was selected chairman of the Food and Nutrition Task Force for the American Chemical Society's Centennial Exhibit Committee. The committee is charged with developing an exhibit showing chemistry's progress during the past 100 years. The exhibit will be displayed for the first time at the Spring ACS meeting in New York and will be exhibited thereafter in museums throughout the nation.

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 in a national conpetition. Eighteen students were selected from 200 applications and participated in advanced research projects under faculty supervision in the Department of Chemistry. The eighteen students who participated in the summer of 1975 were:

NAME	SCHOOL	RESEARCH GROUP HEAD
Donald Berdahl	U of Wyoming Laramie, WY	Gassman
Jenny Buzan	Monmouth College Monmouth, IL	Barnett

LANDO SUMMER FELLOWSHIPS (continued)

NAME	SCHOOL	RESEARCH GROUP HEAD
Amos Gottlieb	Grinnell College Grinnell, IA	Gray
Mark Greelee	Ohio State U Columbus, OH	Gassman
Anne Kessler	College of St. Benedict St. Joseph, MN	Reynolds
George Lein	SUNY Albany, NY	Gassman
David L. Linder	Ohio State U Columbus, OH	Gassman
Vera V. Mainz	Kansas Newman College Wichita, KS	Lipsky
Leonard Mloeinow	Brandeis U Waltham, MA	Dahler
Richard Mortensen	Penn State U University Park, PA	Gray
Radley Olson	Ohio U Athens, OH	Buttrill
Sondra Pfeffer	Barnard College New York, NY	Moscowitz
Ruth Poling	Indiana U Bloomington, IN	Truhlar
William Reus	Calvin College Grand Rapids, MI	Gassman
Gregory Stuk	Tennessee Tech U Cookeville, TN	Pignolet
Brent Sweitzer	Caltech Pasadena, CA	Leete
Loyal Tillotson	Ohio Northern U Ada, OH	Gassman
Daniel Wroge	Augsburg College Minneapolis, MN	Crawford

The program will be held again in the summer of 1976 and interested persons who wish to nominate students should contact Professor L. H. Pignolet, Department of Chemistry, University of Minnesota, Minneapolis, Minnesota 55455, for the details of the program.

NATIONAL SCIENCE FOUNDATION - UNDERGRADUATE RESEARCH PROGRAM FOR SUMMER 1975

The Department was awarded $20,700 to conduct a summer research program for undergraduates. The program was directed and organized by Professor John E. Ellis. The successful proposal was written by Professors: Bryant, Buttrill, Conroy, Ellis, Gassman, Gentry, Gray, Kreevoy, Lumry, Noland, Overend, Pignolet, Reynolds and Truhlar. The participants who were at Minnesota for twelve weeks were:

NAME	COLLEGE
Stanley Finkelstein	Hamline
Jeffrey Hane	U of Minnesota
David Harsh	Concordia, Moorhead

NATIONAL SCIENCE FOUNDATION - UNDERGRADUATE RESEARCH PROGRAM FOR SUMMER 1975 (continued)

NAME	COLLEGE
Curtis Johnson	U of Minnesota
Alan Johnston	U of Minnesota
Jeffrey Kolstad	U of Minnesota
Minh Le	Gustavus Adolphus
Sara McFarlan	U of Minnesota
Richard Olson	U of Minnesota
Susan Rosa	Augsburg
Steven Riemer	U of Minnesota
Jay Schufman	St. Cloud State
Terrance Smith	U of Minnesota
William Tarara	St. Mary's

INDUSTRIAL GRANTS TO THE DEPARTMENT

The following industrial organizations have made grants to the Department for fellowships 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. Industrial grants to individual faculty members are listed elsewhere.

E. I. du Pont de Nemours and Company	$26,000
Minnesota Mining and Manufacturing Co.	5,000
General Mills, Incorporated	4,000
Allied Chemical Company	3,000
Hercules Incorporated	3,000
Uniroyal, Incorporated	3,000
The Dow Chemical Company	2,500
Exxon Education Foundation	1,000
The Lubrizol Founation	1,000
Union Carbide Company	1,000
McKnight Foundation	100,000

EQUIPMENT ACQUISITION

The following list of major equipment was received in the Department during 1975. The acquisition price is given to the nearest thousand dollars.

UV-Vis Varian Recording Spectrophotometer	$16
Computer/Interface/Software for Data Acquisition, NMR 808 from Nicolet Instrument Corporation	$18
Beckman IR Spectrometer, Model 4740	$ 9
Liquid Scintillation System, Beckman Instruments	$12
Perkin-Elmer Photoelectric Polarimeter	$11
Varian Carbon-13 NMR with pulsed FT	$54

RESEARCH GRANTS TO THE FACULTY

Graduate school grants to faculty members during calendar 1975 totaled $49,675.00 and were distributed as follows:

NAME	PROJECT	AMOUNT
Britton, Doyle	Crystal Structure Determination by X-ray Diffraction	$2,000.00
Ellis, John E.	Synthetic and Electrochemical Investigation of Metal Carbonyl Di-and Trianions	4,745.00
Gassman, Paul G.	Assistant in the Establishment of Laboratory	10,000.00
Hexter, Robert M.	Elementary Analysis of a Cyto-chemical Scale Using Synchroton Radiation	6,481.00
Mead, C. Alden	Applications of Algebraic Techniques in Theoretical Chemistry	8,000.00
Mossotti, Victor G.	The Information Structure of Analytical Flames	8,349.00
Overend, John; Moscowitz, Albert & Schmidt, Lanny (ChemE)	Absorption Spectroscopy at High Dynamic Range	4,750.00
Pignolet, Louis H.	Photochemical Investigation of Transition Metal Complexes	4,000.00
Truhlar, Donald G.	Quantum Mechanical Cross Sections for Vibrational Excitation of N_2 by Electron Impact	1,350.00

Grants to faculty members during calendar year 1975 from sources outside the University totaled $1,297,820 and were received by the following professors:

NAME	PROJECT TITLE	GRANTING INSTITUTION	AMOUNT
Ronald Barnett	Mechanism of Alkali Cation Transport	PHS	41,879
Robert G. Bryant	Solvent and Small Solute in Tissues and Proteins	USPHS	$39,113

NAME	PROJECT TITLE	GRANTING INSTITUTION	AMOUNT
Robert Bryant	Chemistry of Metal Ion-Protein Interactions	PHS	33,398
Bryce Crawford	Infrared Optical Studies on Molecular Relaxation Processes in Liquids	NSF	57,000
John Dahler	Kinetic Theory of Polyatomic Fluids	NSF	36,000
John E. Ellis	Synthesis and Chemistry of Metal Carbonyl Di-and Tri-anions	ACS Fed	24,000
Paul G. Gassman	Vincristine and Vinblastine Derivatives and Models	PHS	35,824
	Highly Strained Nitrogen Heterocyclics	PHS	71,876
	Stereospecific Functionalization of Aromatic Amines	USPHS	22,786
	Chemistry of Bent Bonds	NSF	68,700
	Unrestricted	Rohm & Haas Co.	5,000
	Unrestricted	General Electric Co.	7,500
W. Ronald Gentry	Chemical Dynamics of Molecular Collisions	Sloan Foundation	8,110
	Reactions of Ions with Atomic and Molecular Free Radicals	ERDA	25,000
	Chemical Dynamics of Biomolecular Reactive Collisions	NSF	25,000
Gary R. Gray	Faculty Research Award	American Cancer Society	127,834 for 5yrs.
	Antitumor Active Components of BCG Walls	PHS	56,932

NAME	PROJECT TITLE	GRANTING INSTITUTION	AMOUNT
Robert M. Hexter	Critical Point Analysis in Molecuar Crystals by the Use of Modulation Spectroscopy	ACS Fed	24,000
I. M. Kolthoff	Polarography with Albumin and Cancerous Human Blood Sera	USPHS	26,254
	Acid Base Equilibria in Aprotic Solvents	NSF	22,600
Maurice Kreevoy	Reactions of BH_4 in Acidic Protic and Aprotic Solutions	ACS Fed	24,000
	Electrochemical Generation of $NaBH_4$	Ventron	5,250
	DMSO-Water as a Medium for BH_4 Reducations	Ventron Corporation	3,720
dward Leete	Research on Biogenesis of Morphine	PHS	66,215
anford Lipsky	The Contribution of Electronically Excited States to the Radiation Chemistry of Organic Liquids	ERDA	73,000
ufus Lumry	Research on Energy Transfer and Utilization in the Photosynthetic Process	ERDA	13,153
	Moelcular Details of Direct Water Participation in Protein, Membrane and Whole-Cell Function	American Cancer Society	35,757
	Conformational Basis of Enzymic Catalysis	USPHS	49,780
	Systems Approach to Protein Function	NSF	36,000

NAME	PROJECT TITLE	GRANTING INSTITUTION	AMOUNT
Wilmer G. Miller	Cholesteric BioPolymer Liquid Crystals	PHS	61,520
Albert Moscowitz	Magnetic Circular Dischroisms of Forbidden Transition in Organic Molecules	NSF	70,000
John Overend	Infrared Spectroscopy of Adsorbates on Clean Solid Surfaces	NSF	24,619
Harold Swofford/ Sidney Buttrill	Development of Chemical Ionization Mass Spectrometry as an Analytical Tool at Parts per Billion Concentration Levels	NSF	55,000
Donald G. Truhlar	Scattering Theory and Calculations for Chemical Reactions and Electron Inpact Processes	NSF	21,000

PLACEMENTS OF GRADUATES FROM THE GRADUATE CHEMISTRY PROGRAM

On the following pages is a compilation listing students who obtained their graduate degrees during 1975 as well as the title of their theses and the names of the advising professors. The position which the student obtained after graduating is also indicated. Students inadvertently left out in the 1974 Newsletter are included in this Newsletter.

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISER	POSITION
Ph.D.	DeGrande, Gary	3/74	An Approach to the Synthesis of the Macrolide Antibiotics.	Borch	3M Center St. Paul
Ph. D.	Duffy, Daniel	3/74	Nuclear Magnetic Resonance Studies of Stereochemically Nonrigid Tris (Dithiocarbamate) Complexes of Iron and Ruthenium.	Pignolet	Buckbe-Mears St. Paul, Minn.
Ph.D.	Edgar, Barbara	3/74	Nuclear Magnetic Resonance Studies of Stereochemically Nonrigid Dithiocarbamate Complexes of Iron (II) and Ruthenium (II).	Pignolet	Temporary Asst. Professor Dept. of Chemistry Univ. of Minn.
Ph.D.	Man, Ming	3/74	Investigation of Protein Sulfhydryl Groups: Chloride Ion as Nuclear Magnetic Resonance Probe of Molecular Structure	Bryant	Postdoctorate Dept. of Biochemistry School of Medicine University of Maryland
Ph.D.	Montgomery, William	3/74	I. Studies in the Reactions of Metacyclophanes. II. The Synthesis of Indenes.	Parham	DuPont

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISER	POSITION
Ph.D.	Wu, Chia-chuan	3/74	Studies on Nitoxide Labeled Polypeptides.	Miller	Postdoctorate Dept. of Biophysics Florida State University
M.S.	Flom, Elroy	3/74	The Interaction of Metal Carbonyl Anions with Carbon Disulfide.	Ellis	U. S. Air Force
Ph.D.	DeVries, Jonathan	6/74	An Approach to the Total Synthesis of Steviol.	Borch	Satellite Corp Minneapolis
Ph.D.	Strange, Robert	6/74	Structure of the Rearrangement Products of 5-Nitro-6-Substituted-2-Norbornen-7-Ones and 6-Methyl-5-Nitro-2-Norbornene.	Noland	Medical School Univ. of Minn.
M.S.	Krissiep, Karen	6/74	Metabolism of Gramine in Barley.	Leete	Dept. of Chemistry Univ. of Minn.
M.S.	Vincent, Sheridan	6/74	Infrared Spectroscopy of Surface Species.	Overend	Eastman Kodak Co. Rochester, NY

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISER	POSITION
Ph.D.	Ashe, Terrence	3/75	I. Preparation and Reactions of Diene-Diols. II. Laser Raman Study of Fatty Acids.	Fenton	Exxon Research & Engineering Co. P.O. Box 12T Linden, N.J. 07036
Ph.D	Boerth, Donald W.	3/75	I. Synthesis and Ultraviolet Spectra of Conformationally Rigid Vinyl Cyclopropanes. II. Laguerre Functions as Basis Sets for Ab Initio SCF Calculations.	Van-Catledge	Department of Chemistry University of Calif.-Berkeley Postdoctorate
Ph.D.	Chang, Kuang-chou	6/75	Spectroscopic Studies of Very Strongly Hydrogen Bonded Complexes.	Kreevoy	Department of Chemistry Brandeis University Postdoctorate
Ph.D.	Evans, April Joy	6/75	The Total Synthesis of 8-epi-Dendrobine.	Borch	Department of Chemistry University of Minnesota Postdoctorate
M.S.	Ouchi, Glenn	6/75	Plan B.	Leete	Foothill College Los Altos, California
Ph.D.	Blanke, James	7/75	Infrared Spectroscopy of Surface Adsorbed Species.	Overend	Research & Technology Dept. Texaco, Inc. Bellaire Research Laboratory P.O. 425 Bellaire, Texas
Ph.D.	Ho, Bartholomeus	7/75	A Total Synthesis of the Pyrrolizidine Alkaloids, Isoretronecanol and Trachelanthamidine.	Borch	Postdoctorate Johns Hopkins Univeristy Baltimore, Maryland

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISER	POSITION
Ph.D.	Hsi, Edward S. P.	7/75	A study of Water-Protein Interactions by Pulsed Nuclear Magnetic Resonance.	Bryant	Postdoctorate Department of Chemistry University of Minnesota
Ph.D.	Stephens, Robert S.	7/75	A Halide Probe Nuclear Magnetic Resonance Study of Carboxypeptidase A.	Bryant	Freshwater Biological Institute P.O. Box 100 County Roads 15 & 19 Navarre, Minn. 55392
M.S.	Wongkrajang, Chanita	7/75	Plan B.	Noland	Teaching - Department of Chemistry Prince of Songkla University Haad Yai, Songkla South Thailand
M.S.	Brandt, Maynard	12/75	Topics in Quantum Mechanical Scattering Theory with Application to Electron Molecule Scattering.	Truhlar	University of Minnesota
Ph.D.	Douglass, Charles	12/75	A Merged Beam Study of Ion-Molecule Reactions in Hydrogen Systems.	Gentry	Drake University Department of Chemistry Des Moines, Iowa
Ph.D	Duff, James W.	12/75	Use of Classical and Semi-Classical Approximations in Atom-Diatonic Molecule Scattering Calculations.	Truhlar	University of Toronto Chemistry Department Torono, Ontario Postdoctorate
M.S.	Hoekstra, Philip M.	12/75	The Properties of Δ'-Pyrrolinium Salts.	Leete	High School Chemistry Teacher Louisville, TN

DEGREE	NAME	DATE REC'D	THESIS TITLE	ADVISER	POSITION
Ph.D.	Jeannotte, Anthony	12/75	Infrared Liquid Argon Solution Spectra and Force Fields for Polyatomic Molecules.	Overend	Chemistry D-175 Argonne National Laboratory 9700 South Cass Avenue Argonne, Illinois 60439
M.S.	Knoll, Michael A.	12/75	Aquation of N.N-Dimethylformamido-pentaaminecobalt (lll) Percholate.	Reynolds	Teaching Position Milliken College Decator, IL
Ph.D.	Kwong, Gary	12/75	The Nitration of Isatogens.	Noland	U.O.P. Des Plaines, IL
Ph.D.	McBride, Carl E.	12/75	Spectroscopic Studies of Bicyclo [2.2.2] Octa-2,5,7-triene Bicyclo [2.2] and hepta-2, 5-diene.	Van-Catledge	Celeanese Chemical Company Corpus Christi, TX
Ph.D.	Nemzek, Thomas L.	12/75	Single Photon Counting and the Measurement of Transient Effects in Diffusion-Controlled Floures-cence Quenching.	Ware	Postdoctorate University of Toronto Toronto, Ontario, Canada
Ph.D.	Wilczek, Theodore	12/75	Crystal Shape Dependence of Intra-molecular Vibrational Excitor State in Molecular Crystals.	Hexter	Returned to Braddock,PA.

POST-DOCTORAL ASSOCIATES

In the following table are listed the persons who held post-doctoral appointments in the Department.

NAME	INSTITUTION	GRAD YEAR	COLLARBORATING PROFESSOR	FUNDING AGENCY
Evans, April J.	U of Minnesota	1975	Gassman	NIH
Luh, Tein-Yau	U of Chicago	1974	Gassman	NIH
Hahnfeld, Jerry Lee	U of Iowa	1975	Gassman	NIH
Maier, Helmut K.	U of Tubingen	1975	Gassman	NIH
Balchunis, Robert J.	Ohio State U	1975	Gassman	NIH
Sugawara, Tadashi	U of Tokoyo	1974	Gassman	NSF
Yamaguchi, Ryohei	Kyoto U	1975	Gassman	NSF
Parton, Richard Lee	U of Colorado	1974	Gassman	NIH
Werness, Peter G.	Rice U	1974	Lumry	NIH
Carter, John V.	Purdue	1967	Lumry	NSF
Adiarte, Arthur L.	U of Pittsburgh	1972	Lumry	NIH
Haddad, Louis	Indiana U	1975	Lumry	NIH
Bennett, Charles R.	U of Georgia	1971	Bryant	NIH
Hsi, Edward S. P.	U of Minnesota	1975	Bryant	NSF
Vekski, Zorica	Zagreb U	1967	Miller	NIH
Sawamoto, Hiromiti	Kyoto U	1970	Kolthoff	NIH
Chantooni, Miran K.	U of Minnesota	1961	Kolthoff	NSF
Sugeta, Hiromy	Osaka U	1969	Moscowitz	NIH
Seamans, Lloyd H.	U of Minnesota	1974	Moscowitz	NIH
Numrich, Robert W.	U of Minnesota	1974	Dahler	NSF
Gregory, Thomas L.	Notre Dame	1971	Lipsky	AEC
Modler, Robert F.	U of Minnesota	1965	Kreevoy	ACS
Swanson, Douglas L.	USC	1973	Crawford	NSF
Kakimoto, Masao	U of Tokoyo	1975	Crawford	NSF

PLACEMENT OF POSTDOCTORAL STUDENTS IN 1975

Collaborating professor is in parenthesis.

NAME	POSITION TAKEN
Kin-Wah Li (Dahler)	Postdoctoral appointment at McGill University, Montreal, Canada
Etter, Margaret (Gougoutas)	Temporary teaching position at Augsburg College, Minneapolis, MN
Yamashita, Kazuo (Kolthoff)	returned to Japan
Hodgson, Philip (Gassman)	Postdoctoral appointment at The Catholic University of America Washington, D.C.
Amick, David (Gassman)	Rohm & Haas Company Philadelphia, Pennsylvania
Cue, Jr., Berkeley (Gassman)	Charles Pfizer & Company Groton, Connecticut

PLACEMENT OF POSTDOCTORAL STUDENTS IN 1975 (continued)

Bailey, Thomas F. (Gassman)	Dow Chemical Company Midland, Michigan
Gleason, William (Britton)	Temporary teaching position at Carleton College, Northfield, MN
Sugeta, Hiromu (Moscowitz)	returned to Japan
Blanke, James (Overend)	Texaco, Inc. Bellaire, Texas
Mitchell, Robert (Wertz)	
Kim, Chin Hyung (Mossotti)	