

CHEMICAL *Compositions*

chemistry & biochemistry
departmental newsletter

“Breakthroughs in Ultraspectroscopy & Ultramicroscopy”

Conference celebrates opening of laboratory for spectroscopic imaging (LSI)



(standing l-r) Xiaoliang Sunny Xie, Hiroshi Masuhara, Frans De Schryver, Don O'Connor (seated l-r) Larry Faulkner, Mary Anne Fox, Mostafa El-Sayed, Paul Barbara

On April 23, in the Flawn Academic Center, a scientific conference was held in recognition of the opening of the Laboratory for Spectroscopic Imaging LSI (<http://www.cm.utexas.edu/~barbara/>) in the Department of Chemistry and Biochemistry. The conference featured talks by leading researchers in the area of spectroscopy, photochemistry and/or microscopy including: Marye Anne Fox (North Carolina University – Raleigh), Mostafa El-Sayed (Georgia Institute of Technology), Xiaoliang Sunny Xie (Environmental Molecular Sciences Laboratory and Harvard University) and Frans De Schryver (KULeuven, Belgium).

The LSI is a state-of-the-art research facility for laser spectroscopy. The focus of LSI is the study of basic physical and biophysical chemical problems with ultrafast spectroscopy and ultra-microscopy. The LSI is both a user facility and the major research laboratories of the research group of Paul Barbara, who joined our faculty in the fall. The laboratory contains state-of-the-art research instrumentation including femtosecond and picosecond spectrometers, various scanning probe microscopy/spectroscopy apparatuses

(NSOM, AFM, STM), and two single molecule spectroscopy instruments.

One main thrust in the LSI is the use of femtosecond spectroscopy to investigate intermolecular and intramolecular atomic motions during ultrafast chemical processes in solution. Some of the processes under investigation include the relaxation dynamics of the hydrated electron, intermolecular electron transfer in metal-metal-mixed valence complexes, and the conformational structure and dynamics of RNA-protein complexes. Another research area in the LSI is the use of super resolution scanning probe optical microscopy, especially fluorescence near field scanning optical microscopy (NSOM), to determine the nanostructure and local optical properties of a broad range of highly structured materials. For example researchers in the laboratory are investigating functional organic thin film materials such as organic heterojunctions which are used in solar cells. The LSI has begun investigations of biological samples, ranging from biologically modified surfaces to living cells. The final research area in the LSI is the use of single molecule spectroscopy to investigate the chemical and photophysical dynamics of chemical and biological systems that are too complex to investigate by non-single molecule kinetic methods. Examples include the photophysics of conjugated polymer molecules and the chemical dynamics of t-RNA/chaperone protein complexes.

The meeting was also held in recognition of the many years of success of the Center for Fast Kinetics Research (which the LSI replaces) and in recognition of the establishment of the NSF IGERT (<http://www.ece.utexas.edu/igert/igert.html>) program at UT for multidisciplinary training in the area of Optical Biomolecular Engineering in which many of our faculty in the department participate.



Paul Barbara explains the use of the AFM.

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From the Chairman



Marvin Hackert

Greetings to all our alumni and friends, and congratulations to our students who will be graduating this spring. We pass along our very best wishes to all our graduates and want to wish them every success in their future endeavors.

This spring has seen us get some good publicity in several areas. I am pleased to announce that the department was ranked 11th in the latest *US News and World Report* ranking of chemistry graduate programs. For a state university with a very large undergraduate enrollment and a relatively small faculty, this is quite an honor. Our faculty continue to be honored in other ways (see p. 9), but one of the more unusual ways happened this past spring when several of our faculty (Drs. Shear, Anslyn, McDevitt) appeared in an ABC Evening News segment with Peter Jennings in a science highlight story on their development of the electronic tongue.

Much continues to happen in the department, but the pace of change is not quite so hectic as it has been the past two years. Faculty recruitment and renovation continue to be the major concerns and priorities of the department. Dr. Angela Belcher (inorganic/materials) from UC Santa Barbara joined the department in January as a new Assistant Professor (see p. 8). I am also pleased to announce two successful junior faculty recruitments. Dr. Michael Krische and Dr. Brian Pagenkopf, both synthetic organic chemists, will join our faculty this fall. We are still actively recruiting junior level structural biologists. This year we also have two more retirements (Dr. Boyd Hardesty – p.19, and Dr. Lester Reed – p. 11), both biochemists who have served the department for many years.

On a sad note, I regret to report the death of Phil Bailey last November. Phil retired in 1979 after nearly forty years of service to the University and the department (see p. 17).

The safety projects for Welch Hall are essentially completed. The design features of our new research storeroom has attracted national and international attention. We had an open house for this facility over the semester break and should be moved into the new facility by the end of the semester. The Welch West Wing renovation project is well underway, with the demolition now completed. You will notice what appears to be a two-story addition on top of the West Wing. No, this is not new lab space but houses all the new air handling equipment for the remodeled labs and will also handle the air from the exhaust manifold project to connect the hood system of the 1929 addition into the newer air handling system. I invite you to stop by, visit and see the changes when you have the opportunity.

While recruiting and construction projects remain the headline items, I am happy to report continuing progress on other fronts. With the benefit of our successful shared instrumentation grant from NSF with matching funds provided by the College, we have ordered a new CCD (Charge-Coupled-Device) based X-ray diffractometer for the department. This CCD instrument will replace our twelve-year-old unit, providing much faster data collection times and enable us to collect data on many systems that were intractable with the older instrument. This April saw the opening of the new Laboratory for Spectroscopic Imaging (LSI). Dr. Paul Barbara, recruited last fall from Minnesota, and Director of the LSI (p. 1), designed and oversaw the remodeling of the old CFKR space to create this new state-of-the-art facility that will be a valuable resource not only for our faculty but serving the nation as well. As part of our efforts related to the Texas Materials Institute, I am pleased to report that Dr. Mike White led a successful proposal to the Keck Foundation for equipment to support the analysis of semiconductor materials and Jason Shear led a successful effort to establish a Beckman Technologies Initiative Center at UT focused on biosensors. Finally, I would like to mention that Ruth (McKay) Shear was awarded a Beckman Scholars program grant to support undergraduate research.

As always, I want thank all of you who have contributed to our department with your resources of time and money. It is a vital role that you as individuals and organizations play in helping us maintain our quality programs at UT-Austin. We want to thank the Welch Foundation for their broad support of chemistry and their recent grants to establish an endowed faculty chair in chemistry for use in the field of materials chemistry. Special recognition also goes to Pam and Janet Reed who have generously led the effort to

establish a Professorship in honor of Lester Reed, who retires from teaching this spring after 51 years of service to the department (p.11). Whether it be in the form of scholarship assistance, adding to our endowed lecturer or faculty positions, gifts to the library fund, our patio project, I hope that you will consider us when you plan your charitable contributions. The financial support of our alumni and friends is a



Steve Moore, Daniel Vinzant, and David Korts, are looking forward to moving into the new chemical research storeroom.



A new air handling system is being installed on the West Wing of Welch Hall.

Mallet library receives endowment

Fund designated specifically to purchase information materials

James and Ruth Ann Boggs have made a donation to establish the James E. and Ruth Ann Boggs Chemistry Library Endowment, on the occasion of Dr Boggs' retirement from teaching in 1998. This extraordinarily generous gesture will launch the second endowment fund specifically designated to purchase information materials for the Mallet Chemistry Library. Dr. Boggs, who has been at UT since 1953, has long been a friend to the Library, and we are very grateful for the gift. A special commemorative bookplate is being designed to mark the books that are purchased with income from this endowment.

As state funds for UT libraries continue to erode, endowments are becoming more and more important for library collecting activities. The Skinner Endowment, established in 1985 in honor of long-time chemistry librarian Aubrey Skinner, was the first fund set up for the Mallet Library. It now has a book value of over \$100,000, and provides about \$3,500 a year for the purchase of expensive reference materials that could not otherwise be acquired. As book prices increase, it is important that these endowments keep growing.

Additional donations for the Boggs Endowment from alumni and benefactors will be most welcome, especially from his former students and colleagues around the world who want to wish him well in his retirement. (Checks made out to the University of Texas should specify "Boggs Endowment" and can be sent in the enclosed envelope.)

We in the library look forward to working with Dr. Boggs for many years to come, and we thank him and his wife for their generous help.

—David Flaxbart
Mallet Chemistry Library



(l-r) David Flaxbart, Ruth Ann Boggs, James Boggs

UT Chemistry genealogy revised

Visitors to the Mallet Chemistry Library in recent years have probably noticed the Departmental Genealogy board displayed near the circulation desk. In late March, a completely revised, updated, and rebuilt display replaced the previous one, which was done in 1991. The genealogy chart shows the academic origins and relationships, based on Ph.D. adviser, of fifty faculty members of the Department of Chemistry and Biochemistry, as of January 1999.

All but two of the fifty current UT faculty members can trace their origins back to one of two early chemists: Swedish chemist and naturalist Torbern Bergman (1735-84), and French apothecary and chemist Guillaume-François Rouelle (1703-70). (Two biochemists are descended from biology fields.) There are fourteen Nobel Prize winners in the current genealogy, as well as many giants from early chemistry: Bunsen, Liebig, Gmelin, Kekule, Lavoisier, Berthollet, Cooke, to name just a few. Major 20th century chemists are also well represented: Pauling, Barton, Seaborg, and others.

Compiling a genealogy is lots of work, as anyone who has tried to do their family tree can attest. Credit for the Mallet Library's project goes mostly to library assistant James Galloway, who began the revision project in Fall 1998 by researching the lineages of faculty who joined the department after 1991. He also resolved numerous questions and problems on previous lines. He then created the new wall display and the HTML version. In addition to the documentation left by longtime librarian Aubrey Skinner, information used in the revision was gathered from standard chemical and scientific biographical sources, current faculty members, correspondence with their advisers, online and web searches, and the primary literature, as well as from other chemists and librarians around the world. The online chemical genealogy database at the University of Illinois was also an important resource.

From the Chairman

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critical factor in helping us to meet our mission of excellence in both teaching and research. We are honored by your generosity.

Congratulations again to our seniors and other graduates. We do appreciate hearing from you and want *Chemical Compositions* to be your resource for keeping up with what is happening in your department. Finally, I would like to offer a special thanks to Jack Gilbert who has served as editor for *Chemical Compositions* these past three and a half years, and welcome Jim Boggs to our newsletter team.

- Marv Hackert

*If you can't visit the library to see the Chemistry Genealogy, you can see it on the Worldwide Web, at this URL:
<http://www.lib.utexas.edu/Libs/Chem/genealogy/cover.html>*

Alumni may obtain a printed copy of their personal genealogy from the library — just contact the library at 512-495-4600, or email to chem@lib.utexas.edu. Be sure to give us the name of your adviser.

Women in Chemistry/Iota Sigma Pi

Organizations aim to promote interest and improve education and employment opportunities



*Back Row (l-r): Debbie Hess, Anne Vivian, Mary Satterfield-Doerr, Patricia Murphy, Susan Marine (ISP national vice president), Jean Humphreys, JoAnn Ravel, Beverly Guirrad, Colleen Moore, Maury Howard, Anne Courtney
Front Row (l-r): Cyndi Wells, Andrea Wells, Sandra Whaley, Kristin Smith, Lara Campbell, Julie Teetsov, Michelle Reyzer, Sara Eames, Laura Deschenes*

Women in Chemistry (WIC) was organized in the spring of 1998 and adopted a mission to improve education and employment opportunities for women in chemistry and provide a supportive environment for personal and professional development.

Iota Sigma Pi is a national honor society for women in chemistry. Its main objectives are to promote interest in chemistry among women scientists; foster mutual advancement in academic, business and social life; and stimulate personal accomplishment in chemical fields.

The local chapter of (Tellurium) was officially reactivated on November 21, 1998. The resurgence of interest in actually came from within WIC, and currently WIC and the Te chapter of are one organization at UT. Meetings are monthly and are open to women and men from academia or industry.

A Brief History of the Te Chapter of - The Tellurium chapter at the University of Texas had its beginning in the Halogen Club, a group organized with the definite aim of becoming affiliated with the national fraternity of Iota Sigma Pi. Ten women enrolled as members under the guidance of Helen Jo Collins of Iowa State College (a member of), Barbara Lee Lund of the University of Minnesota and Dr. Jet Corinne Winters of Yale University. In April of 1930 this group petitioned and was granted a charter as the Tellurium chapter, the 20th chapter.

The Tellurium chapter became inactive in 1957. In 1962 a reactivation program was promoted by Lorene Rogers (a faculty member) and cosponsored by Dr. L. O. Morgan of the chemistry

department and his wife, Betty Boyd Morgan (an member). The Tellurium Chapter was officially reactivated in June 1963. The chapter again became inactive in 1975, but was reactivated in 1981. No evidence of local chapter activity after 1984 has been found.

Following the guidance of the current president, Julie Teetsov, the Tellurium chapter was officially revitalized Saturday, November 21, 1998 with 16 new charter members and 2 faculty.

Current members of WIC- are:

Julie Teetsov (President), Sandra Whaley (Vice-president), Cyndi Wells (Secretary), Kristen Smith (Treasurer), Maury Howard (Historian), Lara Campbell, Anne Courtney, Laura Deschenes, Sara Eames, Patricia Murphy, Michelle Reyzer, Thomasin Ruchti, Kelley Rudd, Mary Satterfield-Doerr, Anne Vivien, Andrea Wells, Dr. Jennifer Brodbelt (Analytical Chemistry), Dr. Karen Browning (Biochemistry).

Former and current Tellurium Chapter members in attendance were Debbie Hess, Joanne Ravel, Beverly Guirrad, Jean Humphreys and Colleen Moore.

This year, WIC and Women in Physics (WIP), through cooperation with Lucia Gilbert (Director of Women's Studies at UT) and Dr. Linda Reichl (UT physics professor), participated in the development of curriculum for a Women in Science course offered in the fall of 1998. This course involved several panels of women

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(l-r) Michelle Reyzer, Jennifer Kreisberg, Thomasin Miller



(rear lt) Prof. John McDevitt talks to Maya Escobar & Anne Vivien, (front) Thomasin Miller, (getting tea) Lara Campbell & Delany Langer



(l-r) Prof. James Holcombe, Gloria Brown-Wright, Steve Veldman, Delong Langer

Women in Chemistry/Iota Sigma Pi

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scientists in industry, government and academic positions, and provided information about networking, mentoring, and professional development as well as a brief history of women in science and engineering. The course also provided the opportunity for students across the broad range of science disciplines at UT to meet and learn about each other's research through formal research presentations. WIC also hosted a talk by Bonnie Dunbar, an astronaut from NASA, in October 1998 made possible with financial aid from Dr. J. M. White, Director of the Texas Materials Institute at UT.

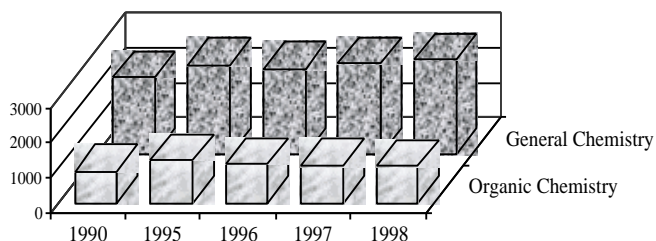
WIC- participates in local outreach programs and area conferences. (It also assists in selecting speakers invited by the Department of Chemistry and Biochemistry to give divisional seminars and provides mentoring for undergraduate chemistry students at UT.) WIC- hosted a traditional "Spring Tea" on March 11, 1999 to provide a relaxed, informal atmosphere for graduate students and faculty to socialize and learn more about the organization. This summer, the triennial national convention will be held June 24-27 in Portland, Oregon, and Julie Teetsov is attending as a representative of the Te chapter. She will present a report to the national officers prepared by the Historian on the activities of WIC-

The initiation of new members to and election of new officers to WIC- will be at the end of the spring semester, April 24, 1999. Induction into is based on scholastic and/or professional record, but membership in WIC- is open to all women graduate and undergraduate chemistry students. Cyndi Wells has set up a web site for those interested in learning more about Women in Chemistry and Iota Sigma Pi at UT (<http://www.cm.utexas.edu/~wic/index.html>).

- Maury Howard
Historian WIC and ISP Tellurium Chapter

The view from the Undergraduate Advisor's office

Science is changing at a phenomenal pace in the information age. Research and undergraduate instruction in the Department of Chemistry and Biochemistry are evolving at an equally rapid pace. Recent faculty hiring in interdisciplinary fields such as bioinorganic chemistry, biomolecular engineering, organic chemistry/materials science, and biologically related spectroscopy are bringing exciting new perspectives to the department's research endeavor. The last few years have seen the emergence of collaborative, interdepartmental project research grants. Equally dramatic changes are occurring in departmental undergraduate classes as course material is updated and technology is increasingly being used to augment instruction. Course web pages are common, and many courses enlist computer generated lecture material on a routine basis.



Plot 1 Enrollment in general and organic chemistry courses plotted according to the number of students taking fall semester lecture courses in the years indicated. Enrollment numbers provided by the Office of the Registrar.

Superimposed upon the background of today's scientific and classroom changes, enrollment in the department's undergraduate survey courses continues to be high. The number of students taking General Chemistry and Organic Chemistry lecture courses has each risen by about 20 % since 1990 (Plot 1). Total enrollment numbers for the fall semester of 1998 have reached 2702 students in General Chemistry and 1024 students taking Organic Chemistry. Such strong and growing enrollments are challenging the faculty to find new ways to reach more and more students, and using new instructional technologies is an important part of the overall plan. Interestingly, the majority of students in these classes are still from other departments such as Biological Sciences and Chemical Engineering.

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ACS ~ Helping students with scholarships

The headline summarizes one of the most proud and important aspects of the American Chemical Society at UT. The Student Affiliate group has awarded academic and research based scholarships in the spring semester each year. Knowing that the organization to which you belong makes a difference in a student's life is truly an exceptional feeling. These scholarships help us renew our commitment to chemistry and biochemistry students. ACS has been committed to providing a source of information and support for the students.

To focus upon the scholarship aspect of ACS would only portray one side of a multiple sided organization. The Student Affiliate Chapters are student branches of the national organization. Meetings are held every other Tuesday. During each semester, we hold a fundraiser to generate enough revenue to provide for the organization throughout the semester. We sell lab notebooks to all of the students who take a chemistry laboratory course. Thus, there are no dues to be a student affiliate member of ACS. Dr. Ruth McKay is our advisor, and she has been very helpful and supportive.

Speakers: ACS is a source of information, with a speaker at each meeting. Each speaker discusses aspects of his or her career, and what is out there for those interested in a career based in chemistry. This year, Dr. Laude gave a talk about graduate school and what it takes to make it. We have had chemists from industry come and detail their daily workload. AMD, Bayer, and Radian have been kind enough in the past to join us at our meetings. Furthermore, we provide information on what summer internships or opportunities are available.

Social: Our big "kick-off" event is the ice cream social. The notebook sales do not sufficiently announce our presence, so what can introduce an organization better than ice cream? Here we introduce the officers and outline our purpose. This year, ACS hosted two movie nights that offered a chance to interact with other students and relax before exams. Our featured presentations were "Spaceballs" and "Weird Science". Both were scientific. Broomball is another tradition of ACS, a spectacle that can only be explained through observation. To paraphrase a renowned sportscaster, it is the "Thrilla in the Chilla," as it is played on an ice rink.

Service: Scholarships fall into this category but they are not the only service we provide. In the past, ACS has had a large membership, yet few knew each other by name. It was hard to interact. This year, a core group of people have attended the meetings regularly. It has been a great experience. Having the same thirty people show up made the department feel more like a community. ACS sponsors free chemistry tutoring every Tuesday and Thursday. It is the best way for us to promote ourselves outside of the chemistry department. Everyone is welcome to attend.

The American Chemical Society is an organization for the students in the Department of Chemistry and Biochemistry. As a member, I have enjoyed being a part of this organization since my freshman year. As an officer, I have matured as a person because of ACS and learned valuable skills that would help anyone in their career. It is a great organization with which to be affiliated. For more information, take a look at our web page at <http://uts.cc.utexas.edu/~texchem/> or the national organization at <http://www.acs.org>.

- Eric B. Gonzales, ACS-SA President

Beta Theta Chapter expands its membership and activities

Alpha Chi Sigma is a national, coed chemistry and chemical engineering fraternity. The University of Texas chapter, Beta Theta, has been extremely active. Members range from undergraduate and graduate students to faculty and professional members, all making the study of chemistry or a related field their life's work. The chapter participates in a wide variety of established activities, including broomball clashes with the local Student Affiliate Chapter of the ACS and hosting a National Chemistry Week brunch. Activities help us meet the fraternity's three objectives: to bind its members with a tie of true and lasting friendship, to strive for the advancement of chemistry both as a science and as a profession, and to aid its members by every honorable means in their ambitions as chemists throughout their mortal lives.

One of the chapter's most enjoyable professional activities, which fulfills its objective of promoting chemistry, is related to children's science education. A brunch held during National Chemistry Week raised money for elementary school subscriptions to the ACS publication, *WonderScience*. The chapter provided matching funds for the donations received. Members again had the opportunity to help Girl Scouts earn their chemistry badges at workshops held at Concordia University. In addition, they participated in a chemistry circus for school children in Round Rock and worked with T.A. Brown Elementary in preparation for Austin Science Fun Day. Austin Science Fun Day was a new experience for this year and members look forward to becoming more involved in the future.

Tours of several facilities, including Celis Brewery, NASA, and Bayer are planned for this spring. Other professional activities, such as helping the chemistry department with prospective graduate student weekends, are so much fun their classification blurs with social activities. The majority of the chapter members are currently graduate students, so they are a great fit for helping the department with these weekends, transporting prospectives, leading tours, and showing the "non-departmental" side of Austin. A new information packet, "Being a Graduate Student in Austin," which incorporates information on housing, insurance, and restaurants, will be mailed to students who have accepted UT's graduate school offer.

Social outings of bowling, playing mini-golf, and simultaneously increasing cholesterol levels (eating barbecue at the Salt Lick) helped bring members closer together, as did dining with our district councilor at Magnolia Café and Katz's. Many members avidly participate in sporting activities. Members Chris E. Jones and Jessica Robinson introduced many members to rockclimbing. Brother Darin Laird skydives and soon will have other members accompanying him out the aircraft door. Last summer members Sara Eames and Andrea Wells successfully completed their first triathlon. The chapter is also planning a horseback riding outing. The social activity list is not complete without mentioning the semi-annual broomball battle between the chapter and the Student Affiliate chapter of ACS. This popular, much anticipated event will continue this spring.

Social events are not limited to those within the chapter. At the recent Anaheim ACS meeting, three members of the chapter attended a luncheon and were pleased to find out that the mentoring aspects of the chapter are undergoing renewed emphasis. At this meeting, members had the opportunity to talk with Lisa Boffa, who was one of the reactivators of the chapter as a non-house chapter in 1991. As an historical aside, the chapter was originally active from 1952-1985, becoming inactive several years after losing the lease on the chapter house. Dr. Boffa's recent visit to the department and her seminar (sponsored by Chemistry and Biochemistry Career Services) provided a glimpse of what it is like to work in industry.

The chapter continues to grow with four new brothers last semester: Adrian Goodey, Allison Thies, Shawn McCleskey, and Wyeth Callaway, and four more members this April. The chapter also hopes to induct Dr. Grant Willson and Dr. Jon Sessler during the April ceremony. Members Steve Savoy and Jessica Robinson have launched their careers in the "real world." Jessica Robinson won the ACS Scholar Award in 1998; her active participation in the chapter is missed. Thankfully, Steve Savoy is employed in Austin and we look forward to his continued chapter

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Cyndi Wells

Graduate Student recruitment effort continues



Prof. Jennifer Brodbelt

In an ongoing effort to attract the best graduate students, the department continues to organize two weekend recruiting visits each spring. These visits, on February 26 - 27 and March 26 - 27, are gala events that bring out the best of our faculty and current grad students. The recruiting events kick off on Friday evening with a poster/pizza event that is attended by faculty, current grad students, and prospective grad students. Our current grad students do a great job of regaling the visiting students with tales of scientific breakthroughs, the charm of Austin, and the benefits of undertaking doctoral work at a world-renowned institution. The Saturday schedule is packed with informational meetings, faculty talks, lab and campus tours, more mingling with current grad students, a tour of Austin's highlights, and of course plenty of eating. The day closes with a festive dinner at Pok-E Jo's, a long-time Austin barbecue joint. Visiting students are encouraged to ask lots of questions and enjoy the great atmosphere of UT and Austin. Typically 35 - 40 students visit during each of the weekend events, coming from all over the country, with their airfare and lodging paid for by the department.

The acceptance rate is much higher for the visiting students than the non-visiting students, thus confirming the success of the recruiting strategy. The quality and quantity of our graduate student population is critical to the prosperity of the Department of Chemistry and Biochemistry, and many would agree that the energy devoted to recruiting is energy well-spent.

New Faculty - Angela Belcher Designing new materials with lessons from nature

My interest really focuses at interfaces, which includes the interfaces of scientific disciplines as well as the interfaces of materials. Nature makes materials that are both strong and tough and that display exceptional nanostructural regularity. Living systems form organic-inorganic structures by a variety of processes which are: dynamical, involving disassembly and reassembly, selective and self-organizing on molecular to macro-length scales, responsive to local stimuli and self-correcting. By understanding the processes by which nature makes materials, new materials can be designed with some of these desired features.

My background so far has been interdisciplinary in nature with my undergraduate education in molecular biology and biochemistry, my graduate degree in inorganic chemistry and my postdoctoral research in electrical engineering. As an undergraduate student at both University of California Los Angeles and Santa Barbara, I studied molecular biology and biochemistry with a research emphasis in molecular recognition and early events in plant microbe interactions. I went to UCSB to study with Professor Galen Stucky as a graduate student in inorganic chemistry and was fortunate to become one of the first graduate students in a new interdisciplinary biomaterials group. In this group I studied between Professor Galen Stucky in inorganic chemistry, Professor Daniel Morse in molecular biology and Professor Paul Hansma in physics.

My primary area of research in graduate school was understanding organic-inorganic interfaces and interaction in materials made by Nature. An example of a natural biocomposite material is an abalone shell. An abalone shell is 98 percent by mass inorganic in the form of CaCO_3 and only two percent organic in the form of protein. However, the shell organic-inorganic composite is 3,000 times tougher than geological CaCO_3 . While working on my Ph.D., I isolated and characterized three new families of proteins involved in shell formation, and studied their role in mineralization. I found that specific proteins in this biocomposite are crystal phase specific. I found that these purified proteins could be used to stabilize inorganic crystal phases and to direct inorganic structures. In addition one modular protein isolated, Lustrin A, showed exceptional extensibility and is now being used as a model for modular adhesives.

As a postdoc I stayed to work with Professor Evelyn Hu at the Center for Quantized Electronic Structures (QUEST) and the Department of Electrical Engineering at UCSB with the goal of integrating biomaterials and electronic materials. We started a new interdisciplinary program in bio-integrated electronic nanostructures. At QUEST I worked on developing new methods of patterning nanoparticles and semiconductor precursors on nanometer length scales.

Back home again - In my group here at Austin we are using Nature as our guide to make new materials and pattern materials on new length scales. Our focus is adapting the conditions and control mechanisms found in nature to non-biological inorganic materials including size constrained magnetic and semiconductor materials. Two areas we are currently pursuing are 1) biomimetic synthesis of non-biological inorganic phases with novel electronic and magnetic properties directed by proteins and synthetic analogs, 2) synthesis and self-assembly of smart polymers to pattern size restricted metals and semiconductors to make devices with novel electronic and optical properties on length scales that surpass current lithographic capabilities.

It is nice to be back home in Texas. I grew up in San Antonio and Houston and most of my family lives here in Texas. My family is happy that I finally became a Longhorn. My dog Squeaker, a native of Southern California, is adjusting to Texas just fine and has found to his excitement that the squirrels are bigger here in Texas. Applying for this position here at UT also brought my elementary school sweetheart, David, and myself back together after 16 years. David and I are getting married this June. We spend our free time with our dog Squeaker out on the Greenbelt.



Prof. Angela Belcher

Beta Theta Chapter expands its membership and activities

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involvement.

One of the exciting upcoming events that may be in 's future is Conclave, a gathering of chapters from throughout the United States. A bid is being submitted to host Conclave in the summer of 2000.

To learn more about , please contact us at axe@mcfeeley.cc.utexas.edu or visit the web page at <http://www.cm.utexas.edu/~axe>. We would be happy to hear from you and always welcome any opportunities to expand our activities.

- Cyndi Wells, Master Alchemist

Faculty Awards and Honors

AL BARD ~ received the **1998 National Academy of Sciences Award in Chemical Sciences** and was chosen for the **1998 Pauling Award** for outstanding contributions in his field. The Pauling Award is sponsored by the Portland and Puget Sound sections of the ACS.

ANGELA BELCHER, our newest faculty recruit ~ received "**Favorite Faculty Honor**" from the undergraduates at UCSB for the freshman chemistry class she taught there as a lecturer.

ALAN CAMPION ~ was selected as the recipient of a **1999 Texas Excellence Teaching Award** by the Ex-Student's Association in the College of Natural Sciences.

RAY DAVIS ~ elected to the **ACA Committee on Continuing Education** for the term 1998-2000 and will serve as chair of that committee.

JACK GILBERT ~ served as **chair of the UT-Austin Faculty Council**.

MARVIN HACKERT ~ is one of four US delegates elected to represent the US crystallographic community at the **XVIII Congress and General Assembly of the International Union of Crystallography** meetings being held in Glasgow this August.

DAVID HOFFMAN ~ received the **Independent Scientist Award** from the National Institute of Health, January 1, 1998, and was promoted to the level of **Associate Professor** with tenure.



Dean Mary Ann Rankin and Professor Al Matsen

BRENT IVERSON ~ one of two chemists named to the **Research Corporation's Program Advisory Committee** and selected as a **1998-99 Faculty Fellow of the Center for Instructional Technologies**, a division of Academic Computing and Instructional Technology Services.

DAVID LAUDE ~ elected to the **Academy of Distinguished Teachers** at The University of Texas at Austin.

PROFESSOR EMERITUS F. A. MATSEN ~ was the **guest speaker for the College of Natural Sciences Convocation** held December , 1998.

JASON SHEAR ~ named **Searle Scholar** and selected as an **Alfred P. Sloan Research Fellow**.

RUTH (McKAY) SHEAR ~ received a **College of Natural Science Teaching Excellence Award**.

JOHN STANTON ~ promoted to **Associate Professor** and received a **College of Natural Sciences Teaching Excellence Award**.

MIKE WHITE ~ received the **Jean Holloway Award for Teaching Excellence**, from Alpha Lambda Delta and Phi Eta Sigma the **Outstanding Faculty Member Award** (November 1998), and the **University Cooperative Society Career Research Excellence Award** for the 1998-99 academic year.

DAVID VANDEN BOUT ~ awarded a **1998 Summer Research Assignment** as well as the **Camille and Henry Dreyfus Foundation New Faculty Award**.

GRANT WILLSON ~ received the **1998 Innovations in Real Materials** award from the National Academy of Engineering's Materials Section and the National Academy of Sciences **1999 Award for Chemistry in Service to Society**.



Chemistry and Biochemistry Holloway Award Winners: Ray Davis (1996), Alan Campion (1989), Mike White (1998), Stephen Monti (1972), David Laude (1993).

Reminiscences

Recollections of the Department of Chemistry and Biochemistry



*Seymour Pomerantz, Ph.D. (Bailey)
1952,
Prof. Emeritus of Biochemistry
University of Maryland School of
Medicine*

I was born and raised in Houston, graduating from San Jacinto High School in 1944 and Rice Institute (now University) in 1948 with a B.A. degree with honors in chemistry. Even after the end of WWII in August of 1945 I was a member of a relatively small group of chemistry majors, with a sprinkling of returning veterans. I was young and decidedly naïve about many things, including my future in chemistry. I decided on graduate study in organic chemistry instead of looking for a job in part because my best friend at Rice was going to continue as a graduate student in chemistry. Organic chemistry seemed to me much more fun and somehow less taxing than physical chemistry. Although I did apply successfully for a teaching assistantship at a school outside of Texas in addition to UT, my parents made it clear that I should stay close to home if at all possible.

I decided to make a visit to Austin to see the town and to speak to the faculty member responsible for assigning the Teaching Assistants for the courses in organic chemistry. Somehow I learned that this was Prof. H. R. Henze. After writing him a letter, he invited me to come for a chat and

a visit to the department. The Chemistry Building was an impressive structure, perhaps 50 percent larger than the department building at Rice and I noticed a very nice departmental library. Dr. Henze was a rather short slim man who tried to put me at ease. He talked about the department for a bit, describing some of the areas of specialization. Then he surprised me by asking some questions about my background in organic chemistry. I told him that I had the basic one year course with Prof. George Richter and a course in the identification of organic compounds with Prof. R. C. Fuson of the University of Illinois in Urbana, who was a Visiting Professor at Rice for the 1947-48 academic year. Then he further surprised me by asking what I knew about ethers as a class. The only thing I could think of was that they could be split with HI. This seemed to satisfy Dr. Henze and he dropped the quiz (at least as far as I remember now).

In September I came up to Austin and found my dorm room. The dorms were crowded that year with many returning veterans so three people were assigned to each room that ordinarily held two men. I received a desk in the Chemistry Building in a space caged off at the end of the second floor corridor near the labs designated for the pre-med organic course. Several of us, all assigned to teach the pre-med organic labs, had desks there, and this is where I kept most of my books and did all of my studying. I recall that I was really nervous about the first lab of the year. Each of us had to work three labs, each nominally three hours, although I recall that we did not have to prepare the solutions. We were supposed to explain the subject of each exercise and could even give a short quiz about the previous weeks' work. I think I went overboard with my explanations for a few weeks until I got some feedback from the students who told me that none of my colleagues were spending so much time with explanations!

After a few weeks, in order to find a research mentor, I began visiting the organic chemistry faculty to learn about their individual research programs. I recall that the organic chemistry faculty consisted of Bailey, Henze, Dice, Hatch, Roberts and Lochte.

There were other organic chemists in the Biochemical Institute headed by R. J. Williams, but they were a group apart and since I had no idea at the time as to what biochemistry was, I did not interview any of them. I was impressed with the research described by Bailey, Henze, and Roberts and with the relative youthfulness of Roberts and Bailey. I also liked the fact that Bailey and Roberts had only a few graduate students compared to the large group already with Henze. Finally, I chose Phil Bailey and began work in his lab by the beginning of the second semester. I had selected a problem involving the synthesis of 1,4-dibenzoyl-1,3-cyclopentadiene and a study of its addition reactions with HBr and various other compounds such as bromine, phenylmagnesium bromide, and amines. I had great difficulty with the synthesis of 1,4-dibenzoyl-1,3-cyclopentadiene, trying three or four methods without success. Finally after more than a year I had to admit defeat and go on to another problem, the study of the mechanism of addition reactions of trans-1,2-dibenzoylpropene with the above compounds. This was eventually concluded successfully. The other members of my committee were H. L. Lochte, L. F. Hatch, W. A. Felsing, G. W. Watt, O. B. Williams, and V. T. Schuhardt. The latter two were from the Department of Bacteriology, in which I had a minor.

Phil Bailey was instrumental in encouraging my development as an investigator. He took an inexperienced young person, pointed him toward the methods of chemical investigation, and inculcated a respect for the literature. Proper credit was always to be given and results were to be truthfully reported. We had regular weekly conferences and since his office was near the lab, he stopped in to see us at least once a day. There were always a couple of social occasions each year. Cooperation among the Bailey graduate students was encouraged and there was absolutely no destructive competition. Some of my student colleagues were Gene Nowlin, J. Virgil Waggoner, Elias Kawas, and W. Hakki.

Bailey's research was supported by indispensable grants from The Research Corporation. This was a period long before

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Reed retires from teaching after 51 years!



Janet and Lester Reed

Professor Lester Reed will retire from teaching at UT-Austin at the end of this academic year. Lester James Reed was born in New Orleans, LA, on January 3, 1925. He attended Tulane University, where he did undergraduate research with Bill Shive, receiving his B.S. degree in Chemistry in 1943. Upon graduation he went to the University of Illinois, Urbana, where he worked with Dr. R.C. Fuson, receiving his Ph.D. in organic chemistry in 1946. From 1946-48 he was a Postdoctoral Research Associate with Professor V. duVigneaud at Cornell University Medical College in New York City.

Lester has had a long and distinguished career since arriving at The University of Texas at Austin in 1948. He was promoted to Associate Professor in 1955, Professor in 1958, and named Ashbel Smith Professor in 1984. He is widely recognized for his research on lipoic acid and multienzyme complexes. Among his many contributions are the isolation and functional characterization of lipoic acid and the structural and functional characterizations of the pyruvate and alpha-ketoglutarate dehydrogenase complexes. He was named the ACS's Eli Lilly & Co. Award winner in 1958, elected to the National Academy of Sciences in 1973, received an Honorary Doctor of Science Degree from Tulane University in 1977, elected a Fellow of the

American Academy of Arts and Sciences in 1981, and the recipient of the ASBMB-Merck Award for outstanding research in biochemistry and molecular biology in 1994. The Lester J. Reed Professorship in Biochemistry has been established in his honor by family and friends.

In November 1988, a Conference on " -Keto-Acid Dehydrogenase Complexes: Organization, Regulation, and Biomedical Aspects" was held in Austin in Lester's honor. The conference proceedings were dedicated to him and published in Volume 573 of the Annals of the New York Academy of Sciences. This April, a dinner honoring Lester's outstanding career and retirement from fifty-one years of teaching was held in Austin. Many of his former students and postdocs were in attendance, with special recognition to Drs. Masahiko and Kichiko Koike, who traveled from Nagasaki, Japan, for the occasion. After dinner, testimonials were given by Bill Shive, Esmond Snell, Dan Ziegler, Jack Gilbert, Jim Stoops and Merle Olson, as well as Lester's three children and two grandchildren. In addition, a slide show depicting highlights of Lester's distinguished career was presented during the reception and this can be viewed on our departmental web site.

Lester has published over 200 research articles, and has served on numerous editorial and advisory boards. In addition to his teaching and research record, he served as Director of the Biochemical Institute from 1963-1996. Lester has always been an excellent faculty colleague, and a leader in the development of biochemistry as a discipline on the UT-Austin campus.

Lester married Janet in August, 1948, before coming to Austin. They celebrated their fiftieth anniversary last year. They have three children (Pam, Sharon, and Robert) and two grandchildren (Jessica and Mark). Although retiring from teaching, Lester plans to remain active in research and is looking forward to having more time for his family and travel.

- Marvin Hackert

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there were other agents of support that we are so familiar with today. For nine months each year I was supported very well as a TA (\$100/month) and during the summers each TA was able to get support for one summer session of six weeks. I was fortunate to be awarded a University Scholarship during the Spring Semester of 1951 and a Fellowship sponsored by the Pan American Refining Corporation for the 1951-52 academic year. The latter enabled me to spend all of the important final year in research.

I recall taking graduate courses with Bailey, Hatch, Lee, Watt, Snell, Felsing, and Matsen. My best friends were fellow graduate students Stan Winthrop, Bill Plant, and the late Don Carroll.

During the spring of 1952, I decided to try for a post-doctoral fellowship in addition to interviewing for industrial jobs. I applied for a fellowship with Prof. Roger Adams at the University of Illinois in

Urbana. In this I was aided by the generous recommendations of Phil Bailey, the success of Gene Nowlin as a Fellow with Adams in 1950-51, and by the recommendation of Prof. Fuson. I accepted the offer and went off to Urbana in late June, 1952. Illinois was a much bigger chemical world than UT and opened my eyes to many other possibilities, but that is another story.

As I end this sketch I note the great strides made by The University of Texas in all areas of the humanities and sciences. It is of course a much, much larger school and the student body is more diverse than it was in 1952. The faculty of chemistry and biochemistry is also more diverse. I have lived away from Texas for more than 46 years, but I have a feeling that the same problems of support from the public and legislature are present now, perhaps in different forms from what they were in 1952. I trust that the faculty, students and staff of

the Department of Chemistry and Biochemistry will continue to develop new ideas and contribute to the advances in the chemical sciences and enlightenment of the public.

We invite alumni of the department to contribute "Reminiscences" articles.

Call: Joyce Thoresen, 512-471-5916

Write: *Chemical Compositions
Depart. of Chemistry/Biochemistry
The University of Texas at Austin
Austin, TX 78712*

E-mail: *joyce@mail.utexas.edu*

Celebration of Allen J. Bard's 65th birthday anniversary

On the weekend of 18-20 December 1998, more than 100 current and former group members and their spouses converged on Austin, Texas to celebrate the 65th birthday anniversary of Professor Allen J. Bard. The Bard birthday bash kicked off Friday evening with a stand-up buffet at the Littlefield House on the University of Texas (UT) campus. Since the event had the blessing of UT president and former Bard-group member LARRY R. FAULKNER, it was possible to really roll out the red carpet Friday. Nattily costumed waiters strolled among the participants providing drinks to help loosen their tongues as they reminisced about Al's forty years at UT and the part they and their contemporaries played in building one of the major centers for electrochemistry in the world. All generations of the Bard group were represented, including the very first person to receive a Ph.D. from the group, Dr. JASPAL MAYELL, who graduated in 1962.

The evening was capped with the singing of Happy Birthday, the cutting of a wonderful birthday cake (complete with Blue Bell ice cream imported from Brenham), and the presentation of a few gifts to mark the occasion.

Standing with Fran, his wife of 41 years, the assembled group presented Al with a number of mementos to mark the first forty years of his career. These included a bound copy of a special Festschrift issue of the *Journal of Physical Chemistry B* (3 December 1998, vol. 102, no. 49) published to coincide with the festivities in Austin, a bound set of his scientific papers (I don't think any of us realized that it would require nine volumes to bind up his 700+ research publications!), and a T-shirt commemorating both the birthday party and the Festschrift (next time you're in Austin, you might see this T-shirt flashing by you on the Town Lake jogging trails).



Participants included at the festivities included (seated, l-r): CHUCK MARTIN (Colorado State University), MIKE WARD (University of Minnesota), STEVE FELDBERG (Brookhaven National Laboratory); (standing, l-r): FRANCISCO URIBE (Los Alamos National Laboratory), ISRAEL RUBINSTEIN (Weizmann Institute of Science), and LARRY FAULKNER (University of Texas).



Professor Bard's granddaughter, Marlee, and her mom, Sara, find some quality crawl space Friday night at Littlefield House; they are flanked by FRAN BARD (l) and JON GOODMAN, Sara's husband (r).

On Saturday, the participants gathered in the Welch Hall Convocation Center, known to former Bard group members as the "fancy meetin' room" for a full day of research presentations. CHUCK MARTIN chaired the morning session, which featured talks by BERNHARD KRAEUTLER, VES CHILDS, PAUL KOHL, JOE MALOY, SU-MOON PARK (who flew in from Korea for the occasion), TIMOTHY HENNING, and ISRAEL RUBINSTEIN (who made the long trip from the Weizmann Institute). After a group photo-op in front of the UT Tower and a break for lunch, ISRAEL RUBINSTEIN took over as MC and the participants were treated to talks by CHUCK MARTIN, MIKE WARD, JOHNA LEDDY, ANDY GEWIRTH, GENE SMOTKIN, MICHAEL MIRKIN, Dick Crooks and Henry White.

After a short break for everyone to catch their breath, the participants joined Al and Fran on the top floor of the LBJ Presidential Library for a fantastic halibut dinner and another splash or two of spirits. (To put the length of Al's career in context several people noted that Al was teaching in Austin well before LBJ was president.)

Larry Faulkner gave an inspired after-dinner keynote address in which it is certainly fair to say he captured Al's remarkable scientific and personal achievements of the last forty years: the creativity, integrity, humbleness, incredible work ethic, and the overall sense of quality he brings to any endeavor.



The teacher listens....



The student talks....

Al followed with a few heartfelt words of his own about the group members, reminding us (in true Bard style) that we are co-owners of many of these achievements. Honorary group member, STEVE FELDBERG provided the audience with the outsider's inside line on Al and the many generations of group members he has worked with over the years, and then the floor was opened to others who wished to share an amusing anecdote or provide a perspective on how their time in the group had affected their personal and professional lives.

The event concluded Sunday morning with a Bard Reunion Fun Run around Town Lake, and a wonderful Sunday-morning brunch hosted by Al and Fran. We look forward to many more years of research achievements, teaching, and friendship from this remarkable scientist, colleague, and friend.

- Richard M. Crooks and Henry S. White

This article was adapted from SEAC Communications 15(1), Feb 99 - <http://seac.tufts.edu/communications.html>

CHEMICAL *Compositions*

1998 - 1999 Undergraduate Awards and Scholarships

Dorothy Banks Foundation Trust

Brian Barnes
Jennifer Dunlap
Sharon Mauldin
Pauline Orlando
Jason Vogel

Dow Chemical USA Centennial Endowed Presidential Scholarship

Hope Hubbard

Dow Chemical Company Foundation

Tim Marquart
Andre Yassa

Norman Hackerman Endowed Presidential Scholarship

Kurt Sattelmeyer

Burl Gordon Rogers Endowed Presidential

Emery P. Kalinov

Pirrung Scholarship

Tara Spires

Hoechst Celanese Scholarship

Arefa Vohra Yubin Wu
Chia-Lin Lee Daniel Hall

Hoechst Celanese Academic Excellence Award

Stefan Miller

BASF Endowed Scholarship

Ryan Tedford

Louis Weisberg Memorial Chemistry Scholarship

Kareem Hamady Bianca Choe
Angela Izundu Jeffrey Hall

Marie Smith-Regents Endowed Scholarship in Chemistry

Roslyn Kygar Chia-Lin Lee
Phuong Tran Myrthala Gonzalez
Abby Sukarto Kareem Hamady

Shell Oil Company Foundation

Kyle Rhodes Aashish Parikh
Courtney Sheinbein Siby Moonnumakal
Tara Spires Ryan Tedford
Brett Masterson Daniel Hall
Eric Gonzales Tim Rountree
Nidal Abuata Laura Grice
Johana Bustillos

Friends of Chemistry-Regents Fellowship

Angela Ozburn Anthony L. Hoang
Gunjan Parikh Mihir Patel
Myrthala Gonzalez

Charles Morton Share Trust-Undergraduate Scholarship

Katherine Kershen

ACS Central Texas Award of Excellence

Sharon Mauldin
Tim Marquart

ACS Division of Analytical Chemistry Undergraduate Award

Todd Williamson

Chemistry Faculty

Laura Grice
Tim Roundtree

Various Donors

Yubin Wu
Arefa Vohra

Ethyl Corp

Toni Chu

Exxon

Tai-Shan Lin

Dupont Enrichment

Shreya Paprikh Lillian Pierson
Frances Baca Martina Boyce
Jody Black Jennifer Cayot
Nitin Wudhwa Brannon Hyde
Nasreen Vohra Adrianna Guerra
Hansheng Liou Johnana Bustillos
Cheng Feng Katherine Oliver
Jae Kim Hyun-Joo Kin
Roxann Moser

1998 - 1999 Graduate Awards and Fellowships

Dorothy A. Banks Fellowship, 1998-99

Suleyman Bahceci
Scott Bur
Maury Howard
John Pascal

Dorothy A. Banks Fellowship, 1999-2000

John Gorden
Deloney Langer
Courtney Lopreore
Darcie Miller
Michelle Reyzer
Mary Satterfield

University Bruton Fellowship

Chandra Miller

University Continuing Fellowships

Kara Bortone
Michael Gostkowski
Maksim Khrapov

University Continuing Tuition and Fees Fellowships

Darcie Miller
Michelle Reyzer

Robert E. Eakin Endowed Centennial Fellowship

Kara Bortone

Faraday Teaching Excellence Award

Michael Elliott
Ruth Ann Franks (Science Education Dept.)

H. R. Henze Teaching Excellence Award

Julian Davis
Fatima Fakhreddine
Liang-Hui Lee

Hoechst Celanese Academic Excellence Award

James Davidson
Michelle Reyzer

Joanne M. Ravel-Regents Endowed Fellowship

Darcie Miller

Charles Morton Share Trust-Graduate Fellowship

Shawn McCleskey

Welch Academic Excellence Award

Michael Gostkowski
Daren Lockwood
Nicolai Tvermoes

Welch Teaching Excellence Award

Julian Davis
Akin Davulcu
Fatima Fakhreddine
Brad Herrick
Liang-Hui Lee
Mary Satterfield

Gilbert H. Ayres-Regents Fellowship

Todd McEvoy

BASF Endowed Fellowship

Keith Ballentine

Chemistry Faculty-Regents Fellowship

Christopher Dale

Dow Chemical Company Foundation

Leah Eller

Exxon Education Foundation Fellowship

Gregory Gabriel
Pavel Golubkov
Erin Gooch

H. L. Lochte Fellowship

Laura Deschenes

Leon O. Morgan Fellowship

Adrian Goodey

Royston M. Roberts-Regents Fellowship

Suzanne Tobey

Stanley H. and Kathleen F. Simonsen-Regents Fellowship

Matthew Plenert

Welch Fellowships

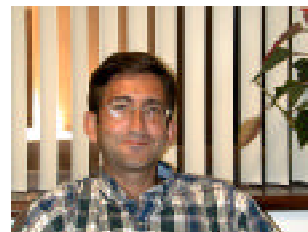
Shannon O'Neil
Suzanne Tobey

Stanton Promoted to Associate Professor

When I began at UT, I had certain expectations regarding both research and teaching activities. My research program has gone more or less exactly as I thought it would, but teaching has been considerably more rewarding and enjoyable than I originally anticipated. My teaching duties have focused almost exclusively on undergraduate physical chemistry (CH 353 and 354), where I lead about 150 students through thermodynamics and quantum mechanics every year. Since the fall of 1993 (when I first taught CH 353), a few of my students have decided that physical chemistry is not the horrible scourge that they had feared, but actually interesting enough that they leave Austin with plans to pursue the subject in graduate school.

In research, my group continues to work on the development of quantum chemical methods and their application to problems of chemical interest. This is an exciting time for quantum chemistry. For a half century, one of the major goals of this field has been to achieve a level of accuracy that is sufficient to make quantitatively accurate predictions of molecular properties and to assist in the analysis of various kinds of spectra. Tremendous advances in computer technology in the last decade together with the development of theoretical methods have made this goal a reality in the past few years. It is not possible to calculate extremely accurate molecular properties for systems containing up to about ten atoms.

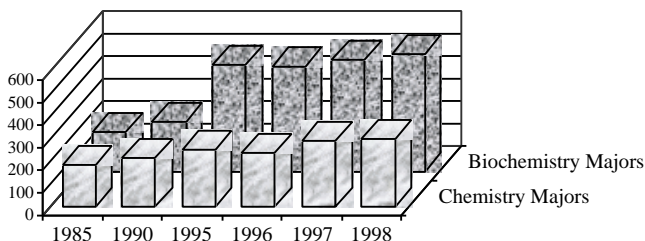
Method development in my group focuses on the use of "many-body" techniques that have their origin in nuclear physics to study the ground and electronically excited states of molecules. Our efforts in chemical applications (many of which are carried out with collaborators at other universities) currently center on 1) the study of molecules found in the interstellar medium; 2) the nuclear magnetic resonance spectra of nitrogen-containing molecules; 3) predictions and analysis of microwave spectra.



Prof. John Stanton

The view from the Undergraduate Advisor's office

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Plot 2 The numbers of declared undergraduate Chemistry and Biochemistry majors. Numbers listed are for the fall semesters of the given years and were provided by the Office of Institutional Studies.

In contrast to the modest increase in course enrollments, the number of declared undergraduate Chemistry and Biochemistry majors has seen a dramatic increase since 1990 (Plot 2). The number of Chemistry majors has risen to 305 in the fall of 1998, an increase of 40% since 1990. The number of Biochemistry majors has recorded an even more spectacular rise this decade, totaling 526 declared majors in the fall of 1998. Such an increase amounts to more than doubling of the total from 1990! These increases are generally attributed to increased student interest in medically related careers.

This sharp increase in the numbers of declared majors has placed a proportionately increased load on advising efforts within the department. Nevertheless, Christina Perkins and Chris Johnson in the undergraduate advisor's office continue to provide personalized advising services for department majors. Their comprehensive knowledge of advising issues across campus, as well as their ready availability to students on a walk-in basis throughout the semester, have made them invaluable to students proceeding through our programs. It is their strong commitment to the needs of the students, as well as superior organization skills, that allow Christina and Chris to keep up with such a quickly growing number of students requiring assistance.

The other major task of the undergraduate advisor's office is dispensing scholarship moneys to deserving students. This year the department will be distributing a total of \$82,000 in awards, given to undergraduate recipients chosen on the basis of merit and/or financial need. The awards, in the \$250 to \$5,000 range, are given at various times throughout the year and generally require specific applications from students. Right now, the procedures are time-consuming for both students and staff, and there is concern about the ad hoc nature of the selection process given that students must reapply for the different awards throughout the year. In order to address these concerns, next year each student will be asked to complete one general application that will be used to decide the awards for all of next year. This streamlined approach should bring a significantly enhanced level of organization to the award distribution efforts while preventing duplication of efforts and increasing coordination between the different awards. The distributed funds are derived from a variety of sources, largely personal contributions, corporate donations and memorial funds.

The undergraduate advisor's office is doing its best to keep up with student advising and financial needs in this period of rapid growth and change. It is not yet clear how technology and evolving job markets will transform the way in which Chemistry and Biochemistry are taught in the Department. What is clear is that students will always need sound advice, as well as financial support, from the undergraduate advisor's office to help them achieve their educational goals.



Prof. Brent Iverson
Undergraduate Faculty Advisor

CHEMICAL *Compositions*



Seniors Tara Spires and Jason Vogel receive the Dean's Honored Graduate award for the 1998-99 school year. Presenting the award to Tara are Assoc. Dean David Laude and Dean Mary Ann Rankin. Presenting the award to Jason are Dr. Ruth Shear (McKay) and Dean Rankin.



1998-1999 Chemistry and Biochemistry Degree Candidates

Summer 1998 Degree Candidates

Bachelor of Arts in Chemistry

Eugene Kangethe Gicheru
Derek Neil Mueller
Oam Suriyamont
Trent Robert Yonkers
Amanda Michelle Dalton

Bachelor of Science in Chemistry

Michael Roper

Bachelor of Science in Biochemistry

Christopher Ackerson
Nicholas Tyson Rojas
Jeffery Ward Smith
Roman Solomon Starikov
Qian Chi
Laurie C. Lichtenberg
Angela Hanh Nguyen
Puja Sachdev
Christine Page Whitney

Bachelor of Arts in Biochemistry

Christopher Michael Rees
Turner Slichon
Quan Anh Vu
Steve James Wilis
Mondira B. Chakravorty

Fall 1998 Degree Candidates

Bachelor of Arts in Chemistry

Robert Steven Cabral
Duc Thanh Ha
Jae Hak Kim
James Burnham Stanley
Sarah Ann Martinez

Bachelor of Science in Chemistry

German Jose ARezano
Jason William Coym
Stephen Todd Hammond
John Adam Kasson III
Alfonso Ortiz
Charles Bonner Sawyer
David Te-Chun Wang
Evan Kenneth Whitenight
Marisol Alaniz
Tammy Jo Borsellino
Krista Ann Herman
Jacinthia kat Louis

Bachelor of Science in Biochemistry

Richard William Bennett
Jonathan Warren Boyd
Yao Fu Chang
Peter Francis Duggan
Marcelo Labardini
Edward Laijas
Scott Wesley Long
Manuel Alfonso Pozos Jr.
Bryan Scott Strong
Jason Christopher Wians
Alexis Rhiannon Bell
Molyrhenium Frohlich
Alma Leticia Martinez
Angela Phuong Phuc
Ihua Tung

Bachelor of Arts in Biochemistry

Benjamin James Egner
Omeed Khodaparast
Danny Salah Rafati
Eun-Hye Ha
Sarah Jean McDonough
Yubin Wu

Spring 1999 Degree Candidates

Bachelor of Arts in Chemistry

Jose Alfredo Berbel
Andy Jay Eckerman
Brian Charles Eppright
Ernest Harrison Faucher
Angela Nicole Guerry
Mani Mohammadifar
Ina Pavlova
Ramon Salinas Jr.
Nena Kate Watkins
Renee Denise Wishop

Bachelor of Science in Chemistry

Jennifer Andrea Cayot
John Edwin Currie
Daniel A. Denton
Avram R. Dodson
Eldrick De Shawn Gibbs
Ekai Hsu
Elisa Maria Jazan
Aaron Ya-Luen Liao
Timothy Aaron Marquart
Sharon Lynn Mauldin
James Patrick Mitchell
Brian Philip Osborn
Michael Thomas Tirres
Benjamin Lee Treece
Jason Michael Vogel
Kelly Lyle Wouters
Raymond Way Wu

Bachelor of Arts in Biochemistry

Ashish V. Barad
Caroline Fung Chen
Lissy Maris Diaz
Benjamin Peter Esch
Hutch Ho-Chi Hsieh
Christina Jihee Hwang
Borwen Paul Lee
Michael Hak Min Lee
Aashish Ramesh Parikh

Gunjan Y. Parikh
Susan Leslie Pitner
John Wayne Richards
Abraham P. Thomas
Nitin Wadhwa
Andre Pierre Yassa
Ping Kuang Yeh

Bachelor of Science in Biochemistry

Nidal Abuata
Melissa Battiest
Paula Porto C. A. Bezerra
Audrey C. Brumback
Dustin Peter Dinh
Cheng Shuai Feng
Laura Anne Hawk
David Israel Hernandez
Benjamin Cable Hoster
Judy Chen Jen
Jacqueline L. Johnson
Stephanie Louise Jones
Thomas James Kimbrough
David Douglas Miner
Siby Pothan Moonnumakal
Pauline Marie Orlando
Eduardo Enrique Padilla
Aarathi Raghu
Kyle Murphy Rhodes
James Alton Richards
Sohail Ahmad Saeed
Mary Alice Salazar
David Jesse Sanchez
Juanita Dolores Sanchez
Courtney Adam Sheinbein
Tara L. Spires
Amanda Marie Suarez
Christoph A. Tessone
Andrew Jeremy Tigelaar
Tam Hoang Trinh
Vi Tuong Truong
Nasreen Adam Vohra

Alum Retorts

1946

Jett Arthur, M.A. (Felsing) ~ has been named an Emeritus Member of the Executive Committee, CELL, ACS.

1968

Dan K. Seilheimer, B.S. (Chemistry), M.D. Baylor College of Medicine ~ is Professor of Pediatrics and Chief of Pediatric Pulmonology at Baylor College of Medicine, Houston, TX.

1970

Bobby L. Barnett, B.S. (Chemistry) 1967, M.A. 1969, Ph.D. (Davis) ~ was named the 1999 Chemist of the Year by the Cincinnati ACS Section. He has been employed by Procter & Gamble since 1974 where he introduced molecular modeling. Currently he is involved in structure-based drug design for P&G Pharmaceuticals, using protein crystallography as the major tool. Bobby is also an Adjunct Professor in the University of Cincinnati Chemistry Department.

1971

A. Erwin Buck, BS (Chemistry) 1967, Ph.D. (Hackerman) ~ is a self-employed consultant, living in Ponca City, Oklahoma.

1977

James R. Gaston, B.S. (Chemistry), B.A. 1985 (Computer Sciences), M.B.A. (University of California, Berkeley) ~ reports he is currently employed as a Software Project Manager at K2 Technologies in San Jose, California. He is looking forward to the completion of a house in the Santa Cruz mountains which over looks Monterrey Bay.

1978

Diana L. Lundelius, B.A. Biochemistry ~ works for TERRACON in Dallas as the Regional Manager, Regulatory Services. She reports she is recently married and has moved into a new home. She credits her success, in part, to "the good head start and support I received studying and working in the Chemistry Dept. and Clayton Foundation."

1985

M. Katherine Holloway, M.A. 1982, Ph.D. (Dewar) ~ was a prominent member of a team of Merck researchers who received the 1998 ACS Award for Creative Invention for the discovery of Crixivan. Through molecular modeling, Holloway, who works in Merck's department of molecular design and diversity, was able to model key precursors to Crixivan in the active site of the target enzyme HIB-1 protease, prior to chemical synthesis. Holloway joined Merck in 1985, has co-authored a number of scientific presentations and is currently a senior research fellow.

1986

Jose Ricardo Ortiz, B.S. Chemistry ~ reports he is in his 13th year with Celanese. He is currently on assignment (supervising the laboratory and process engineering groups) in Sinapore. He recently married Sarah, "an aggie chemist."

1994

Michael N. Van Hoy, Ph.D. (Kodadek) ~ is working towards an M.B.A. with concentrations in Finance and Marketing, at the University of Chicago. He is employed by Abbott Laboratories.

1996

Robert D. Culp, Ph.D. (Cowley) ~ reports he and his wife welcomed their first child, Julia Lynne, on February 18, 1998. Rob works as an Advanced Research Chemist at Texas Eastman Division of Eastman Chemical.

Nanlin Deng, B.S. Chemistry 1991, Ph.D. (Mallouk) ~ writes that she and her husband, Jian Chen (Ph.D. Physics 1993) are both employed by DuPont in Richmond, VA.

Rachel K. Haddock, B.S. Chemistry, M.S. Biotechnology (Northwestern University) 1997 ~ is employed as a Scientist in Vaccine Technology and Engineering at Merck & Co. (West Point, PA).

1998

Jeffrey E. Fieberg, Ph.D. (White) ~ began his tenure-track position as Assistant Professor of Chemistry at Hillsdale College in Michigan immediately following graduation. He is teaching physical chemistry and introductory chemistry for non-science majors. He reports, "I love my job!" He and his wife have just purchased their first house.

Jessica Robinson, Ph.D. (Laude) ~ was selected to be the Alpha Chi Sigma Scholar for 1998.

Theresa Torres, Ph.D. (Laude) ~ is an assistant professor, Department of Chemistry and Biochemistry, California Polytechnic State University, San Luis Obispo, CA.

POSTDOCTORAL FELLOWS

John F. Knifton, (Watt) ~ received the Paul Rylander Award for 1998 from the Catalysis Society.

Remembering Philip Bailey

Philip S. Bailey, Professor Emeritus of Chemistry, died on November 18, 1998 in Ft. Worth, TX, at the age of 82. He is survived by his wife, Jean, three children, and numerous grandchildren and great grandchildren.

Phil joined the faculty of our department in November, 1945, and spent nearly four decades as a member of it. From his initial rank of assistant professor, he rose through the ranks to become an associate professor in 1949 and a full professor in 1957. His contributions in research earned him international recognition in the field of ozonolysis of organic compounds.

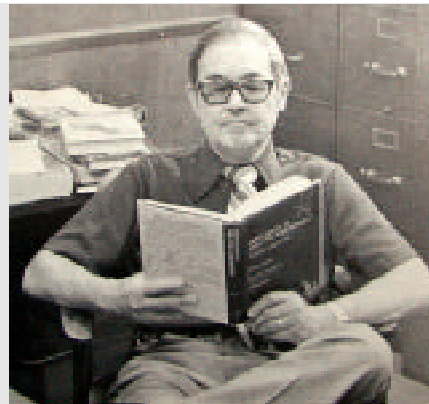
Phil's recruitment to the faculty was probably was one of the fastest on record. He inquired about the availability of a position in early September, 1945, at which time he held a postdoctoral appointment with R. P. Lutz (person Phil often referred to as his "chemical father") at the University of Virginia. By mid-month he had submitted a resumé as requested by the then-chairman W. C. Felsing. Phil was interviewed in late October, received an offer by the end of the month, which he immediately accepted, and arrived in Austin to start teaching on November 15th, at the princely salary of \$2,500 for nine months.

The record shows that Phil's expenses for his interview trip amounted to a total of \$142.98 and included \$115.08 for round-trip rail fare between Charlottesville, VA, and Austin, \$3.00 in tips to "four porters," and \$0.30 to check bags and coat in St. Louis. Attention to detail, as reflected in the last two expenses, was one of Phil's premier qualities. Despite the modest scale of his expenses, Phil ran up against a problem that continues to plague visitors to the university, namely paperwork and receipts. According to a letter Phil received from Robbin C. Anderson, who had succeeded Felsing as chair of the department, "I (Anderson) received the copy of your expense account and regret to report that there is still a bit of red tape. We are supposed to turn in a receipt for railroad and pullman fare and any hotel bills. I am enclosing one of the receipt blanks. The station agent at Charlottesville [sic] can sign the receipt for you since the various railroad rates are standard. If you will have this receipt signed and send it back to me at once, I can have the check for you in a day or so thereafter I believe." What differs today from that time is the speed with which Anderson thought he could get a check in the mail!

Prior to undertaking his postdoctoral appointment, Phil earned a B.S. at Oklahoma Baptist University (1937), where his father was a member of the chemistry faculty, an M.S. (analytical) at OU (1940), and a Ph.D. (organic) at the University of Virginia (1944). The "Educational Data" portion of his resumé contained the following two comments on his grades: At Oklahoma Baptist, Phil noted that he had "mostly A,s" in his chemistry courses but was "Average" in his other subjects because "I had not 'waked up' yet;" he then reported that his grades in his first year at OU were "Poor" because "It took me this year to wake up to what I wanted to do." Suffice it to say that Phil was one honest person who told it like it was.

Phil was the second of four consecutive generations of chemists in the family, starting with his father and continuing with two of his own children and then two grandchildren. He himself was the consummate academician, loving the wonderful combination of teaching, research, and service that the profession engenders. Drawing from his teaching evaluations, always a dangerous thing, given the vagaries of students' opinions, one can find the following quotes that capture the man: "I think Dr. Bailey is extremely fair in his dealings with students, especially with regard to exams. He is sincerely concerned with doing his best in teaching"; "The material covered on the test is so much that the student is *mentally fatigued* before he is halfway through the tests" (Phil was indeed thorough on his examinations); "Dr. Bailey has done a fine job of teaching, and I, for one, appreciate his not making political comments"; this opinion apparently was not shared by all, as reflected in the following remark, [he] "was cold to those who didn't agree with his political thoughts." Indeed, Phil held strong political opinions that sometimes were jokingly characterized by Roy Roberts and myself, both political liberals, as being somewhat to the right of those of Attila the Hun.

Phil's father started a family tradition of performing chemical "magic" shows. This was carried on by Phil himself, his son, Phil, Jr., and continues with Phil's grandson Karl, and over 100,000 people have seen the show over these four generations. Yet another family chemical tradition in which Phil had great pride was membership in the fraternity for collegiate and professional chemists. He was a founder of the chapter



Phillip S. Bailey

here, where Phil, Jr. was also a member. This tradition has been maintained by Karl.

Phil faced many personal challenges during his tenure here at UT and always overcame them through a combination of his strong religious faith and strength of character. He had a fine sense of humor and loved to play practical jokes on his colleagues, particularly Roy Roberts. Roy returned the favor on numerous occasions, and he and I cooked up one scenario that was truly memorable. It involved an alleged edict from W. O. Milligan, the original Director of Research of the Robert A. Welch Foundation, that all grant-holders were to make a command appearance before him during one of his all-too-frequent visits to the department. We concocted a phony letter that we showed to Phil the day *after* the supposed visit was to occur, innocently inquiring as to why he hadn't shown up. Phil nearly had a cardiac arrest as he envisioned his Welch grant disappearing forever.

Although mild-mannered most of the time, Phil did have a temper that was a sight to behold when unleashed. Often his outbursts were triggered by his perception that a principle that he held dear had been violated, but he would usually calm down quickly and apologize to those he might have verbally attacked. Although the record is incomplete as to the details of the incident, there is one occasion on which Phil felt that his anger might have been costly to him, as evidenced in a letter he wrote to Chairman Bill Shive in 1965. Noting that he was unhappy with the size of his raise for the ensuing academic year, Phil said, "If the . . . raise given me solely denotes a reprimand for the unfortunate

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CHEMICAL Compositions

1998-99 Seminars

Once again, our teaching and research program benefited from presentations by individuals whose research interests cover a broad spectrum. Although the list that follows categorizes the speakers on the basis of the traditional divisions within the department, a significant number of them discussed topics that bridge the usual divisional boundaries, a fact that reflects our continuing efforts to foster interdisciplinary interactions among our faculty, postdoctoral fellows, and students.

Analytical/Physical

Prof. Allen Bard
University of Texas at Austin

Prof. David N. Batchelder
University of Leeds

Prof. Joan Brennecke
University of Notre Dame

Prof. Jennifer Brodbelt
University of Texas at Austin

Prof. F. Fleming Crim, Jr.
University of Wisconsin-Madison

Dr. Shelley Foster
Indiana University

Prof. Cynthia Friend
Harvard University

Prof. David W. Goodman
Texas A&M University

Dr. Gaddi Haase
Weizmann Institute of Science

Prof. Adam Heller
University of Texas at Austin

Prof. Melissa A. Hines
Cornell University

Prof. James Holcombe
University of Texas at Austin

Prof. Hannes Jonsson
University of Washington

Prof. Branka Ladanyi
Colorado State University

Prof. David Laude
University of Texas at Austin

Prof. Jerzy Leszczynski
Jackson State University

Prof. Paul Marshall
University North Texas

Prof. Robin McCarley
Louisiana State University

Dr. Michael C. McCarthy
Harvard-Smithsonian Center
of Astrophysics

Prof. John McDevitt
University of Texas at Austin

Prof. Terrance McMahon
University of Waterloo

Dr. Mehdi Moini
University of Texas at Austin

Prof. Izhack Oref
Israel Institute of Technology, Technion

Prof. Jason Shear
University of Texas at Austin

Prof. Jonathan V. Sweedler
University of Illinois

Prof. Grzegorz Szamel
Colorado State University

Prof. Patrick R. Unwin
University of Warwick

Prof. Gilbert Walker
University of Pittsburgh, Chevron
Science Center

Prof. Jugen Wofrum
University of Heidelberg

Prof. Robert Wyatt
University of Texas at Austin

Dr. X. Sunney Xie
Battelle Pacific National Labs

Dr. E. B. Zhulina
University of Pittsburgh

Biochemistry

Prof. Charles K. Barlowe
Dartmouth Medical School

Prof. John Blanchard
Albert Einstein College of Medicine

Dr. Adrian D. Ferre-D'Amare
Yale University

Prof. Gary D. Glick
University of Michigan, Ann Arbor

Prof. P. John Hart
University of Texas Health Science
Center at San Antonio

Prof. David Hoffman
University of Texas at Austin

Prof. John E. Johnson
Scripps Research Institute

Prof. Rudolf Ladenstein
Karolinska Institutet

Dr. Matthew Redinbo
University of Washington

Prof. Uttam L. Rajbhandary
Massachusetts Institute of Technology

Prof. Patrick J. Stover
Cornell University

Dr. John Tessmer
University of Texas
Southwestern Medical Center

Inorganic

Prof. Angela Belcher
University of Texas at Austin

Prof. Wei-Kan Chu
University of Houston

Prof. Bradley F. Chmelka
University of California, Santa Barbara

Dr. Bonnie Dunbar
NASA

Prof. C. Daniel Frisbie
University of Minnesota, Twin Cities

Prof. J. C. Guillemin
University of Rennes 1

Prof. Richard F. Jordan
University of Iowa

Prof. Susan Kauzlarich
University of California, Davis

Prof. Thomas Mallouk
Pennsylvania State University

Prof. Darrell G. Schlom
Pennsylvania State University

Prof. T. Venkatesan
University of Maryland

Organic

Dr. Amit Basu
Princeton University

Dr. Mary Jane Cloninger
University of California, Irvine

Prof. Scott E. Denmark
University of Illinois, Urbana-Champaign

Prof. Joseph P. Dinnocenzo
University of Rochester

Prof. P. Andrew Evans
University of Delaware

Prof. Samuel H. Gellman
University Wisconsin

Prof. Robert H. Grubbs
University of Houston

Prof. Amir H. Hoveyda
Boston College

Prof. Tomas Hudlicky
University of Florida

Dr. Michael J. Krische
Universite Louis Pasteur

Prof. Patrick S. Mariano
University of New Mexico

Dr. Brian L. Pagenkopf
California Institute of Technology

Prof. Viresh Rawal
University of Chicago

Prof. Matthew S. Sigman
Harvard University

Dr. Scott Youngquist
Procter & Gamble

Prof. Xumu Zhang
Pennsylvania State University

Analytical/Physical Centennial Lecture

Prof. James W. Jorgenson
University of North Carolina at Chapel Hill

Novartis Lecture in Synthetic Organic Chemistry and Biochemistry

Prof. James A. Marshall
University of Virginia

Prof. Amos B. Smith, III
University of Pennsylvania

The W. Albert Noyes, Jr. Lectureship

Prof. John Tully
Yale University

Rowland Pettit Centennial Visiting Professorship

Prof. Larry E. Overman
University of California, Irvine

Vista Chemical Company-Regents Endowed Memorial Lectureship in Organic Chemistry

Prof. Steven Ley
University of Cambridge

The George and Pauline Watt Centennial Lectureship

Prof. Galen Stucky
University of California, Santa Barbara

The 1998-99 Welch Foundation Lectureship Program

Prof. Robert J. Cava
Princeton University

Boyd Hardesty retires

Professor enjoyed reputation as a leading scientist in ribosome research

At the end of the fall semester 1998, Boyd Hardesty retired after more than three decades of very active research and teaching at UT-Austin.

Boyd was born on May 15, 1932 and grew up in the eastern part of the state of Washington. He received his B.S. and M.S. degrees from the University of Washington in Pullman. For his Ph.D. degree he moved to Cal Tech, a very exciting and formative environment. He graduated in 1961 after working with Herschel Mitchel on *Neurospora* mutants. With an NSF postdoctoral fellowship, Boyd moved to Yale University as a postdoc but then decided that Schweet's lab in Kentucky might be a better place to study protein synthesis *in vitro*—an exciting new area at that time and an area that continued to be the focus of Boyd's research for much of his career.

Boyd Hardesty became Assistant Professor in the Department of Chemistry at the University of Texas at Austin in 1964. He was promoted to Associate Professor in 1968 and to Professor in 1973.

Boyd's early research at UT-Austin was on isolating and characterizing the elongation factors involved in eukaryotic protein synthesis. He and one of his first graduate students, Wally McKeehan (now Professor at A&M's Biotechnology Institute in Houston), won a battle against Fritz Lipman on the question of how many GTP molecules are hydrolyzed in one round of peptide elongation on the ribosome. This research on eukaryotic translation was carried out with components of rabbit reticulocytes. One can only wonder whether Boyd has ever seen the thousands of white New Zealand rabbits in his dreams!

In June 1972 Boyd was invited to give a lecture and present his research at an international meeting on translation and its regulation in Denmark. He gave a fascinating talk featuring quite a bit of speculation on how ribosomes work—many of his speculations were subsequently proven to be right. This coming June, Boyd returns to Denmark as an invited speaker at the International Conference on Ribosomes. Over the past three decades, Boyd has enjoyed a reputation as a leading scientist in the area of ribosome research combined with the application of fluorescence methods to study local environments in/on the ribosomes by changes in fluorescence intensities or by measuring distances between ribosomal components by energy transfer. His contributions in these areas are represented by his over 150 scientific papers. He served as mentor for about two dozen graduate students. The research was financially supported by grants from NSF, NIH, the Texas Advanced Technology Program, the Foundation for Research and the Welch Foundation.

Boyd was the recipient of a Fogarty Senior International Fellowship in 1983. He spent most of that year in Berlin at the Max-Planck-Institute for Molecular Biology, the Wittmann Abteilung—one of the leading places for ribosome research at that time. In the late eighties, Boyd decided to turn his own research to *E. coli* ribosomes and to study how they fold nascent peptides. This question is still under investigation.

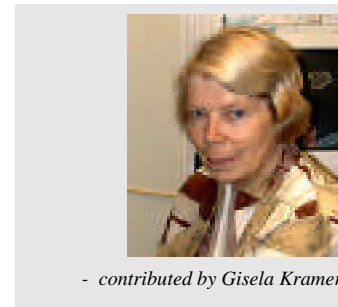
Between the first translational meeting in Denmark and this year's conference, Boyd and I organized a ribosome meeting here in Texas which was attended by

about 200 scientists from all over the world. We edited the papers from this meeting, published as a book by Springer—our encounter with the science business world was an eye-opening experience.

Boyd married Willa Mae in 1953. Their three children are living in Austin and Houston; however Boyd and Willa Mae plan on moving back to the area in Washington where they grew up so Boyd will be closer to places where he can pursue his hobbies: fishing and hunting. He will have more time this year to spend in the wilderness. We wish him many happy years of retirement.



Prof. Boyd Hardesty



- contributed by Gisela Kramer

Remembering Philip Bailey

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note which I, on the spur of the moment, let go to the Dean's office several months ago, then I can understand and am willing to take my punishment." What the "unfortunate note" contained is lost to history.

For many of his years on our faculty, Phil served as Coordinator of the Organic Division and of the sophomore-level organic courses. His dedication to both responsibilities has set the standard for those who have followed him in these positions. I personally recall his unrelenting efforts to make the health professions course in organic chemistry as rigorous as the majors and engineers sections, and he indeed managed to do so before he relinquished his duties course coordinator.

Phil opted to retire in his mid-sixties, but planned to continue teaching on a one-half time basis. He served in this part-time status for only one year, realizing that he had better things to do than to spend over an hour each day traveling between Lago Vista, where he had a home on Lake Travis, and the campus. In the letter he wrote to Chairman Mike White in October, 1983, he cited several reasons for taking full retirement: "... Second, I feel that I have accomplished all that I am capable of in a significant fashion in research. [My investigations of ozone-organic chemistry have] culminated in my two volume treatise published by Academic Press . . . These volumes are now

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CHEMICAL *Compositions*

IN MEMORIAM

Gilbert Philip Anderson, Jr., B.S. Chemistry 1962, Ph.D. (Roberts) 1967, died approximately November 20, 1998. He had been in bad health for a number of years prior to his death in Florida.

Ray James Angona AKA Charon Das, B.S. Chemistry 1969, died October 24, 1998 in New Dehli, India. He was a scholar and writer. In 1998 he was featured in *D Magazine*s, "The Unexpected Texas" and in *Salon Magazine* as "The Sadhu from Texas." He is survived by parents, Frank and Angela Angona, two sisters, Kay Lisch and Patti Terranella.

Ta-Shue Chou, Ph.D. 1979 (Martin), passed away in Taipei, Taiwan, after a long and courageous battle with cancer; he was 48. After graduation he became a research fellow at the Institute of Chemistry, Academia Sinica in Taipei and served as its director from 1987-1996; he was also a Professor of Chemistry at National Taiwan University. He was a member of the editorial boards of a variety of journals and was the chief editor of Journal of the Chinese Chemical Society. Ta-Shue published over 100 articles and received an Outstanding Research Award and the Dr. Sun Yat-Sen Memorial Award in Creative Research.

Jesse Lawrence Elledge, B.S. Chemistry 1998; B.B.A. Business Administration 1953, died in 1998, according to *The Hexagon* of Alpha Chi Sigma.

Alfred Thrall Johnston, B.A. Chemistry 1941, died on November 17, 1998. Rev. Johnston was a chaplain in the U.S. Air Force, retired.

William (Bill) E. Rettig, M.A. Chemistry 1939, died February 15, 1999 at the age of 86. Bill worked for Union Oil Company and Chevron Oil Company in California, Texas and New Jersey. He is survived by his wife of 60 years, Rose; sons, Charles Connaly Rettig and William

Remembering Philip Bailey

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considered the authoritative standard works in the field. In addition, I have to show for my 39 years [at UT-Austin] well over 100 research publications. I feel, however, that the significant advances in the ozonation field will, in the future, come primarily from the theorists and those capable of working at extremely low temperatures. . . Fourth, I have many other interests I want to spend more time with. These include learning more about other sciences and disciplines, writing scientific papers of a more popular nature, working around my home, boating, photography, etc." As reflected in his own words, Phil was a man who knew himself and acted on that understanding.

In full retirement, Phil continued an active writing career, and was a frequent contributor to the *Hill Country News*, a newspaper delivered to residents of the Highland Lakes west of Austin and to Letters to the Editor published in the *Austin-American Statesmen*. Much to Roy's and my dismay, the subject of the latter usually had too much of a conservative slant for our own more liberal tastes. He also reveled in regaling Roy with tales of the joys of retirement, a status Roy was somewhat reluctant to enter.

Phil Bailey symbolized the best one finds in an academic colleague, and his influence was important to the evolution of our organic division of the department. He is no longer with us, and we are the lesser for his absence.



Jack Gilbert

- Jack Gilbert

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