the university of texas at austin

fall 1997

CHEMICAL Compositions

chemistry & biochemistry
departmental newsletter

From the Chairman

Holiday Greetings to all our friends and alumni of the Department of Chemistry and Biochemistry at UT-Austin.

Inside this issue of *Chemical Compositions* you will find stories on several events that have been the focus of the departmental activity during the past half year. There is a status report on the five stages of the Welch Hall Safety Enhancement Project on p. 2. Stage I involved the remaining pre-moves associated with the Welch West Wing renovation project. We had to vacate the chairman's office and the procurement office as part of the West Wing project and decided to make those moves permanent. All of our administrative offices are now located on level two of the '78 addition in three office suites near the new computer labs that were built last fall. The advising suite is home for the lower-division chemistry and the undergraduate and graduate advising offices. Procurement and the mail services are back where they were when the '78 addition was first built, and the chairman's suite, including the alumni and industrial relations office, are nearby. We feel that this arrangement will allow us to better serve our students and faculty in the department. The new chairman's office features several pictures from our history project and display cases with a focus on chemistry. We are all excited about the moves and we hope that you will stop by and visit when you have the opportunity.

Marvin Hackert

While the construction projects have certainly dominated a lot of our time these past few months, I am happy to report progress in several areas. On page 3 you will read about the improvements we have made in our mass spectrometry facility. As noted there, we have installed three new mass spectrometers, a HPLC, and capillary electrophoresis instruments over the summer and fall. These instruments, including MALDI-TOF, MAT LCQ, and HPLC/MS high resolution instruments, offer our faculty and others a state-of-the-art resource on campus for the analysis of both chemical and biological compounds.

Faculty recruitment and retention continue to be major concerns and priorities of the Department. I am sorry to report that Dr. Tom Kodadek (bio-organic) will be leaving us at the end of this semester for a position at Southwestern Medical School in Dallas. Also, Dr. Kuan Wang (biochemist) has gone on leave to serve as Director of a new muscle group being formed at NIH. We will miss them both but want to wish them well in their new positions. We also have had two retirements, Drs. Daniel Ziegler and William Wade. Dr. Ziegler was featured in last spring's newsletter and a tribute to Dr. Wade can be found on p. 14. We did recruit three new faculty last year, but between departures and retirements, are still falling behind in faculty hires. Dr.

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What's Inside

(A student) was seen trying to crawl into a bench-top hood, because the lab manual specifically said to do a particular transfer "in the hood." p. 8

Joyce Thoresen, Alumni and Industrial Relations, solves a problem with the help of Donna Reber in the new chairman's office.

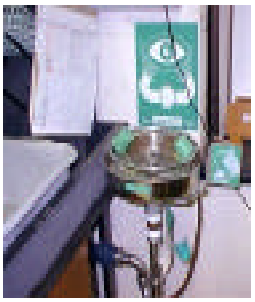
Welch Hall - one year later

You will recall we had a serious fire in one of our synthetic organic labs last fall. No one was injured and, thanks to the quick action of the Austin Fire Department, the fire was contained to one lab in the West Wing (or '59 addition) of the chemistry building. As a result of this fire, the AFD made a number of recommendations for procedural and physical changes in the way chemicals are handled in Welch Hall. The incident received a great deal of press coverage and resulted in a UT response that included a substantial financial commitment to undertake a number of procedural and physical modifications to the building.

Flammable Storage

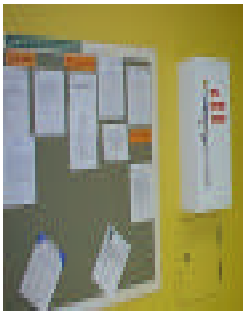
The procedural changes could be enacted quickly and included a comprehensive Chemical Management Plan that set limits on quantities of flammables and other hazardous materials that are stored in a laboratory, calls for the storage of chemicals on the basis of hazard class, provides inventory summary sheets and lab contacts for all labs in Welch Hall, and requires properly documented training for all laboratory employees and research students. Many of these changes will apply to the university as a whole, and UT has adopted a Laboratory Safety Manual that covers many of the general issues dealt within the CMP.

The physical modifications to Welch Hall include adding a sprinkler system, lab segregation into smoke/fire compartments, remodeling the chemical storeroom, upgrading the elevator and alarm systems, adding lab-specific items like gas cylinder cabinets, and many HVAC upgrade items to improve the air handling system for the entire building. These safety improvements and the previous renovation project for the Welch West Wing, have become known as the Welch Hall Safety Enhancements Project. The work will be done by outside contractors under the supervision of Beck Program Management with HCKP Jennings/Hackler serving as primary architects.



Eyewash Station

The construction work will be carried out in five stages, with Stages I & III related to the original West Wing project and Stages II, IV & V added as a result of the the AFD recommendations following the fire. Stage I includes the West Wing Laboratory premoves, including those associated with relocating all the departmental administrative offices to the second floor. This work will be completed by the end of October and should greatly improve our ability to provide services for our students and faculty. Stage II includes all of the work to be done within the laboratories with the exception of those labs in the West Wing. This includes the installation of a building-wide fire sprinkler system, construction of smoke compartments and underfloor chemical dams, elevator and fire alarm upgrades, plus lab specific upgrades. The contract for Stage II has been awarded to C.P. Sinder struction; work is scheduled to begin by the end of the semester and is expected to be completed in about a year. Stage III includes the original



Spill Control Kit

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The Matsen Graduate Fellowship

In an act of great generosity, Al and Cecilia Matsen have donated funds to the department to establish the F. A. Matsen Endowed Presidential Fellowship. The income from this endowment will be used to provide fellowships for outstanding graduate students in theoretical chemistry. With the availability of these new funds, it is anticipated that we will be able to attract the very best students to the department. This donation comes in the wake of a similar endowment for graduate fellowships that the Matsens established in the Department of Physics. Prior to these contributions, they funded the F. A. Matsen Endowed Regents Lectureship on the Theories of Matter, their first major donation to the University. This Lectureship alternates between the Departments of Chemistry and Biochemistry and of Physics.

Al and Cecilia Matsen

Although Al Matsen "retired" from the department 14 years ago and now holds the title of Professor Emeritus, he remains very active: when not clobbering opponents half his age on the tennis court, he is actively involved in developing theories of magnetic properties and superconductivity. Before his work in these areas, he was widely known for extensive research on the use of symmetric and unitary groups to describe quantum states and spectra. Equally important, but less well known, is that he, in partnership with Stan Simonsen, brought air conditioning to the University of Texas! In 1952, he purchased an IBM computer, and although humans could apparently stand the heat of the Austin sum-

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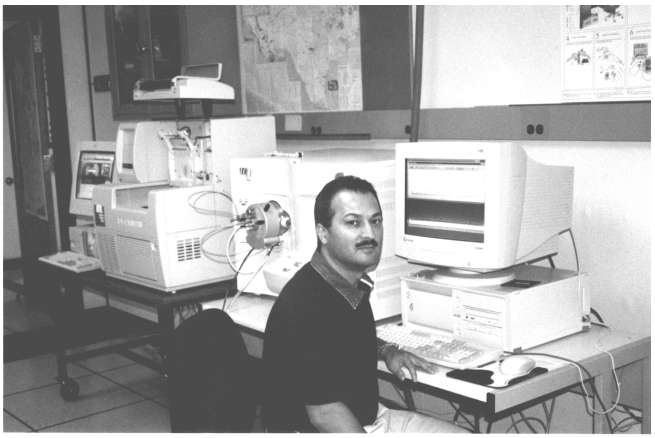
Expansion of the Mass Spectrometry Facility

The role of mass spectrometry in biological and chemical research has increased dramatically during the past few years due largely to development of new techniques for the ionization of biomolecules. Consequently, biological mass spectrometry is undergoing through a transition to a new status, one in which it is not just desirable but essential to any modern analytical laboratory dealing with biological samples and molecules having high molecular weights. Although the Mass Spectrometry Facility (MSF) of our Department was well-equipped to analyze low molecular weight (<10,000 Da) substances and mixtures of volatile compounds, it was seriously deficient in its abilities to analyze compounds in biological fluids as well as in complicated mixtures containing supramolecular complexes.



To address these needs, the MSF has recently been able to expand its capabilities over to include the analysis of biological and large synthetic polymers. This has been made possible through the acquisition of several new instruments, which include three mass spectrometers, a high performance liquid chromatograph, and a capillary electrophoresis apparatus. By adding these items, the MSF has become a state-of-the-art facility for the analysis of chemical and biological compounds. Purchase of the equipment, which cost over $400,000, was made possible by funding from a combination of sources, including a grant from the NSF, university matching funds, departmental funds, and donations from local companies. The scope of our upgrade can be seen not only in the number of instruments acquired but also in their analytical capabilities, as briefly outlined below.

Finnigan MAT LCQ Benchtop MSn, HPLC/MS - This atmospheric pressure mass spectrometer uses state-of-the-art quadrupole ion trap technology to accommodate both electrospray ionization and atmospheric pressure chemical ionization. The mass-to-charge ratio range of the instrument in both positive and negative ionization modes is currently 20–2000 and will be increased to 4000 in the near future. This makes the LCQ an ideal HPLC detector, as molecules with masses ranging from 50–150,000 Da can be detected. One example of an LCQ application is protein mapping. In this case, the molecular weight of the intact protein is first measured by continuous infusion of a solution of the pure protein. The protein is then hydrolyzed, and the components of the hydrolysate are identified using HPLC/MS. Peptides of interest can be sequenced using the MS/MS ca-

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Welch Hall - one year later

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West Wing project to remodel the synthetic labs on levels four and five, plus added HVAC and emergency power projects. Bids for this project are scheduled to go out this fall with construction to begin early next year and be completed in the spring of 1999. Stage IV involves remodeling the research storeroom to include storage rooms for flammables with blow-out panels, improved storage and segregation of chemicals, and improved access for emergency responders. Stage V includes remaining upgrades to improve the air handling systems for Welch Hall with the correction of a long-standing air re-entrainment problem in the '29 addition.

This project has been made more difficult because Welch Hall is a fully occupied building that was constructed in three phases, each part being built to a different set of building codes. Total cost of the project will be between $20-30M. We all wish that the work could be completed sooner and with less cost. However, I have been impressed with The University's commitment to this project and the hard work of a large number of people, including the architects, engineers, consultants, faculty, administrators, and representatives of AFD who have been extensively involved in the design phases for this project. We look forward to the completion of this work and having an improved Welch Hall to serve the department and The University for decades to come.

Alan Lambowitz - Director of ICMB

Our research group is in the process of moving to The University of Texas at Austin from The Ohio State University, our home for the past eleven years. At UT-Austin, I am assuming the directorship of the newly formed Institute of Cellular and Molecular Biology.

The focus of my research is on self-splicing introns, also known as catalytic RNAs, that are also mobile genetic elements. As discussed below, we are interested in mechanisms of RNA catalysis, how proteins assist RNA folding, mechanisms of intron mobility, the evolution of introns and splicing mechanisms, the origin of retroviruses, and mechanisms of reverse transcription.

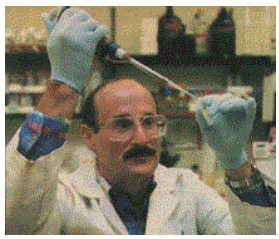
Protein-assisted splicing of group I introns - Group I introns use an RNA-catalyzed splicing mechanism and some are self-splicing in vitro. However, proteins are required for efficient splicing in vivo to help fold the intron RNA into the catalytically active structure. We discovered that a key protein required for splicing group I introns in Neurospora mitochondria is tyrosyl-tRNA synthetase, which also functions in the aminoacylation of tRNAs. The synthetase can be expressed efficiently in *E. coli*, and biochemical, genetic, and structural methods are being used to examine its interaction with the intron RNA. Recent studies suggest that the synthetase recognizes a conserved tRNA-like structural motif in the group I intron catalytic core. These findings raise the possibility of an evolutionary relationship between group I introns and tRNAs and suggest that splicing factors may have evolved from cellular RNA binding proteins.

Mitochondrial retroplasmids, ancient ancestors of retroviruses - We have found that certain mitochondrial plasmids

use a primitive mechanism of reverse transcription that does not require a primer and is analogous to RNA replication. The characteristics of the plasmids suggest they may be related to the early ancestors of retroviruses and possibly to the first DNA elements that emerged at the time of transition from an RNA to a DNA world. Studies on the plasmids may provide insight into fundamental aspects of reverse transcription, which is central to retroviral replication.

Mobility and splicing of group II introns - Group II introns are autocatalytic introns that are believed to be directly related to the progenitors of nuclear pre-mRNA. Remarkably, some group II introns are mobile elements that encode reverse transcriptases that also function in RNA splicing. It has recently been found that the mobility of group II introns occurs predominantly by a retrotransposition mechanism analogous to that use by certain nuclear retrotransposons. The ribozyme activity of the intron is intimately related to the mobility process, and the introns are also capable of inserting directly into double-stranded DNA by reverse splicing. These newly discovered aspects of group II intron mobility suggest that the introns may be used as novel vectors for genetic engineering and gene therapy.

My coworkers and I are looking forward to working at The University of Texas at Austin and in participating in the Department of Chemistry and Biochemistry, as well as in the Department of Microbiology, and contributing to the development of the new Institute of Cellular and Molecular Biology. We're excited about our research, and we feel that the best years are still ahead.



Prof. Alan Lambowitz

Gilbert Ayres; a gentlemen's gentleman

Gilbert (Gib) Ayres was born on August 29, 1904, in Upland, Indiana, and died in Bedford, Texas, on June 9, 1997. During a lifetime of over 92 years, Gib left his mark on all those who were privileged to know this "gentleman of gentlemen."

Gilbert (Gib) Ayres

Gib earned an AB degree from Taylor University (Upland), majoring in Chemistry and Mathematics, and continued his education at the University of Wisconsin at Madison, where he received a Ph.D. in 1930 under the tutelage of J. H. Walton. He later did postdoctoral research with H. H. Willard at the University of Michigan. Gib's first academic position was at Smith College, where he was appointed Assistant Professor in 1931, was promoted to Associate Professor in 1937, and chaired the department in 1942. During this period he taught advanced General Chemistry and both Qualitative and Quantitative Analytical Chemistry and supervised six seniors for their honors reports and four graduate students for their M.A. degrees.

Gib, a Lieutenant in the U.S. Naval Reserve, was called to active duty as an anti-submarine warfare officer in 1943 and was promoted to Lieutenant Commander in 1946. He returned to Smith for one year in 1946, before accepting an appointment as Associate Professor of Chemistry at UT-Austin. He was promoted to Full Professor in 1951 and remained with the department until his retirement in 1974. During his career here Gib supervised the dissertation research of 29 Ph.D. candidates and 12 M.A. candidates.

Allen Bard has vivid memories of Gib's teaching abilities: "I met Gib when I joined the faculty at UT in 1958. It was clear from the first time we taught different sections of the same sophomore analytical chemistry class, Chemistry 412K, that Gib was a master teacher. He had just published his textbook, Quantitative Chemical Analysis (Harper and Row), which was an excellent and rigorous treatment of the field and that book formed the basis of the course. He was a conscientious and dedicated teacher, and he taught me a lot about the importance of teaching and how to organize a course. For example we gave several exams to all of the sections during the semester. These were always three-hour exams and were given in the evening. Gib insisted that the exams be graded that same night and returned to the students at the next class. Thus we and the teaching assistants who had been proctoring the exams would work to the wee hours to get the exams graded. He also started almost every lecture section with a ten-minute quiz on the material from the preceding lecture. Gib also taught at the graduate level. His research interest was in the spectrometric analysis of the noble metals, and he produced a number of graduate students in analytical chemistry who went on to distinguished careers in academia and industry."

Gib assumed responsibility easily and had several roles in departmental administration. These included terms as Graduate Advisor, Assistant Chairman, and Secretary of the Analytical Division. In other words, he paid his dues in service while maintaining a full teaching load.

He was a Fellow of the American Association for the Advancement of Science and a member of the American Chemical Society, Sigma Xi, Phi Lambda Upsilon, and Alpha Chi Sigma. In 1970, Gib's scientific contributions were recognized by his being named "Analyst of the Year" by the Dallas Society of Analytical Chemists. He served as a consultant for several professional and government groups such as TRACOR, Inc. in Austin and Los Alamos Scientific Laboratory in New Mexico.

After his retirement from UT-Austin as Professor Emeritus, Gib established an endowment to provide a fellowship in chemistry. Contributions to the endowment are still being accepted, should you wish to remember him in this manner.

Gib is survived by two daughters and sons-in-law, eight grandchildren and 20 great-grandchildren.

From the undergraduate advisor

Undergraduate program continues to prosper

The undergraduate chemistry and biochemistry programs continue to flourish and to be a primary interest of the faculty. This year we have more than 800 majors (compared to 725 majors last year at this time) with the following breakdown: 45% (BS Biochemistry); 27% (BS Chemistry); 18% (BA Biochemistry); and 10% (BA Chemistry). Because of the "central science" character of chemistry, our freshman and sophomore courses have swelled. For example, the fall enrollment in the general chemistry classes is 4,329. To provide a smaller classroom environment where greater interaction can occur for those with specific interests in chemistry, special sections exist exclusively for our chemistry and biochemistry majors. The establishment of "majors sections" also has been extended to the organic, analytical and physical chemistry courses.

Educational Outreach - Along with geosciences, biology and physics, the department has a new degree program (initiated in Fall of 1996): "BS Chemistry — Teaching Option". This is directed toward undergraduates who have a primary interest in teaching chemistry at the primary or secondary school level. It is the pre-college classes that often provide the spark that ignites an interest in chemistry. Thus, these prospective teachers will be the key to attracting our bright high school students into the exciting field of chemistry. The faculty recognize the importance of equipping these future teachers with a broad, strong background in chemistry. The vigor and breadth of this new degree program satisfies these objectives. The department is also involved in a number of other outreach programs, which are driven by our community-minded undergraduates. The UTeach program (discussed in earlier newsletters) was initiated by Prof. Dave Laude and attracts a number of our undergraduate majors. The rigor of the program for our students in the preparation and presentation of chemistry to elementary students not only brings chemistry to life for these young children, but it also fosters a greater awareness of both the science and the importance of chemistry upon the students participating in this program. The Science and Technology Center under the directorship of Prof. Mike White also conducts a mentorship program involving both undergraduate and graduate chemistry students.

Student financial support - Through the generosity of individuals and corporations, the undergraduate scholarship pool continues to grow. The funds are used in a variety of ways by the students. Undergraduate scholarships are provided which recognize both need and achievement. Additionally, we are preparing to initiate a program this spring which will provide some financial assistance to students attending scientific meetings and to those with unique professional opportunities where money could be a major issue. For example, many of our students involved in CH369K (Independent Research where they are involved in a research project) make sufficient progress to warrant an oral or poster presentation at a regional or national conference. We plan to assist them in their travel needs. This aspect is important to their professional growth and to establish an awareness of the larger scientific community of which they will soon be a part.

Prof. Jim Holcombe
Undergraduate Advisor

The undergraduate office staff, consisting of Chris Johnson and Christina Perkins, continues its daily activities of "steering" students through the maze of courses offered both within the department and at the University. They also redirect those who have veered off course ("Why did you take that Physics course?") and point out opportunities available to them within the department as well as outside of the university.

The Matsen Graduate Fellowship

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mers, the computer required an air-conditioned home. Within 10 years after this first room was air-conditioned, the rest of the University followed the example set by the Matsen computer.

The Department thanks the Matsens for their generous gifts to the University!

Prof. Bob Wyatt

From the graduate advisor

Program using undergraduate teaching aids launched

The Graduate Office has inaugurated a new program to use some of our best upper division undergraduate students as "assistants" (i.e. teaching aides) in lower- division chemistry courses. The aim of this pilot program is two-fold. First, the use of undergraduates provides a greater level of teaching support for the growing demands of the freshmen chemistry and organic chemistry courses. The undergraduate aides have been used to implement Web pages, lead special help sessions for remedial students, for tutoring, and numerous other activities. Second, the availability of highly motivated undergraduates provides some relief when qualified graduate students to serve as teaching assistants are in short supply. The unpredictable enrollment of new graduate students coupled with the fluctuating level of funding for graduate students as research assistants from faculty research grants means that providing adequate graduate teaching assistants to faculty has become an increasingly difficult problem. For example, thirty-seven new graduate students enrolled this fall, one of the smallest but highly selective groups ever (average GPA: 3.52, average combined verbal and quantitative GRE: 1241). To augment this smaller pool of graduate students, nine undergraduate students, selected based on their grade point averages, faculty recommendations, and individual interviews, are serving as assistants this fall. The feedback has been overwhelmingly positive thus far, both from the faculty and the undergraduates involved in the program. The enthusiasm of many of our upper-division undergraduate students has been an untapped resource, and we hope that this pilot program continues to evolve successfully.

Prof. Jennifer Brodbelt
Graduate Advisor

Departmental M.A. and Ph.D. graduates

Ph.D., Fall 1996

James S. Anderson (Laude)
Rich Apodaca (Whitesell)
Craig M. Child (Campion)
Armando Colorado (Brodbelt)
Nanlin Deng (Mallouk/Brodbelt)
Michelle C. Foster (Campion)
John J. Isbell (Brodbelt)
Smuruthi Kamepalli (Cowley)
Jonathan S. Krueger (Mallouk/McDevitt)
Amy L. Odenbaugh (Iverson)
Eddie D. Pylant (White)
Amy L. Schwaner (White)
Joseph Smith (Anslyn)
Jung-Keun Suh (Robertus)

M.A., Fall 1996

Christopher S. Cameron (Hoffman)
Xinyu Chen (Browning)
Stacy C. Converse-Sparks (White)
Fatima H. Fakhreddine (Gilbert)
John B. Hubbard (Hurley)
Christopher L. McAdams (Willson)
Ye Ruan (Holcombe)
Lori L. Schirmer (Browning)
Susan K. Sorensen (Whitesell)
Yang Xiang (Bard)

Ph.D., Spring 1997

Hernan Aldas Palacios (Davis)
Thomas J. Hollis (Robertus)
Rich Carter (Magnus)
Marvin B. Clevenger (McDevitt)
Holly A. Jurbergs (Holcombe)
Hyuk-Nyun Kim (Mallouk/Bard)
Robert S. Lokey (Iverson)
Michael E. Morrison (Webber)
Denise M. Perreault (Anslyn)
Oleg V. Prezhdo (Rossky)

M.A., Spring 1997

Joel D. Adcock (Wyatt)
Suleyman Bahceci (Boggs)
Maria F. Garcia (Webber)
Kanan Garg (Holcombe)
Chona S. Guiang (Wyatt)
Jungseok Hahn (Webber)
Michael J. Licata (Hardesty)
Monica L. Robinson (Kitto)

Ph.D., Summer 1997

Andrei A. Andrievsky (Sessler)
Christopher T. Brown (Sessler)
Thomas C. Clancy (Webber)
Gang Chen (Iverson)
Victoria J. Erkkila (White)
Renae D. Fossum (Fox)
Eric D. Helms (Iverson)
Max K. Leong (Boggs)
Weijin Li (Fox)
Chris Limberakis (Martin)
Diane Lynn B. McCarthy (Hardesty)
Petra I. Sansom (Sessler)
Stacy L. Springs (Sessler)
Brian S. Worley (Robertus)

M.A., Summer 1997

Marilyn D. Wooten (Fox)

Reminiscences

The anecdotal accounts of what follows are excerpts from a document titled "A History of the Universe, As I knew it, by Dad". While everything described is factual, I have at times taken some artistic license strictly for the sake of embellishment…. Dick Osborn

My life as a graduate student was a dichotomous adventure for me. On the one hand, I was working my butt off trying to get through graduate school, while on the other, I was experiencing the ultimate high; *new knowledge* as applied to the *creative process.* My research was based on the utilization of synthetic organic chemistry as applied to the understanding of some quantum mechanical aspects of non-benzenoid aromatic molecules. (Well, it took me a while to learn how to say that too.) In short, we were synthesizing important new molecules, never before held in the human hand, and comparing their properties to those predicted by molecular orbital theory. We not only prepared the new molecules and determined their properties; we also calculated the resonance energy of the molecules, using one of IBM's new 360 computers. Publishing the results of this work in the *Journal of the American Chemical Society* was an extraordinary experience for a twenty-three-year-old kid from Burnet, Texas.

The teaching experience

When I was a graduate student, there were two freshmen chemistry courses, Chem. 801 for science and engineering majors and Chem. 601 for home economics majors and athletes. One of my friends taught a lab in the latter class that contained some individuals who really do not belong in chemistry. One was seen trying to crawl into a bench-top hood, because the lab manual specifically said to do a particular transfer "in the hood." [This verbiage was a pet peeve of Roy Roberts'; when helping him write a lab textbook, he was constantly reminding me to instruct students to perform operations "at the hood."] That actually happened. In another of his labs, a student walked up to him, asked, "What is this chain for?", and pulled it. It was water shower for chemical decontamination, and as fate would have it, he was standing directly under it. Another friend had a student whose lab partner accidentally smashed a bottle of concentrated sulfuric acid onto her lap. My friend yanked her over to the shower, turned it on, and shouted to her to remove her clothes. He ran everyone out of the lab and told the shivering girl to stand under the shower until he said she could leave. He left and sent another female student into the lab with a fire blanket to cover her. We were chivalrous in those days.

> *(A student) was seen trying to crawl into a bench-top hood, because the lab manual specifically said to do a particular transfer "in the hood."*

Another funny incident, in retrospect, was the time carpenters were doing some remodeling of our laboratories. They left their tools in an empty lab overnight. A colleague, Leon Rand, and I were working in our lab when suddenly there was a loud rifle-like sound and a gallon of acetone on the top of a shelf in front of me, then a bottle of acetic acid on the next row suddenly smashed onto the lab benches. Seconds later, two other graduate students came to our door looking very discomfited. They had found the compressed air rivet gun left behind by the workmen and thought that they would drive a couple of rivets into the wall. It turned out that there was nothing but a plaster wall between the two labs. As I recall, they paid penitence by going outside at dusk, facing east and singing *What a Friend We Have in Jesus.*

Setting priorities

At the end of our second year we chose our major professor and the field of chemistry in which we wanted to major. The chemistry department didn't offer a Master's degree program, and only on rare occasions awarded it to grad students who, for some reason, passed the required course work but couldn't hack it in research. I had decided to major in synthetic organic chemistry and was about to choose a project with Dr. Lochte, a full professor and graduate advisor. I also talked to Drs. Bailey, Roberts, and Henze. Then I talked with Pete Gardner, a new assistant professor. There was never any question after that. I was his third or

fourth graduate student, but he had already enough research money to have the best set-up labs in the department. He also spent most of his free time with his graduate students and expected a lot from them. When I was gone over a weekend to get married, then showed up the next Monday he asked, "where the hell have you been, Osborn?" I knew that he was sort of kidding, but I also got the message that with him research was *numero uno* above all else. He had earlier told me that in order to be a successful academician I should always remember three things: never get married, never buy a TV set, and always keep up with The Literature. In retrospect, I suppose that is why I chose industrial research.

Gardner wasn't alone at UT in his attitude towards research effort. Another new faculty member from Australia, Rowland Pettit, told his students that the only excuse for not showing up on Sunday was a severe hangover. (Pete Gardner would not even accept hangovers as an excuse; he felt that if drinking was going to interfere with research, you should make even that sacrifice.) When Pettit interviewed potential graduate students, he always asked, "Do you drink?". If they said no, he did accept them. If they answered yes, he asked "How much"?

I had met Roly soon after he arrived at UT. He just come from England where he was working with one of the most notable of all organic chemists, M. J. S. Dewar. I was at my lab bench one afternoon and I perceived someone standing behind me looking over my shoulder. I turned around and said "Oh hello, Dr. Pettit." He said "F—k Pettit, call me Roly. Let's go have a beer." He took his driver's license test soon after he arrived in Austin and although he passed the driving part, he failed the written part. He answered the question "How many Texans were killed in highway accidents last year" with a "not enough" [sounds apocryphal to me]. He loved to drink beer, just like all Australians that I have known, and soon after he arrived, he and Dick Brandon and a couple of faculty members were driving down Congress Avenue after the bars closed, Roly was driving on the left-hand side of the street. His companions yelled at him so he stopped and started backing up. "Now, is that better?" he asked. A policeman stopped them and he explained that he was just over from England and hadn't adjusted to the driving rules yet.

Tom van Auken was another faculty member who was a friend of mine after I returned to Austin as a post-doc. An assistant professor in organic chemistry from Alpine, Texas, he earned his BS at Illinois and Ph.D. at Yale. As I recall, Tom was the benchmark for hyperactivity, a prime candidate for Ritalin. He was the only person in the department that could go three flights up the stairs and beat the elevator every time. He was a real "burr in the saddle" for everyone, and I guess that's why we were friends. The only faculty that he got along with were Gardner, Pettit, and a physical chemist whose name escapes me. Tom eventually went to work for Union Carbide in South Charleston, where he was known as a sports car nut and owned a Lotus street/racing roadster. Once after overhauling his engine, he was positioned at the starting line revving the motor and waiting for the starter gun to go off when the engine fell out. He had forgotten to secure the engine mounting bolts.

The Daily Routine

Our work routine was to arrive at the lab at 10:00 in the morning, start the day's experiments, drink coffee and eat lunch at the bench [definitely a "no, no" in this day and age!], break for dinner, then do more lab work until 10:30 PM. We then adjourned to Scholtz's Beer Garten for a pitcher or two [Scholtz's seems to have been a focal point for departmental activities, as noted again below]. The bars closed at 12:00 so we would then go back to the lab, shut down everything and go home.

Unlike analytical and physical organic chemists who seemingly nurture themselves and thrive on boredom, we were always trying to find new ways to pass the time during long experiments and data-collecting. We would, for example, place various insects, of which there were plenty in the then unair-conditioned labs in Austin, in a vacuum jar and determine to what sub atmospheric pressure they could survive before exploding. Flies, moths, etc., as expected, exploded right away, crickets could survive down to about one Torr. Roaches were not affected at all, until we finally went to a vacuum pump that would pull 0.001 Torr. At that point even the most veracious cockroach basically vaporized in the flask and went out the tube. Unfortunately it was Pete Gardner's personal vacuum pump that he prized and protected very much. Dick Brandon and I spent the rest of the night disassembling and cleaning it.

On the other end of the pressure range, Brandon and I one night decided to make a balloon with high-pressure tubing. We packed a six-inch length with dry ice and closed both ends with clamps then let it warm to room temperature. We didn't consider the physical nature of the metal clamps we used until the tubing started to expand. By then it was too late so the only thing we could do was leave the lab and wait for the tubing to

explode and hope that the clamps didn't fly through our glassware. We sat out in the hallway on the floor drinking tequila for about an hour, checking occasionally on the ever-expanding tubing. A campus guard soon came through, making his rounds. Another miscalculation on our part. He asked what we were doing sitting in the hall at two o'clock in the morning with an empty bottle of tequila. We told him that an experiment in the lab had gotten out of hand, and we were staying out of the lab in case there was an explosion and fire. That's right, you guessed it. The tubing exploded with an exceptionally loud bang. We looked nonchalantly up at the cop, who, in turn looked as if he was about to have twins. Branden said, "Well Dick, I guess we should go clean up the mess". We did not know what happened to the cop that night, but on subsequent rounds, he never mentioned the incident.

Analytical Disposal

An incident that Gardner's group all took pride in was the sodium waste disposal night. At that time, there were no chemical toxicity problems [more properly, there was a lack of awareness about chemical toxicity]. We just dealt with situations as they occurred. One time we had a large amount of sodium on hand. It was stored in one-pound lots in xylene, was very old and coated with oxide. Gardner wanted to get rid of because it was taking up too much of his office space. He and several of his graduate students made plans to take the sodium to Town Lake one night, throw the sealed bottles out into the water, then as they floated downstream, break the bottles by shooting them with a 22 rifle. We logically decided ahead of time to stay sober that night to be sure that no one messed up [It's beginning to sound like Alcoholics Anonymous needed to provide some counseling to this group]. This, of course, would not be a story if things had worked out right. We threw the bottles out too far for easy target-shooting, and by the time Gardner, our best marksman, had grabbed a gun, the bottles were floating under the First Street Bridge. He shot one bottle, which exploded as expected . . . but directly under the bridge where several cars were crossing. The fireball reached almost to the top of the bridge and was followed by much smoke, most of which was only water vapor. However, this was of no consolation to the police who were driving down First Street at the time. We had not really planned our next action, but since there were still two unbroken bottles floating down the river somewhere, we decided that we should find them first, and later turn ourselves in. We never did find the bottles, but apparently two fishermen did the next day. They were not injured, and we never did turn ourselves in, but we did keep our explosive metals inventory to a more manageable size.

Which reminds me of another sodium episode. Our group worked with sodium routinely, but we had a new grad student, Carlos (Speedy) Cardenas, from Laredo. He was weighing out sodium on his bench top when a couple of grams fell out onto the bench. He quickly brushed them into the trough that carried the high-pressure water from vacuum aspirators down the drain. There was water in the drain and the sodium started to burn. I was watching from across the aisle. Speedy tried to blow out the fire. That was funny enough, but he had his face shield on over his face at the time [well, at least one person in this episode knew something about safety]. The rest of us were laughing so hard we forgot about the fire, which by now was in the sink and burning everything around it [Given our recent fire, this is "deja vu all over again]. Gardner grabbed a fire extinguisher, but it was empty, so we just stood around and waited for it to burn out. Word got around the Department fast, and that's how Carlos came to be called Speedy.

Oral Examinations

Before we were qualified for a Ph.D., we had to pass a series of oral exams given by faculty members in our major field. For the most part they were straight and simple. Dr. Roberts asked about the Friedel-Crafts reaction, Dr. Lochte asked about some qualitative organic analysis problem, Bailey asked about ozone chemistry, etc. except for Henze. He always asked questions that had no meaning, except to him. In one of my sessions, he said to me "I'm thinking of an organic compound. How would you name it"? I had no idea that he wanted the Chemical Abstracts rules for nomenclature, so I said "Is it animal, vegetable or mineral?" Everyone laughed except Henze. He said "We'll take it up again at you next oral".

The orals were held in a conference room in the Experimental Science building. We were required to be there precisely on schedule, no excuses, so we each got there several minutes before our appointment. One of the students was Ashot Merijan, a friend and student from Iran. Ashot was always a very nervous person but was really up-tight during orals. On one occasion a friend of mine was standing outside the conference room, waiting for Ashot to finish. The door opened and they were leading Ashot out into the hallway. He had fainted. Henze looked at my friend, crooked his finger at him and said "Next".

When I finished my graduate research, I went to work for Celanese

in Corpus. I returned to Austin to present the defense of my dissertation to my committee in the fall of '60. There were a few comments about the thinness of my dissertation (mine was the shortest organic treatise on record at the time), but no one questioned the quality. No one ever questioned the sagacity of Pete Gardner's research.

Integrating Austin

In the late fifties and early sixties, prejudice was alive and well in Austin, with blacks, for example, being denied access to professional opportunities as well as to bars, restaurants, and the like. Coincidentally there was a black undergraduate student, Lonnie Fogel, in our research group at that time, and he was a good friend of mine. He always claimed that he could never get a job because if he interviewed in person, he wasn't hired because he was black, and if he applied by letter they would not hire him because they thought he was Jewish. He proclaimed that he was a self-made man. He had a job with Balcones Research Institute [now the Pickle Research Center] in Austin as a janitor while he was going to school. Since Balcones was a government-funded lab, government personnel regularly inspected it. While Lonnie was working there, the management learned that their next inspector was to be a black army colonel. Since BRI had no black professionals on the staff, they asked Lonnie if he would meet the colonel's plane and help host him. Lonnie told them that he would be happy to, but he didn't see how it would look very good if a janitor hosted the colonel. He was instantly promoted to the position of chemist.

Lonnie and I integrated several local hangouts around the University in the early sixties. This included Scholtz's Beer Garten, a very old and tradition-filled beer and steak house frequented by most of the chemistry department [still true!] and now designated a National Historical Landmark. Lonnie had been refused service there one night, so about five chemistry graduate students (all white) went there the next night and ordered the most expensive steak on the menu [the proprietors should have realized that graduate students could not afford such high-priced fare.]. We made sure that they had time to get the steaks on the grill, then Lonnie showed up. When he sat down, the same waitress again refused to serve him, so we all got up and walked out without paying. The next night they served us all beer, including Lonnie..On the night Congress passed the Civil Rights Act, he and I went to as many bars as we could, and ordered beer. We were not refused at any of the spots, but we got lots of very hard looks.

Some of my fondest memories outside the lab were the nights, and there were quite a few, when Nate Bauld, George Emerson, Bernie Ortiz de Montellano, Carlos Cardenas, and Lonnie Fogel came to our house to drink beer and listen to Bob Dylan. After the music and the beer, Nate would sit at our piano, seemingly for hours, and play, and play, and play.....

From the Chairman

continued from page 1

David Vanden Bout (experimental physical chemist) joined our faculty as a new Assistant Professor this fall, and a short article about him is found on page 15. We also hired two biochemists who will be associated with the the Institute for Cellular and Molecular Biology (ICMB). Dr. Alan Lambowitz will have a joint appointment as a Professor with microbiology and is the new Director of the ICMB. Dr. Andy Ellington from Indiana University will be joining us in January as a new Associate Professor and will be part of the chemical biology group in the ICMB.

I again thank all of you who have contributed to our Department with your resources of time and money. In this context, I am pleased to report that the Department will add three new major endowments this year. Al and Cecilia Matsen have established a Presidential Endowed Fellowship for Graduate Support of Theoretical Chemistry in the department. Also, Professorships are being established to honor Dr. William Wade and Dr. Lester Reed, long-time faculty members of our department.

This issue of the newsletter includes a complete list of friends who have donated to the department during the past academic year. It is a pleasure to recognize and acknowledge the vital role that such individuals play in helping us maintain our quality programs at UT-Austin. The financial support of our alumni continues to be a critical factor in helping us to meet our mission of excellence in both teaching and research.

We wish you all a very merry Holiday Season!! We do appreciate hearing from you and want *Chemical Compositions* to be your resource for keeping up with what is happening in *your* department.

Marv Hackert

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William H. "Bill" Wade Semi-Retires

Research in surface science to continue

Bill Wade is retiring from teaching (but not research!) at the end of this Spring semester. His announcement caught some of us "old-timers" by surprise despite Bill's occasional grumblings about unappreciative freshman chemistry students (if this were the sole criterion for retirement, there wouldn't be many of us left at this point).

Prof. William H. "Bill" Wade

Because Bill will remain an active researcher in the Department, the "hole" that he leaves is confined to teaching, but further points out our departmental need to maintain an active faculty recruiting posture. Despite the fact that we are retaining Wade's counsel and physical presence (except for his many trips hither and yon), it is appropriate to reflect on his many contributions to the department.

First of all, Bill is a UT Ph.D. (with Norm Hackerman) and, with the exception of a postdoctoral stint doing nuclear physics at Berkeley, his academic career has been solely at UT. "Hiring our own" has been unusual in recent years (other examples are Billy Shive and Joanne Ravel, both retired), but history has now repeated itself with the Fall 1997 arrival of David Vanden Bout (M. Berg, UT Ph.D., 1995).

Bill's research focused on surface chemistry (about 170 publications), but he is probably best known for his work in reducing hydrocarbon-water interfacial surface tension by chemically tailoring surfactants. The original motivation for this effort was enhanced oil recovery, which was recognized by the French government by its bestowing on him the title of Chevalier de l'Ordre des Palmes Academiques. His surfactant studies have recently been extended to environmental remediation, a recent success being removal of 99% of chlorocarbons fifty feet underground at Hill Air Force Base (Utah). The writer of this piece still recalls the seminar given by Wade years ago with a tongue-in-cheek title something like "How I Sold My Soul to Industry," with the unspoken subtitle that interesting science could be useful. This is a point that many of us have come to heed in more recent years.

Campus leadership - During a period of strong growth in Bill's research effort, he also served as Departmental Chairman (1974-81). In part because of his cajoling, nagging, and threatening faculty members who were not active in seeking Federal funding to support their research, the beginning of a strong upturn in the research profile of the Department can be traced to his leadership.

Bill served as Chairman of the University Building Committee and is recognized as the "guru of space" (a capacity he still fills as we implement the West Wing Remodel/Fire Recovery project). Indeed, he and Tom Morgan were largely responsible for seeing that the plans for the 1976 addition to Welch Hall were in place at a critical time during a building phase of UT. Because of their efforts, this project "outflanked" others from the "arts" side of campus, including a pet project of the legendary Frank Erwin. With persuasive arguments and by having their act together, Wade and Morgan got the Chemistry project on the inside track, and the addition that resulted finally put most of our faculty under one roof after a long "Diaspora." This did not win us friends on the "arts" side of campus, but had a tremendous impact on the Department of Chemistry and Biochemistry.

Another contribution is the Wade "spinning drop" machine. Bill and his long-time collaborator, James Gardner, developed an innovative instrument to measure oil-water interfacial tension. When the initial results obtained with this instrument were presented at meetings, others in the field, especially industrial scientists, wanted one (or more). Bill established a system whereby the department produces these machines and sells them all over the world.

Finally, in addition to sage advice to later chairmen and other faculty facing knotty problems, Bill has been a source of information and inspiration to those colleagues who enjoy fine wines. Suffice it to say that there are many wineries in California where Bill is on a first-name basis with the owners or vintners. Of all Bill's activities, this is the one that stands to gain most directly from his retirement from teaching and one from which many of us benefit. We wish him good luck and implore him to keep sharing.

Prof. Stephen Webber

David Vanden Bout joins our faculty

An Austinite returns home

The weather in Austin is a radical change from my last home of Minneapolis, Minnesota. However, since I grew up here, I greatly prefer Austin's hot summers to the absurdly cold and seemingly endless winters of Minnesota. I received my undergraduate degree in Chemistry in 1990 from Duke University. I then came back Austin to work on my Ph.D. at UT with Mark Berg. My doctoral studies centered on using ultrafast nonlinear laser spectroscopy to elucidate the nature of solute-solvent interactions through the study of vibrational dephasing. After completing my Ph.D., I received a NSF postdoctoral fellowship to work with Paul Barbara at the University of Minnesota. I spent three years in Minnesota helping develop and expand the techniques of near-field scanning optical microscopy (NSOM) and single molecule spectroscopy (SMS). I am thrilled to have the opportunity to return to UT, and I am currently teaching a graduate class and setting up my research lab.

David Vanden Bout

My research is directed toward studying the electronic and optical properties of mesostructured (smaller than microns, bigger than molecules) and interfacial systems. Understanding the effects of small-scale structure and interfaces is critical to development of new ultra-small electronic devices and sensors. Because the properties of these systems vary over very small distance scales, these systems must be examined microscopically. My research group will use a combined approach of NSOM and ultrafast laser spectroscopy. This combination of very fast (10^{-13} seconds) and very small (10^{-7} meters) measurements will allow accurate characterization of many rapid processes—for example, energy migration and trapping—in these systems by directly probing distinct spatial regions. This knowledge will not only advance our basic understanding of these fundamental properties but may also direct new strategies in materials development and device design. Initial systems of interest include thin films of oligothiophenes and luminescent conjugated polymers, both of which can be used for organic light emitting devices.

When I'm not in the lab or preparing for my class, I enjoy spending time at home with my wife Katherine. We both enjoy cooking and gardening, and we are very much looking forward to our first winter back in Texas!

Oops! We Goofed

The Spring 1997, edition of the newsletter carried an article on the induction of Bill Shive into the Hall of Honor of the College of Natural Sciences. In that article, we listed other individuals who had a connection with the department and had been inducted in earlier years. Dr. Lorene Rogers (Ph.D. 1948, Williams) was inadvertently omitted from that list, and we apologize for the oversight. Dr. Rogers, who was President of UT-Austin from 1975–1979, still resides in Austin and remains a thoroughly orange-blooded supporter of The University.

The Molecule of the State of Texas

Despite all its meddling this year in the affairs of higher education, the State Legislature failed to enact a bill naming an official molecule. You may recall that "Buckyball" and "Texaphyrin" were the prime competitors for the title, but in the end, our solons let the final decision slip through the cracks—the House passed legislation naming Buckyball the winner, but the Senate wisely scheduled no hearings on this most momentous issue. Surprisingly, Governor Bush failed to call a special session to resolve the dilemma! Look for this issue to rear its head in the next session of the Legislature, which thankfully will not occur until January, 1999. Maybe the relative merits of the two competitors will be more clearly defined by then.

In this context, the National Cancer Institute recently announced that it had selected the gadolinium complex of texaphyrin for government-sponsored Phase I clinical trials against various types of cancers. This decision reflects the agency's positive impression of the potential of this drug for cancer therapy.

The contest that accompanied the article about legislative efforts to name a state molecule attracted no entrants, so we'll provide the answers here. You may be able to use them as "conversation openers" at some social gathering!

Minnesota state mushroom
Morel
Massachusetts state dessert
Boston cream pie
Nebraska state rock
Prairie agate
Connecticut state animal
Sperm whale
South Carolina state dance
The shag
Arizona state neckwear
Bolo tie

ALUM RETORTS

1943

A. Furman Isbell, M.A. (1941), Ph.D. (Henze) ~ reports after spending 11 years as an industrial research chemist, he "joined a chemistry department about two miles from my house" (in Bryan, Texas). In 1977 he took early retirement because of some difficult physical problems. Now, "20 years later I am having a great time still doing scientific research that I can carry out in my garage. He received an unusual U.S. Patent 18 months ago" and has another patent pending. He states, "I owe the UT Chemistry Department more than I can repay because it gave me the training to be the kind of scientist I had always wanted to be."

1950

J. Virgil Waggoner, M.A. (Bailey) ~ and his wife June have given the university a $5 million donation for research into the genetic causes of alcoholism. The Waggoners have previously donated more than $1.7 million to the university, including $1 million to endow a chair in our department.

1958

Roberta Faulkner Sund, M.A. (Shive) ~ taught introductory chemistry at the Al Akhawayn University, Ifrance, Morocco during the spring semester to help introduce American teaching methods in this new university.

1960

Rogene Faulkner Henderson, Ph.D. (Eakin) ~ senior Biochemist/Toxicologist with the Lovelace Respiratory Research Institute, Albuquerque, NM, was presented the Ambassador Award at the spring scientific meeting of the Mid-Atlantic Chapter of the Society of Toxicology in appreciation of her outstanding contributions to the international recognition of the science of toxicology. She gave the President's Lecture at the Lovelace Institute, entitled "Chemical Footprints in Our Bodies: Clues to Prior Exposure."

1969

Robert L. R. Towns, Ph.D. (Simonsen) ~ is Professor and Associate Dean of Arts and Sciences, Cleveland State University.

1975

Taylor Jones, Ph.D. (Dewar) ~ has been promoted to Professor of Chemistry and is Chairman, Department of Biological and Physical Sciences at The Master's College, Santa Clarita, CA.

1978

John Calhoon, attended as Biochemistry major ~ received an Outstanding Young Texas Ex Award from the UT Ex-Students Association. He is Associate Professor and Head of Cardiothoracic Surgery at the UT Health Science Center of San Antonio, is nationally recognized leader in organ transplantation, led team that performed first newborn heart transplant in South Texas. **Michael E. Hayes**, Ph.D. (Wade) ~ was promoted to chief executive officer of Petroferm, Inc., Fernandina Beach, Florida.

1982

Galen D. Knight, Ph.D. (Ziegler) ~ recommends the following website for free information on some new non-toxic immune therapies for cancer and other diseases: http://www.highfiber.com/~galenvtp

1983

Peter J. Essex, B.A. Chemistry ~ reports he is living in Minnesota and working for Johnson & Johnson. He is married with two children, a son and a daughter.

1985

M. Katherine Holloway, M.A. 1982, Ph.D. (Dewar) ~ was one of nine scientists awarded Inventor of the Year awards by the Intellectual Property Owners association. The eight men and one woman were honored for patents covering the first new class of drugs for treating AIDS since the mid-1980's. Dr. Holloway works for Merck & Company.

ALUM RETORTS

1985

Jerry P. Suits, Ph.D. Chemical Education (Lagowski) ~ is currently the Miller Endowed Professor of Science at McNeese State University. He states he received an excellent education at UT-Austin under the direction of Dr. Lagowski.

1986

Brent Blackburn, Ph.D. (Gilbert) ~ has recently joined CV Therapeutics, Palo Alto, CA, as Vice President of Developmental Research. He and his wife Deborah are celebrating a new addition to the family, Zachary Martin, born September 18, 1997.

1988

Dane Michael Chetkovich, B.A. Biochemistry, B.S. Biological Science; Ph.D. Neuroscience 1992 (Baylor College of Medicine); M.D. 1994 (Baylor College of Medicine) ~ is serving as Chief Resident in Neurology at the University of California, San Francisco. Next year he will have a Howard Hughes Medical Institute postdoctoral fellowship to work with Michael Merzenich.
Terence Kelly, Ph.D. (Gilbert) ~ has been promoted to Associate Director of Medicinal Chemistry with Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT. He will be in charge of one of three groups devoted to discovering and optimizing compounds. He and his wife, Vivian, have a new daughter, Juliette, born August 5, 1997.

1989

Dan W. Reynolds, Ph.D. (Bauld) ~ works for GlaxoWellcome, Inc. in Raleigh, North Carolina. His job involves drug degradation studies, kinetic studies, isolations, and some synthesis. He has a wife, Cassie, and two children, Jason and Holly.

1990

Bryant C. Nelson, B.S. Chemistry ~ did doctoral work in bioanalytical chemistry at the University of Massachusetts at Amherst under Prof. Peter C. Uden and received his Ph.D. in May 1996. He is a National Research Council Postdoctoral Fellow at the National Institute of Standards and Technology in Gaithersburg, MD.
Hoang Steve Ngo, B.A. Biochemistry ~ will graduate from South Texas College of Law with a J.D. degree.

1991

Frank A. Quinn, Ph.D. (Kitto) ~ is Project Manager for Abbott Diagnostics Division, Abbott Laboratories.

1992

Mark A. Gee, B.A. Chemistry ~ is pursuing a graduate degree in architecture at the Southern California Institute of Architecture.

1994

Kathlynn Corinne Brown, Ph.D. (Kodadek) ~ reports she is a postdoctoral research fellow at the University of California, San Francisco in the laboratory of Charles Craik where she holds a Damon Runyon-Walter Winchell fellowship. She is married to Kevin Luebke, and they have a son born in 1996.
Monica Daniel Laurel, B.S. Chemistry ~ is living and working in Louisiana as a Hydrocarbons Process Chemist for Union Carbide. She reports she is a unit coordinator and works with the R&D department in South Charleston, WV as well. "Needless to say, I'm never bored and always challenged. The past two years have been great!"

1996

Jeffrey Crawford, B.S. Biochemistry ~ reports he has entered UT Law School, plans to work in patent law relating to biotechnology.
Rachel K. Haddock, B.S. Biochemistry ~ is attending graduate school at Northwestern University.

1997

Daniel "Dat" Tran, B.S. Biochemistry ~ has a new job with Genentech in San Francisco, California.

ALUM RETORTS

Expansion of the Mass Spectrometry Facility

continued from page 3

pability of the LCQ.

PerSeptive Biosystem Mariner Biospectrometry Workstation - This is a rapid data acquisition, high-resolution electrospray ionization mass spectrometer with an *m/z* range of up to 1000. It can be used to measure the molecular weights of small biological compounds (<*m/z* 2000) within 10–20 ppm. Each spectrum is the sum of 800 acquisitions over a 0.1-second interval, making it an ideal partner for rapid chromatographic techniques such as micro- or capillary HPLC and capillary electrophoresis, where peaks are only a few seconds wide.

Mehdi Moini

PerSeptive Biosystem Matrix Assisted Laser Desorption Ionization/Time of Flight Mass Spectrometer (MALDI-TOF). This is a linear MALDI/TOF mass spectrometer for mass measurement of compounds with molecular weights of up to a few hundred thousand Daltons. For this instrument, samples are crystallized in a solid matrix and ionized with a laser pulse. Femtomole (10-15 moles) sensitivity for peptides and proteins and picomole (10-12 moles) sensitivity for oligonucleotides can be achieved with a mass accuracy of better than 0.1%.

Beckman P/ACE MDQ Capillary Electrophoresis. This is a state-of-the-art capillary electrophoresis instrument with both UV/VIS and diode array detectors, multiple sample injection modes, and a temperature-controlled sample environment. The combination of this instrument with the ESI/TOF (Mariner) MS provides us with a powerful tool for the analysis of complex biological mixtures.

Michrom BioResources MAGIC 2002 HPLC. This instrument is capable of providing a gradient flow from 1 milliliter per minute to as low as 20 microliters per minute without flow splitting. Flow rates in the nanoliter per minute range can be achieved with this system using flow splitting techniques. This broad range of flow rates greatly expands the capabilities of conventional analytical HPLC, so that the MSF will be able to perform more modern HPLC techniques, including micro HPLC, capillary HPLC, and nano HPLC.

Finnigan MAT TSQ 70 Upgrade. The Finnigan MAT TSQ 70 has been the workhorse of the MSF for low resolution MS for nearly a decade. As part of the modernization of the instrument, its computer system and the electronics of its data acquisition components have been upgraded, bringing it to the equivalent of a Finnigan MAT TSQ 700. Its capabilities for the analysis of biological samples have also been enhanced.

The acquisition of this new instrumentation has greatly expanded the capabilities of the MSF. We invite you to visit our facility to view the instruments and discuss their applications.

Staff Awards and Honors

Department of Chemistry and Biochemistry
1997 Service Awards Recipients

Name	Years of Service
Lee H. Benson	20
Donald W. Carroll	20
Kenneth W. George	25
Wieslaw A. Kudlicki	10
Ann M. Lockwood	10
Grady J. Rollins	30
Manuel Vargas Jr.	20

Grady Rollins receives congratulations from President Robert Berdahl for 30 years of University service.

***CHRIS JOHNSON**, undergraduate academic adviser to Chemistry and Biochemistry majors, received a **James W. Vick Texas Excellence Award for Academic Advising**. Chris also contributes to production of this newsletter as our design/layout specialist.*

Presidential Staff Excellence Award Recipients

***SHAREE AERY**, administrative associate for the Science and Technology Center, is responsible for handling finances, overseeing personnel matters and other management tasks.*

***BARBARA MCKNIGHT**, graduate coordinator, manages our graduate office including graduate recruitment each spring and the organization of the teaching assistant program.*

In Memorium

Willie Woodard Crouch, M.A. 1940, Ph.D. 1942 (Lochte), died June 21, 1997. He was retired from Phillips Petroleum and is survived by his wife, June L. Crouch.

Gary Lynn Cupper, B.S. Chemistry 1970, died December 22, 1996.

Dorothy Helen Chandler Leonard, B.S., Chemistry 1948, died April 10, 1997 according to the *Kerrville Daily Times*.

Eugene J. McMullen, Ph.D. 1947 (Henze), died August 18, 1995, He is survived by his wife, Mary Jane Reid McMullen; daughters, Katie Lund and Mary Gladstone; and five grandchildren. His son, Gerry McMullen, predeceased him in 1987.

Mark Keller Poole, M.D., B.A. Chemistry 1929, died August 4, 1997.

Wanda Mae Jones Shelby, B.S. Chemistry 1951, died April 20, 1997 at the age of 66.

Beth Anne Walden, Ph.D. 1995 (Cowley), died June 30, 1997 from injuries sustained in an automobile accident. She was employed by Texas Instruments in Dallas and recently had been transferred to Sematech in Austin.

William B. Whitney, Sr., B.S. Chemistry 1933, M.A. 1934, Ph.D. 1937 (Henze), passed away February 19, 1997 in Ft. Worth.

Tom Dobbins Young, B.A. Chemistry 1931, M.D. 1935, died July 19, 1997, according to the *Abilene Reporter News*.

CHEMICAL *Compositions*

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The University of Texas at Austin
Austin, Texas 78712-5300

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