FROM THE CHAIR:
The State of the Department

In this time of budget cuts at the national, state, university, and college level, I am pleased to report that the Department of Chemistry is still making progress, albeit at a slower pace. Most faculty have experienced cuts in their research grants, but our annual external funding is still about $900,000. This is approximately twice what it was in 1984 and nine times as much as in 1980. In view of the present financial mess in Washington, we expect the competition for research funds to be extremely tough during the next few years.

However, the quality of the faculty and the department has improved dramatically over the past few years, and we are optimistic that we are in a strong position to successfully compete on a national scale. All of the faculty hired during the past ten years currently have research grants. Two of our faculty have received nationally recognized awards, although I regret to report that one of them, Keith Kyler, recently left for another institution (see Departmental News). Several of our faculty members are internationally recognized for their scholarly work. Some have been appointed to editorial positions on scientific publications.

The number of graduate students continues to grow; we now have 52, the largest number in the history of the department. Approximately 23 of these are teaching assistants. The remaining

The Chair continued on page 2

Above: Graduate student Russell Lang describes to Julio Medina the operation of a newly acquired gas-chromatograph/mass-spectrometer dedicated to graduate studies.
Below: Chemistry majors Francis Peterson, Tim Allison and Henry Luten operate a recently acquired gas-chromatograph/mass-spectrometer dedicated to undergraduate studies.
We have made much progress in the last few years... I expect this progress will continue...

gifts are especially valuable in this respect, since they can often be leveraged to purchase items having values much greater than the amount of gift funds used. For example, we leveraged $4,000 from the gift account last spring to purchase a $60,000 instrument. We appreciate the widespread support that we have had from our alumni. We are especially grateful to those who have been influential in directing corporate gifts to the department.

As we enter the decade of the 1990s, I am optimistic about the future of the department. We have made much progress in the last few years in building a national reputation for the department in research and in undergraduate instruction. I expect this progress will continue, and as it does the degrees awarded in chemistry by the University will continue to grow in value. The progress has not been easy, and it has required the dedication and hard work of all of the faculty. It has been an honor for me to serve with the faculty in making this progress, and I take this opportunity to thank all chemistry faculty for their effort.

Cecil M. Criss
Chairperson

UMCHEM, the newsletter of the chemistry department is published bimannually.
Please address correspondence to Carl H. Snyder, Professor of Chemistry.
Keith Wellman, returned from sabbatical.

Chemistry graduate Hume Cuong-Dung, in his second year at the UM School of Medicine.

Al Mills presents American Institute of Chemists Award to Isabelle Gay in Chemistry Department ceremony.

Seen at graduation ceremonies: Chemistry graduate Isabelle Gay with brother Jean-Philippe, aunt Idalia Martinez and mother Carmen Gay.

Marielle Gomez, Isaura Delgado, and Mara Tsesarskaja, with daughter Szonja Vamos, receive awards from Cecil Criss at end-of-year party.

New staff member BettyAnn Singh at reception area of Chemistry Office.

Chemistry Department end-of-year party.

Graduating senior Donna Dykes with husband, chemistry alumnus ('84) Bill Dykes, anesthesiology resident at Jackson Memorial Hospital.

Faculty Advisor Al Mills with Chemistry Club members.

Chemistry graduate Chen Xie, headed to the UM School of Medicine.
DEPARTMENTAL NEWS

Three of our faculty have been away on academic-year sabbaticals during 1990:

LUI S E C H E G O Y E N spent his sabbatical at the Institute LeBel in Strasbourg, France, where he studied redox properties of novel bipyridine ligands in inorganic helices. He carried out this research in collaboration with Jean-Marie Lehn, Nobel Laureate, 1987, and expects it to lead to close collaboration between the two research groups. One of the goals of the work is the development of “molecular wires”, which are long, polymeric molecules capable of transmitting electrons over long distances (on the molecular scale) and thus mimicking the current-carrying wires of our more conventional world.

G E N E  M A N spent his sabbatical in Israel, where he engaged in active research and collaboration in biomedical chemistry at several institutions. His principal appointment was as Lady Davis Faculty Fellow at the Technion—Israel Institute of Technology in Haifa. While there Gene worked in the Department of Biology, examining the role of a specialized class of proteins, “heat shock proteins,” produced in the brain as a result of various forms of stress. In addition, Gene engaged in collaborative studies in chemistry and biomedical engineering at Technion, and in organic chemistry in the Weizmann Institute. At Weizmann he studied specific in vivo protein changes in brain, bone, and collagen that are associated with dysfunctions related to aging, especially Alzheimer’s disease (brain), arthritis (cartilage), and osteoporosis (bone).

K E I T H  W E L L M A N studied the use of computers in chemical research and education in a variety of settings during his year’s absence. At the Los Alamos National Laboratories he examined computer modeling of siderophores, low-molecular-weight iron-chelating compounds of microbial origin which act as cellular transport agents for iron in aerobic fungi and bacteria, in order to gain insight into their unusual ability to sequester iron. To aid in developing and using our own undergraduate computer facilities to their fullest, Keith also visited and evaluated similar installations at Georgetown University, the University of Maryland, the University of Texas, and California State University. While at California State University he attended a National Science Foundation workshop on computational chemistry in undergraduate instruction. Encompassing all these experiences, Keith continued to develop his computerized database of questions for organic reviews and examinations.

With genuine regret we report the departure of two of our valued faculty, LEE BARTOLOTTI and KEITH KYLER, both of whom left the University at the end of the 1990 spring term. Lee came to us in September 1983, as an assistant professor from his position as postdoctoral research fellow and visiting lecturer at the University of North Carolina, where he worked with Professor Robert Parr. As a physical chemist, Lee specialized in density functional theory as applied to chemical reactivity and in the interaction of electromagnetic radiation with atoms and molecules. We are especially grateful to Lee for freely and graciously sharing his sophisticated computer expertise with all of us.

Keith arrived in June 1985, from postdoctoral studies with E. J. Corey at Harvard and leaves us to accept a tenured position as associate professor in the Department of Chemistry at Florida State University. While a member of our faculty, Keith was named one of three prestigious Eli Lilly Grantees this past year. The award, in the form of an unrestricted research grant, is given annually by the Eli Lilly Corporation to outstanding university-based chemists. (For news about another Eli Lilly Awardee, please see our notes on alumni activities.) Keith’s research on enzyme techniques in organic synthesis has been funded ($165,000) by the National Science Foundation. Earlier this year Keith also delivered an invited paper at the Gordon Conference on biocatalysis.

A R I E L  F E R N A N D E Z, our most recent faculty addition (September 1989) and recipient of the prestigious Camille and Henry Dreyfus New Faculty Award, had a remarkable number (23) of refereed publications during his first year in the department. This brings the total number of Ariel’s publications to over 100, an exceptional record so early in one’s career. Ariel’s current research interests are the kinetics of folding of DNA, using statistical mechanics as a tool. We congratulate Ariel on his achievements.

At the beginning of February 1990, the department was happy to welcome a new member to our office staff as Ms. BETTY ANN V. SINGH took up the duties of secretary-receptionist at the front desk.

We are very happy to report that DAVID HUDSON has been promoted from technical specialist III to research associate. David, who received his Ph.D. in zoology from the University of Rhode Island in 1984, joined the department in 1985 as our electronics specialist. He is currently responsible for supervision and maintenance of our major research and teaching spectrometers, including our electron spin resonance, our Fourier transform infrared, and our five nuclear magnetic resonance spectrometers, as well as our Hewlett-Packard gas-chromatograph/mass-spectrometer. David recently completed three weeks of training in service, maintenance, and special operating procedures for several of these highly sophisticated spectrometers at Varian Associates Application Laboratories in California. With this, he becomes a certified service engineer for the Varian VX-400, a particularly complex instrument. Our heartiest congratulations go to David on his accomplishments.

The department’s traditional end-of-year reception was held on December 2, 1989, in the lobby of the Cox Science Building. Receiving departmental awards of $50 each as our best teaching assistants were graduate students ISAURA DELGADO, RUSSELL LANG, and MARA TSESARSKAJA, and undergraduate MARIELLE GOMEZ.

Awards of $50 each also went to CHENSHENG LI and PINGSHENG ZHANG, who tied for the highest academic record by first year graduate students. First Publication Awards of $25 and a copy of “The ACS Style Guide” went to ISAURA DELGADO, TIMOTHY GOODNOW, MARY HUHN, RAHIMAN ISNIN, YI LI, and PINGSHENG ZHANG.

Departmental News continued on page 5
Thanks to the thoughtfulness of alumnus STEVEN H. SHABER (B.S. '75) the department has been named recipient of an unrestricted grant of $6,000 from the Rohm and Haas Company. The grant was made in conjunction with the Otto Haas Award, presented to Dr. Shaber by Rohm and Haas. This award serves as public recognition of the high quality of Dr. Shaber's research leading to the synthesis of a triazole that shows promise as an agricultural fungicide and that will be produced and marketed by Rohm and Haas under the name INDAZTM. As an awardee, Dr. Shaber was given the privilege of designating the recipient of the associated grant. We are pleased and honored that he chose this department.

After receiving his B.S. from the University of Miami, he entered graduate studies at the University of Pittsburgh, where he earned an M.S. in 1979 and a Ph.D. in 1981. His doctoral studies, carried out with Professor J. Rezek, Jr., focused on synthesis and NMR structural studies of mitosene antitumor antibiotics. As senior research scientist, Dr. Shaber is now completing his 10th year in the Agricultural Chemicals Division of Rohm and Haas.

Among our distinguished seminar speakers this past academic year were Peter Beak (University of Illinois), Ian Fleming (Cambridge University, Great Britain), Cynthia Friend (Harvard University), Norman Sutin (Brookhaven National Laboratories), and Kiichi Takemoto (Osaka University, Japan).

At an awards luncheon in April the College of Arts and Sciences honored ISAURA DELGADO and MARA TSESARSKAJA for their excellence as teaching assistants. Associate Dean Charly Mallory awarded each a check for $300 and a plaque bearing the inscription, “University of Miami College of Arts and Sciences OUTSTANDING TEACHING ASSISTANT FELLOWSHIP... Department of Chemistry — April 13, 1990.”

Outstanding academic achievement throughout the University was recognized at the annual Honors Day Convocation, held at the end of March 1990. At ceremonies in Gusman Hall, the Chemistry Awards to the Outstanding Professional Chemistry Major and to the Outstanding Premedical Chemistry Major went to MONICA ALCALA and CHEN XIE, respectively. Chemistry major RICHARD McNEER received the Phi Lambda Phi Award.

In February WALTER DROST-HANSEN took part in the working session of the Office of Naval Research Graduate Fellowship Committee as it evaluated fellowship applications in major areas of oceanography. He was later a guest of the Naval Oceanographic and Atmospheric Research Laboratories (NOARL) at Stennis Space Center, Bay St. Louis, where he participated in evaluations of research proposals submitted to the Office of Naval Research.

During the summer Drost spent 10 weeks at NOARL as a Distinguished Summer Research Faculty Member studying temperature effects on the sedimentation of naturally occurring material and giving a series of seminars on vicinal water and its role in aqueous interfacial phenomena. One of the fruits of his summer research was a poster presentation at last year’s Gordon Research Conference on Water and Aquous Solutions.

At the beginning of the 1990 fall semester, Drost chaired an international symposium on Interfacial Water in Dispersed Systems, which he organized under the auspices of the Fine Particle Society in conjunction with the American Institute of Chemical Engineers.

Still in the international sphere, the Dutch science magazine “Natuur & Techniek” published a translation of Drost’s article (with Lin Singleton) on the effect of the more exotic properties of cellular water on living processes, which appeared originally in “The Sciences,” a publication of the New York Academy of Sciences.

ANGEL KAIFER has received a three-year National Science Foundation grant of $180,000 to study molecular recognition in interfacial monolayer assemblies. During the summer he presented two invited lectures at the 177th annual meeting of the Electrochemical Society in Montreal and one at Eastman Kodak Co., Rochester, New York. Earlier this year Angel served as a judge of chemistry exhibits at the Dade County Science Fair.

AL MILLS chaired the judging committee of the Dade County Science Fair in March 1990, which chose the grand, second-place and other winning exhibits of the fair.

CARL SNYDER attended the 11th Biennial Conference on Chemical Education, sponsored by the American Chemical Society, at Georgia Institute of Technology. In an interview appearing in the October 1990 issue of the national publication, Home Mechanix, he discussed the environmental effects of chlorofluorocarbons refrigerants used in auto air conditioners.

NEWS OF ALUMNI AND FRIENDS

JEFF AUBÉ (B.S. '80; Ph.D. '84, Duke University), assistant professor of medicinal chemistry at the University of Kansas, was named one of three Eli Lilly Grantees for his outstanding work in organic chemistry.

ADRIANA CANTILLO (M.S. '73 with Curt Hare; Ph.D. '82, University of Maryland) has moved from her position with NASA at Florida International University to the National Oceanic and Atmospheric Administration (NOAA) in Rockville, Maryland. While at NASA Adriana had been in charge of the transfer of non-defense technology from the space program to commercial applications, and she also compiled a Catalog of Reference Materials for Marine Science. In her new post at NOAA she will coordinate the controlled dumping of sewage sludge into the only active ocean dumping site off the eastern coast of the U.S., a 3,000 meter deep undersea canyon about 100 miles east of the coast of New Jersey, just beyond the continental shelf and at the edge of the Gulf Stream. There NOAA and other agencies will study the dilution effect of the Gulf Stream on ocean-dumped waste.

Those alumni who learned analytical chemistry with TIM CUMMINS, formerly of our department, will be happy to learn that he is now a tenured associate professor of chemistry at the University of Wisconsin, Superior.
Alumni and Friends continued from page 5

NICK FRANCO (Ph.D. '68, with Arthur Keenan) and his wife, Karen Norelli, stopped by during a recent trip from Bethlehem, Pennsylvania. Nick is director of marketing for outside services with Bethlehem Steel Co., with particular emphasis on providing information and customer service on Bethlehem's coatings and other specialty products. Nick has been with the company for the past 16 years, having started as a research chemist applying his physical chemistry expertise to problems of pollution control in the handling of raw materials.

ISABELLE GAY (B.S. '90) has graduated with multiple awards and recognitions. She became the first of our B.S. graduates to be awarded a National Science Foundation Fellowship for Graduate Study. Under the auspices of this prestigious award Isabelle is currently studying physical chemistry at Cornell University. In addition, Isabelle has received The American Institute of Chemists Foundation Student Award Certificate. The certificate, which was presented to her by Al Mills in a departmental awards ceremony, recognizes Isabelle "as an outstanding senior student majoring in chemistry on the basis of a demonstrated record of leadership, ability, character, scholastic achievement, and potential for advancement of the chemical professions." Isabelle graduated from UM as an American Chemical Society certified major.

SOPHIE PAPPATHEDOROU (B.S. '62; M.S. '65 with Jackson Sickels; Ph.D. '78 with Clarence Stuckwisch) stopped by early in the spring 1990 semester. She's a member of the chemistry faculty at the Dominguez Hills Campus, California State University, Los Angeles.

BRUCE QUAYLE (B.S. '73) serves as technical director and vice president of production at Atlas Chemical Co., in Miami. Bruce entered UM in 1971 after 10 years of service with the Army and graduated as a chemistry major in two years of intensive study.

After graduation he worked in various chemical industries in Ohio and California, returning to Miami in 1985 first with Delta Chemical Laboratories and then Atlas. He is married and has two children.

RHONDA WHITE RYDER (B.S. '65; M.S. '67 with Arthur Keenan) teaches chemistry and physics at Tallahassee Community College.

BANITA WHITE (Ph.D. '86 with George Gokel) has been named a 1990 Presidential Young Investigator by the National Science Foundation. This is a highly prestigious award and brings with it substantial national recognition for Banita, who is currently a member of the chemistry faculty at the University of North Carolina at Charlotte.