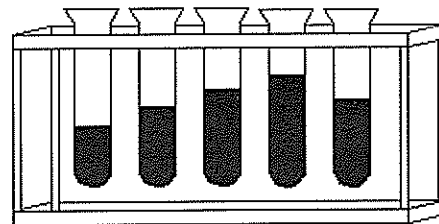


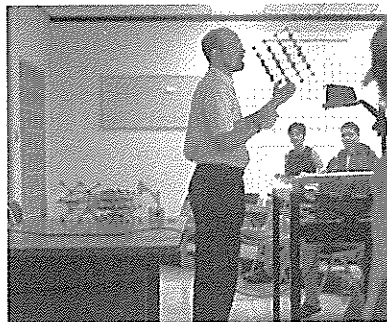
the Test Tube

The Department of Chemistry & Biochemistry
Texas Tech University
Lubbock, Texas
Editor: Kathy B. Jones



Newsletter 2001
(#18)

✦ Casadonte ✦ Named Piper Professor



Dominick J. Casadonte, Jr., Associate Professor of Chemistry, was presented the Piper Professor Award for 2001 by the Texas Higher Education Coordinating Board. This recognition is given to ten professors in the state of Texas during each academic year for their dedication to the teaching profession and for their outstanding academic, scientific and scholarly achievement. **Dom** is the second TTU professor to be named a Piper Professor.

The Minnie Stevens Piper Foundation was organized in 1950 for the purpose of supporting charitable, scientific, and educational undertakings. Randal Gordon Piper and his wife, Minnie Stevens Piper were the principal donors. Begun in 1958, the Piper Professors Program awards \$5,000 annually to ten outstanding professors from two- and four-year colleges and universities, public and private.

Dom received his B.S. with Honors in Chemistry from Case Western Reserve University, and his M.S. in Physical Chemistry and Ph.D. in Inorganic Chemistry from Purdue University. Before coming to Texas Tech in 1989, he was a Postdoctoral Research Associate at the University of Illinois, working first for Kenneth S. Suslick and then for

Theodore L. Brown.

During the spring semester of 2000, **Dom** was a Fulbright Senior Scholar in France. He has also been named Alpha Phi Foundation International Professor of the Year, received the TTU President's Excellence in Teaching Award, was TTU Alpha Phi's Outstanding Professor of the Year, Outstanding Faculty Member for TTU's Kappa Kappa Gamma, Delta Delta Delta, and Alpha Epsilon Delta, and was listed in Who's Who Among America's Teachers twice. He has been named a Wakonse Fellow and a Dreyfus Foundation Scholar/Fellow, and in 1999 received, with the ACS-SA, an American Chemical Society Chemluminary National Award for "Best Activity with a Student Affiliate Group". **Dom** was also Editor of *the TestTube* from 1995-2000.

Dom is currently doing research in sonochemistry, photochemistry and chemical education. Additional details about his research activities are listed in the Faculty News and Notes section on page 10. We are proud to have **Piper Professor Casadonte** on our faculty!

✦ Robinson ✦ Lectureship Endowment

The Robinson Lecture Series was announced in the Fall of 2000, a fitting memorial to the life and scientific contributions of **G. Wilse Robinson**, Welch Professor of Chemistry from 1975 until his death in September 2000. **Wilse** was a top researcher in physical chemistry and chemical physics. His high research standards and the resulting scientific advances provide a deep understanding of the fundamental molecular phenomena of chemistry, physics, and biology.

Wilse's friends, colleagues, former students, and postdoctoral associates respond-

ed generously. Plans are now being made for the inaugural Robinson Lecture to be held during the 2001-2002 school year.

Donations ranging from \$5 to \$5000 were received from 78 individuals. Some interesting breakdowns of the donations to-date can be made:

- 18 current and former faculty/staff donated \$4,095
- 27 former students/postdocs gave \$8,805
- 30 Texas donors contributed \$5,335
- 41 U.S. donors living outside Texas donated \$10,500
- 7 international donors sent \$1,100
- 3 matching donations totalling \$200 were received
- 4 TTU administrators gave \$950

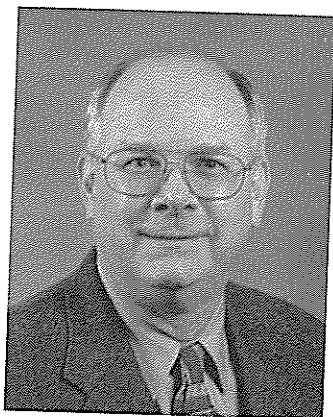
These 78 people who called **Wilse Robinson** friend, colleague, teacher or boss have put us well on the way to achieving our self-supporting endowment goal of \$25,000. If you would like to join our list of donors, please contact **Dr. Greg Gellene** at gellene@aladdin.chem.ttu.edu. What better way to pay tribute to **Wilse Robinson's** life and scientific contributions?



G. Wilse Robinson
July 27, 1924 - September 7, 2000

★ The Chair ★ Conformation

by
Dr. Richard A. Bartsch



You'll note two important changes in this edition of *the TestTube*. Starting with this issue, we will feature the accomplishments of a famous graduate of our program. Distinguished Research Professor **William R. Heineman** of the Department of Chemistry at the University of Cincinnati was selected to inaugurate this new aspect of *the TestTube*. The second change is the Editor. After serving as Editor for many years, **Dr. Casadonte** elected to step down from this post. Fortunately, due to a realignment of departmental staff, **Mrs. Kathy Jones** became available and is doing a great job.

We were very successful in faculty recruitment during last fall and this spring. Five new faculty members joined the Department of Chemistry and Biochemistry this fall. We attracted our first choice among the candidates in each search. **Dr. Robert E. Blake, Jr.**, brings exciting research expertise in chemical education from his previous faculty position at Indiana University, Purdue University, Indianapolis. Also participating in chemical education activities is **Dr. Rebecca S. Miller**, our new Coordinator of General Chemistry. **Dr. Robert A. Flowers** brought his laboratory equipment, two graduate students, and three research grants in the move from his previous faculty position at the University of Toledo. His organic chemistry research program is already up and going at Tech. **Drs. Jorge A. Morales and L. William Poirier** are new theoretical chemists who have increased our expertise at the frontier between chemistry and physics by at least two quantum levels.

The Higher Education Coordinating Board recognized **Dr. Dominick J. Casadonte's** extraordinary talents as an educator by designating him a 2001 Piper Professor. Only ten professors from colleges and universities in all of Texas received this distinction.

Our Student Affiliates chapter received an Outstanding rating from the American Chemical Society for their activities in 2000-2001. Of the more than 600 student affiliates chapters only 24 garnered this highest ranking. We're equally proud of a national award from the American Chemical Society to our local ACS section. The 2001 Phoenix Award Winner in the category of the Best National Chemistry Week Contest was awarded to the South Plains Section at the Fall National Meeting of the American Chemical Society in Chicago.

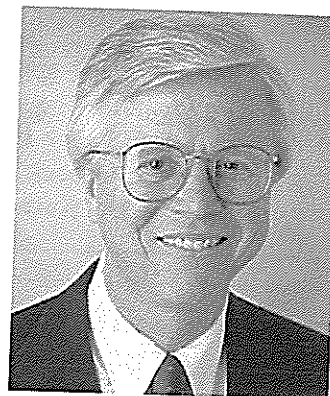
Through the generosity of many colleagues, former coworkers, and other friends of **Dr. G. Wilse Robinson**, we surpassed the \$10,000 needed to establish the Robinson Lectureship Endowment. With continued support, we hope look forward to reaching the \$25,000 level necessary for a self-supporting endowment.

During this year, the faculty worked diligently in developing a five-year strategic plan for the Department of Chemistry and Biochemistry. Although we have many excellent ideas for enhancing our teaching, research and service activities, financing the implementation of this plan is beyond the scope of our current operating budget. For this your contribution is crucial. Together we can continue to improve this department in terms of outreach and service to the community, its ability to enhance the undergraduate and graduate education experience for our students, and the research efforts of our faculty. Your contribution toward completing the Welch Challenge, increasing the Robinson Lectureship Endowment or the Shine Lecture Series Endowment, initiating a Department of Chemistry and Biochemistry Endowment, or unrestricted departmental support will be greatly appreciated.

Sincerely yours,

Richard A. Bartsch
Chair and Paul Whitfield Horn Professor

★ Alumni Profile ★ **William R. Heineman** Distinguished Research Professor University of Cincinnati



by **William H. Heineman**

Native of Lubbock

Born and raised in Lubbock, I am a true "Lubbockite" and Red Raider. My parents were both on the faculty at Texas Tech: my father in Mathematics and my mother in the Department of Clothing and Textiles in what was then called the College of Home Economics. They had been attracted from Wisconsin and Iowa to the newly founded Texas Technological College by the availability of jobs during the depression.

Undergrad at Texas Technological College

I enrolled in Tech in 1960 as a chemistry major/math minor. I was undecided about my major, having strong interests in biology, geology, and physics, too. However, I stuck with chemistry largely because of the excellent lectures of my freshman chemistry professor, **Wesley Wendlandt**. He was a well-organized, lucid lecturer who inspired an interest in the subject. The laboratory part of the course was organized by **Clinton MacPherson**, who put his chemical knowledge to practical use and founded Llano Estacado Winery. Readers might be interested in the Chemistry curriculum and the professors at that time: sophomore year - Analytical Chemistry (**Reekers** and **Stuart**), junior year - Organic Chemistry (**Adamcik**) and Physical Chemistry (**Draper**), senior year - Biochemistry (**Dennis**, then Head of the Department), Inorganic Chemistry (**Thompson**), Advanced Organic Chemistry (**Shine**), Instrumental Analysis (**Reekers**), and Literature of Chemistry (**Draper**). Overall Tech provided me with a solid education in chemistry that enabled me to succeed at

(continued on page 3)

Heineman Profile (continued)

the next level. The strong analytical chemistry curriculum was especially useful as that became my specialty area. **Shine's** course in Advanced Organic Chemistry gave me a taste of graduate school since the small enrollment in this advanced elective enabled him to teach it more as a discussion group.

A few memories come to mind. Some freshman labs were held in wooden barracks behind the chemistry building. I could never get K^+ correct in qualitative analysis and could not see one of the titration endpoints in quantitative analysis because I am color blind. The new library was completed; I had a summer job after my sophomore year working with a team to move all of the books from the old library to the new one. Another member of the team was **Bill Robinson**, now at Purdue, who was finishing a Master's Degree with **Wendlandt**. As the senior member of the team, he had the enviable job of driving the truck we were using to haul the books.

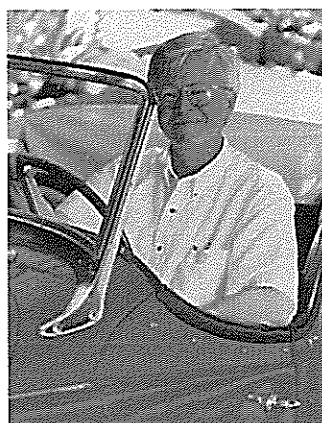
A summer job after my junior year for Argonne National Laboratory at the Reactor Testing Station in Idaho was especially influential to my career. I did analytical support work at one of Argonne's nuclear reactors (EBR 1, the first reactor to provide electricity to power a town - Arco, Idaho). Working around a functioning reactor was exciting, and I learned a lot of interesting chemistry and physics. Because of time-and-a-half from working the swing shift when the reactor was in operation, I also made a lot of money. I spent many weekends in the Tetons and Yellowstone National Park, which were about a 3-hour drive away. Being from flat, dry, treeless West Texas, I loved the novelty of the rivers, mountains, and forests.

However, the most important aspect of the job was recognizing the advantages of an advanced degree. Although I enjoyed the summer experience immensely, the routine analysis of the seemingly endless stream of samples to be analyzed became tedious. I realized that my supervisor had a Masters Degree and that his job was much better than mine and others without an advanced degree. I knew little about graduate school.

Upon returning to Lubbock, I went to see the professor I knew the best, **Dr. Wendlandt**, to get advice about graduate school. He asked what I liked best. I responded that I enjoyed my summer job and was thinking about radiochemistry. He pointed out that my employment possibilities would be restricted in that field because of facilities

needed for working with radioisotopes. What else did I like? Analytical chemistry was the answer. He recommended the University of North Carolina (UNC), Kansas, Purdue, Illinois, and Texas as schools with strong analytical programs. I chose UNC. The deciding factor was a NASA fellowship that provided full support for 3 years. I had also heard good reports about the beautiful campus and overall academic excellence.

I missed graduation because of a trip to Europe with my brother Robert and a good friend Bob Pittman, a biology major at Tech. Armed with the newly published book "Europe on \$5 a Day" (the price has since risen steeply), we crossed the Atlantic on an Italian student ship, rented a car and camped throughout Europe for the summer. It was a memorable experience - paid for by savings from my summer job at Argonne. I lugged two chemistry books along to help me prepare for the four qualifying exams I had to take at UNC.



UNC days

After returning from Europe, I drove my VW "bug" three days to Chapel Hill. The studying during the trip to Europe combined with my Tech education paid off, and I did well on the qualifying exams. I was relieved to find that I was very well prepared for graduate school. Again, a well-taught course influenced a big decision - my choice of research topic. Royce Murray taught an excellent course in electroanalytical chemistry, and I chose that as a research area and him as my advisor.

Industry (the real world)

I had always planned to go into industry. The job market at that time was great, and I must have had over 10 interview trip offers. I joined the Hercules Research Center in Wilmington, Delaware for 2 years. The job was good, but I felt unfulfilled. I realized that I was destined to go into teaching and decided to take a postdoc in order to return

to academics. Although I had missed my career goal, I received valuable industrial experience at Hercules and, most importantly, met my wife Linda.

Postdoc

My strong interest in spectro-electrochemistry led me to a 2-year postdoc with Ted Kuwana. The postdoc began at Case Western Reserve University and finished at The Ohio State University (OSU) because Kuwana moved after the first year. Linda also worked at OSU for an NSF-funded project with *Chemical Abstracts* to begin computerized literature searching in chemistry. Linda helped faculty set up their first literature searches. This now common-place activity was just getting started.

UC

I joined the faculty at the University of Cincinnati (UC) in 1972 and was promoted to Distinguished Research Professor in 1985. I was lucky that UC was building a strong program in analytical chemistry at a time when many graduate students were attracted to the area because of abundant job opportunities. Consequently, I have had the good fortune of having large research groups of excellent graduate students and postdocs for many years. To date 100 graduate students have received advanced degrees under my guidance. Research topics have reflected my strong interest in interdisciplinary research and bioanalytical chemistry.

My colleagues and I have made major contributions in spectroelectrochemistry, chemical sensors, analytical chemistry of radiopharmaceuticals, and electrochemical immunoassay. Current research is focused on a novel spectroelectrochemical sensor, microfluidic systems for chemical analysis, and analytical chemistry relating to the transplantation of islets for diabetes. During my career, I have published over 300 research papers, received 4 patents, and presented over 500 lectures at conferences, universities, and government/industrial laboratories. Inheriting my father's interest in writing, I have co-authored and co-edited 6 books including a textbook and a laboratory manual for instrumental analysis and a monograph on electroanalytical chemistry.

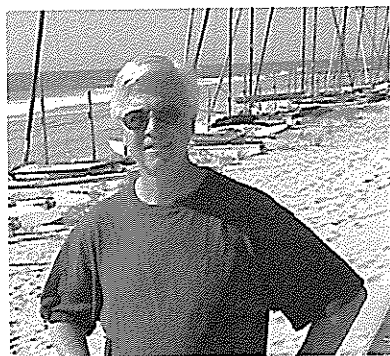
In addition to my job as professor, I have served the chemical community in a number of capacities. Some highlights are co-founder and first president of the Society for Electroanalytical Chemistry, Chairman

(continued on page 4)

and Councilor of the Cincinnati Section of the ACS, and Chairman and Councilor of the Division of Analytical Chemistry of the ACS.

I have received a number of local, national and international awards. A few of them are Cincinnati Chemist of the Year, Japan Society for the Promotion of Science Fellowship, Japanese Government Research Award for Foreign Scientists, George Rieveschl, Jr. Award for Distinguished Scientific Research, Humboldt Prize from West Germany, Charles N. Reilly Award in Electroanalytical Chemistry from the Society for Electroanalytical Chemistry, Chemical Sensors Award from the International Meeting on Chemical Sensors, Award for Excellence in Teaching from the Division of Analytical Chemistry of the ACS, and Torbern Bergman Medal 1999 from the Analytical Section of the Swedish Chemical Society.

On the personal side, I have interests in photography, antique cars, model building, travel, reading, and sports. Linda and I have two sons; neither one inheriting my interest in science. A highlight of my career was two sabbaticals, one in Germany and one in Japan, when my family was able to join me.



Little did I know as a student at Tech the interesting and varied career that lay before me. I have always been mindful of the excellent chemistry teachers I had as a student at Texas Tech - not just the chemistry I learned from them, but also how they provided excellent advice that influenced my decisions. This gave me the background to be a better mentor to all of my students. I have always been proud to be a Red Raider!

★ Who's "v"
(That's c/λ of course!)
★ on the Faculty?

We are very pleased to announce the addition of four new tenure-track faculty this year. Joining the department in Fall 2001 are:

- **Dr. Bob Blake**, Chemical Education
- **Dr. Bob Flowers**, Organic
- **Dr. Jorge Morales**, Theoretical
- **Dr. Bill Poirier**, Theoretical

Also joining the department this year will be Instructor **Dr. Rebecca S. Miller**, new Coordinator of the General Chemistry Program.

With the addition of **Bob Blake** and **Bob Flowers**, we now have four Bobs on our faculty. A nomenclature system to distinguish one from another has been developed in the main office: O-Bob, B-Bob, I-Bob and C-Bob. ☺ Can you figure out the code? Answers on page 6.

★ **Robert E. Blake, Jr.** ★
New in Chemical Ed Division



New TTU Assistant Professor of Chemistry **Bob Blake** comes to Texas Tech from his most recent position, Assistant Professor at Indiana University, Purdue University, Indianapolis. Prior to that, he received his B.A. in chemistry from UC San Diego, worked for Zotos International, earned his Ph.D. in chemistry from the California Institute of Technology, and then held a Camille and Henry Dreyfus Postdoctoral Fellowship at Southern Methodist University.

Various honors have been awarded **Professor Blake** in his career, including: IUPUI Research Fellow, 8 IUPUI Athletics "Excellence in Teaching" Citations, Boron USA Travel Fellowship, Caltech Department of Chemistry Teaching Award, USCD's Mayer Award for Outstanding Undergraduate Research, USCD Outstanding Teaching Assistant, ACS Analytical Award and CRC Outstanding Freshman Award.

Professor Blake's primary research is in the field of chemical education. All of this work is centered on the idea that the teacher frequently learns more than the student does in the traditional model of teaching and learning. The teacher prepares instructional materials, explains key concepts repeatedly, prepares assignments, and grades those assignments. A common statement among teachers is "you never really know something until you teach it".

Our mission is to design teaching-related and leadership activities for undergraduate students ("reversed-role learning") in order to enhance the breadth and depth of student knowledge. Current or planned projects in this area of include the following:

- Peer-mentoring of small groups
- The development of workbooks, lab manuals and WWW pages
- Traditional teaching assistantships

Normally, educational initiatives focus their attention on the performance of the students who are being served by the new activities or novel curricular materials. We predict that the impact of this learning experience on our student-teachers will be dramatic and very positive. These student-teachers will be re-engaging their newly-learned course content to reinforce their knowledge of the material, rather than starting the process of forgetting newly learned ideas and skills.

Assessment of our activities is a key step in documenting the effectiveness of this "reverse role" model of teaching. The following measures are being implemented:

- Pre- and post-testing for content knowledge
- Persistence to upper-division classes
- Performance in upper-division classes
- Level and quality of participation in departmental research activities
- Interviews and focus groups to assess student-teacher satisfaction



✦ **Robert A. Flowers** ✦
New in Organic Division



Dr. Robert Flowers joins TTU as an Associate Professor of Chemistry. He received his B.S. in Chemistry from East Stroudsburg University and his Ph.D. from Lehigh University. Following postdoctoral work at Duke University with Professor Ned Arnett, **Bob** began his academic career as an Assistant Professor of Chemistry at the University of Toledo in 1994. In 2000, he earned tenure at the University of Toledo and was promoted to Associate Professor of Chemistry. At the University of Toledo he earned the following honors: The University of Toledo's Faculty Summer Research Fellowship, the University of Toledo Outstanding Teaching Award, and a Deans Merit Award. During the 2000 academic year, he was appointed Master Teacher in the College of Arts & Sciences at the University of Toledo.

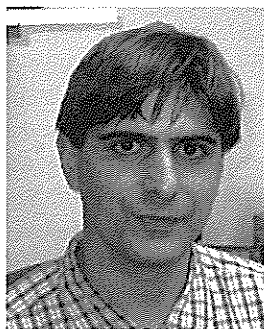
Professor Flowers has authored or coauthored 37 papers dealing with his research interests in mechanistic analysis and synthetic development of Sm(II) reagents, thermodynamics of protein-ligand interactions, ion transport and molecular recognition, isothermal titration calorimetry, and development of novel protein renaturation reagents. Current research grants include: NSF, *Physical Organic Chemistry of Sm(II) Reagents*, The Welch Foundation, *Sm(II)-Mediated Asymmetric Reductions and Bond Forming Reactions*, ACS/PRF, *Electrocatalytic Reactions of Sm(II) Reductants*, and NASA, *A New Class of Unnatural Folding Oligomers: Helices with Nano-Sized Cavities* (subcontract and collaborative project with Prof. Bing Gong at SUNY, Buffalo). His work with novel protein renaturation reagents has led to two patent applications.

Professor Flowers takes a physical organic approach to research in the following projects: (1) The energetics and thermodynamics of lanthanide-mediated organic reactions; (2) The utility and applications of low-melting organic salts in biochemistry (protein refolding); and, (3) Thermochemical studies of molecular recognition and molecular assembly. His research involves

organic synthesis, analytical methods (calorimetry, electrochemistry, and spectroscopy) and computational work.

In his free time, **Bob** enjoys weightlifting, playing guitar, gardening, and spending time with his wife and two dogs. **Bob** is married to our new General Chemistry Coordinator **Dr. Rebecca Miller**, whose profile appears on page 6.

✦ **Jorge A. Morales** ✦
New in Physical Division



Assistant Professor **Jorge Morales** joins the TTU faculty following postdoctoral appointments at the University of Florida and the University of Illinois. Prior to that, he earned his B.S. and Master's degrees in Physical Chemistry from the Universidad Nacional de Mar del Plata in Argentina, and his Ph.D. in Theoretical Quantum Chemistry from the University of Florida.

Professor Morales has been awarded a Doctoral Fellowship from the Consejo Nacional de Investigación, Ciencia y Tecnología in Argentina, the Center for Chemical Physics Award from the University of Florida, and the Academic Merit Award (Gold Medal) from the Universidad Nacional de Mar del Plata.

Professor Morales has published 14 papers dealing with his research interests: the derivation and combination of electronic structure (time-independent) and dynamical (time-dependent) methods, their computer implementation, and their application to large systems.

In the field of hybrid quantum/classical (QC) methods, **Professor Morales** is developing a hierarchy of charge-transfer models that stems from the exact quantum valence bond (VB) theory and leads to the classical, charge-equilibration ("QEq") model. This set of methods will play a key role in the simulation of large systems and solvent effects.

Professor Morales' theory allows a correct classical treatment of bond forming/breaking and dissociation processes within

a classical region, and will be instrumental in charge transfers across quantum/classical boundaries. His present QC efforts are being concentrated on (1) the interfacing between quantum theories and classical models, (2) the model's relationship to statistical mechanics, and (3) their dynamical formulation via time-dependent variation principle (TDVP).

In the field of Electron Nuclear Dynamics, **Professor Morales** is further developing the electron nuclear dynamics (END) theory to study charge-transfer and reactive processes. This theory is the first attempt to apply the concepts of quantum action and quantum Lagrangian to chemistry problems. The END theory employs the time-dependent variational principle (TDVP) in order to obtain generalized phase-space dynamical equations. Without requiring predetermined potential energy surfaces, this theory has been applied to the simulation of non-reactive, reactive and charge-transfer processes in the gas-phase systems: $H^+ + H_2$, $H^+ + CH_4$, and $H^+ + H_2O$. **Professor Morales'** END efforts are being concentrated on (1) incorporating semiempirical methods for the electronic description, (2) developing time-dependent quantum/classical models, and (3) introducing solvent effects.

✦ **Lionel William Poirier** ✦
New in Physical Division



Dr. Bill Poirier joins the TTU faculty as an Assistant Professor of Theoretical Chemical Physics. Prior to this position, he was a Research Associate at the University of Chicago and the Université de Montréal. He received an Sc.B. degree in Physics from Brown University and his Ph.D. in Theoretical Chemical Physics from UC Berkeley.

Professor Poirier has received many awards, including: first place award for Best Poster Presentation at the 2000 Atomic and Molecular International Gordon Research Conference; Outstanding Graduate Student

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✦ Poirier continued ... ✦

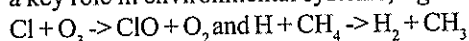
Instructor Award at UC Berkeley; and the AA Bennett and R. Bruce Lindsay Awards for best physics senior thesis at Brown University.

Professor Poirier's research group is concerned with the development and application of new methods for performing accurate quantum dynamics calculations for molecular systems. These calculations encompass rovibrational spectroscopy, reactive scattering of molecules in the gas phase, and resonance phenomena. Applications of interest include the dynamics of atomic clusters and thermal rate constants pertinent to environmental chemical kinetics.

The methods development research is motivated by the inadequacy of conventional numerical techniques for dealing with four or more atoms. **Dr. Poirier's** group is exploring a variety of new approaches that improve the computational efficiency by orders of magnitude, thereby making it possible to handle a much larger class of systems than has heretofore been realized.

The cluster research seeks to understand the various "phase changes" observed in nanoscale structures. These can be regarded as prototypes of phase transitions in bulk matter, yet can occur with as few as six or seven atoms. The group has an interest in solid-liquid phase changes, as well as those associated with solvation. In all cases, dynamics plays a crucial role. From this data, fundamental questions can be answered (e.g., how do latent heats depend on cluster size?)

The chemical reactions that occur in combustion and in the atmosphere are of great practical interest. The broad goal of environmental chemistry is to understand, predict, and control how noxious compounds are generated, and how they affect the atmosphere and other environmental systems. This can be accomplished with good theoretical models; however, the utility of such models is limited by a lack of accurate rate constants for the constituent elementary chemical reactions. The specific goal of the environmental chemistry research, therefore, is to perform accurate reaction rate calculations for four-to-six atom reactions that play a key role in environmental systems, e.g.



✦ Rebecca S. Miller ✦ New Gen Chem Coordinator

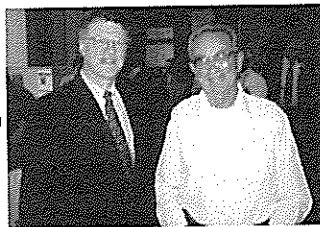


Dr. Rebecca Miller joins the Department of Chemistry and Biochemistry in the role of Coordinator of General Chemistry. After earning her B.S. in Chemistry from Shippensburg University in Pennsylvania and her Ph.D. in Physical Chemistry from Duke University, **Dr. Miller** worked as Assistant Professor of Chemistry at Siena Heights University in Adrian, Michigan and Visiting Assistant Professor and Interim Director, Instrumentation Center, at the University of Toledo.

Dr. Miller was awarded the Paul M. Gross Fellowship and the Pelham Wilder Teaching Assistant Award while at Duke University. She has published five papers.

Dr. Miller is married to new organic professor **Dr. Bob Flowers**, who is profiled on page 5.

✦ The Second ✦ Henry J. Shine Lecture



Professors
**Peter B.
Dervan** (left)
and **Henry
Shine**

Bren Professor PETER B. DERVAN of the Division of Chemistry and Chemical Engineering at the California Institute of Technology presented the second **Henry J. Shine** Lecture. Entitled "Regulation of Gene Expression by Synthetic DNA Binding Ligands", Dr. Dervan delivered the talk on October 20, 2000. This annual lecture series was endowed by students, colleagues and friends of **Dr. Henry Shine** and supplemented by a grant from the Plum Foundation.

✦ Song Dissertation Award ✦ Given to Kelly Swinney

The Song Dissertation Award, established by Professor **Pill Soon Song** when he left our department to become chairman of the Department of Chemistry at the University of Nebraska, honors the graduate student who submits the best doctoral dissertation in Texas Tech's Department of Chemistry and Biochemistry in a given calendar year. The winner of the 2000 Song Dissertation Award was **Kelly Swinney** for her dissertation entitled *An On-Chip Universal Detector Based on Backscattering Interferometry*, completed under the supervision of Professor **Darryl Bornhop**. The award consisted of a check for \$650. **Dr. Swinney** is currently at Oak Ridge National Laboratory in Oak Ridge, Tennessee, doing a postdoc in the laser spectroscopy and microinstrumentation group.



A new plaque with the names of previous Song Award winners is prominently displayed in the Chemistry Office.

✦ Bob Nomenclature ✦ System Answers

O-Bob is **Bob Flowers**, Organic
B-Bob is **Bob Shaw**, Biochem
I-Bob is **Bob Holwerda**, Inorganic
C-Bob is **Bob Blake**, ChemEd

Check Out Our Web Page!
<http://www.ttu.edu/~chem>

Send Email!
Kathy.Jones@ttu.edu

✦ What's Been Going On? ✦ Staff Role Call

While we have added five new faculty (see "Who's V" on page 4), our staff changed little this year. **Melissa Martinez** left the department in December, and was replaced by **Kathy Jones** in the role of Undergraduate Advising and Graduate Affairs Secretary. **Kathy** previously provided secretarial support to Welch Professor **G. Wilse Robinson**, who passed away in September 2000. In her spare time, **Kathy** edits *the TestTube*.

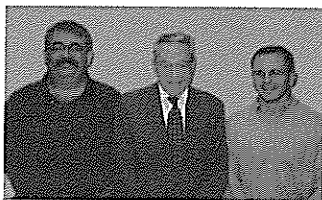
In March **Mark Porter**, Coordinator of General Chemistry Laboratories, left Texas Tech to work for Aventis Pharmaceuticals. **Dr. Rebecca Miller** joined us this Fall as Gen Chem Coordinator (see profile on page 6).

During the past year, we were saddened by the death of two staff members, one former (**Mary Sufall**) and one current (**Bill Good**). Please see their obituaries in the "Transitions States" section on page 14.

The next time you're on the TTU campus, stop by and say "hi" to our current staff:

Justo Adame
Stores Supervisor
Cheryl Blasingame
Secretary III
Jane Bradley
Secretary II
Kelly Diaz
Secretary II
Jennifer Dunfield
Administrative Secretary
James Hildebrand, Manager
Chemistry Building Operations
Duane Hinds
Technician IV
Priscilla Jones
Clerical Specialist II
Kathy Jones
Clerical Specialist III
David Purkiss
Spectroscopy Technologist
Laquetta Purkiss
Technician III
Yesenia Sanchez
Business Manager
Noah Solis
Technician II
Jim Stephens
Glass Shop Supervisor
Kenneth Taylor
Laboratory Sales Clerk
Jerry Walton
Technician IV

✦ Welch Summer ✦ Scholar Program



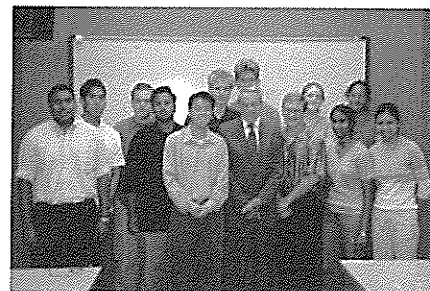
Left to right, **Dr. Dennis Shelly**, previous coordinator of the TTU WSSP program, **Dr. Norman Hackerman**, Chairman of The Welch Foundation's Scientific Advisory Board, and **Dr. Steve Tomlinson**, coordinator of the TTU WSSP 2001.

Since 1991, Texas Tech has been one of five Texas sites to offer The Welch Foundation summer research course for bright and talented high school students. In mid-June, 12 high school juniors and seniors arrived to spend 29 program days in an intensive course in basic chemical research. The Welch Summer Scholar Program is highly competitive, with many participants scoring in the top 1% of their graduating class and with several perfect SAT scores among the more than 150 applicants, annually.

During the first week, we train the students in the more important research skills, such as microchemistry, literature searching, writing scientific papers and keeping a scientific notebook. They choose a mentor by the second week and are then responsible for conducting "INDEPENDENT" research. The program culminates in a scientific poster session, banquet with presentations of certificates, and the submission of a formal scientific paper by each student. The Welch Foundation collects and publishes these papers in a large, impressive bound volume.

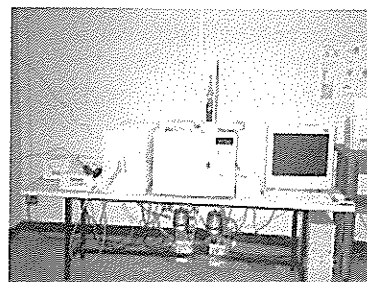
The Texas Tech site is unique in that we have implemented some very novel chemical education concepts. We have developed an accelerated period, which includes a capstone project that has relevance to chemical analysis, drugs of abuse and their role in the community. We have also experimented with two learning modules that focus on chemical entrepreneurship and the importance of science and engineering in the development of chemical technology. These are now key features of a new and exciting chemistry curriculum that we are developing. Finally, we have used this group to develop a new undergraduate research program, "CHEMISTRY IN YOUR POCKET",

which Texas Instruments has supported with a donation of calculators, calculator interfaces and chemical sensors, a complement of instrumentation that is now the core of two undergraduate analytical chemistry laboratories.

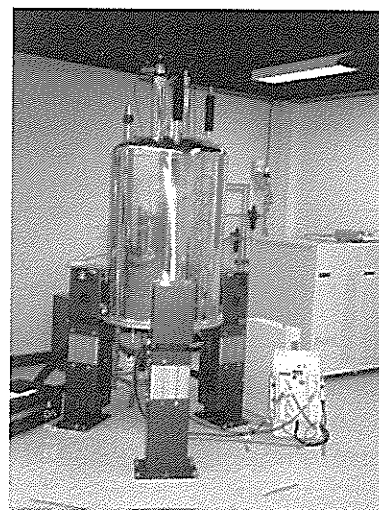


Dr. Norman Hackerman (center front) stands with the TTU WSSP 2001 participants (from left) **Chirag Bhatia**, **Whoosun Song**, **Robert MacGregor**, **Nimran Ali**, **Haichen Wang**, **Gunner Ristorph**, **Joseph Stanford**, **Steven Palmer**, **Lindsey Hoover**, **Sheetal Wadera**, **Promiti Dutta**, and **Wendy Lai**.

✦ New Departmental ✦ Instruments



Above is the new ThermoQuest GC/MS. The Varian 500 MHz NMR is shown below.



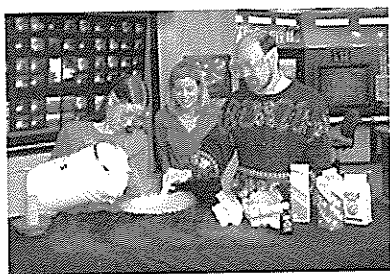
✦ ACS South Plains Chapter ✦

ACS-SA Wins 4th Consecutive National Award

The ACS South Plains Chapter received Honorable Mention in the 2000 ACS Phoenix Award Competition. This is the 4th consecutive year they have been rewarded for their efforts in promoting chemistry.

In 2001, the South Plains Chapter won their 5th consecutive award, a first-place Phoenix Award in the "Best National Chemistry Week Contest" category. The winner was announced during the 222nd ACS National Meeting in Chicago in August. The contest involved collaboration with the local McDonald's restaurants. We placed two sets of 10 chemistry trivia questions (one set for 1-11 year-olds and one for adults) on color-coded forms at each of the Lubbock McDonald's. Participants answered the questions while they ate and then returned the forms to the counter people.

At the end of National Chemistry Week (NCW) the forms were collected from each McDonald's. The entries with the most correct answers from each store were entered into a random drawing. Several lucky winners received \$10 gift certificates to McDonald's. Our thanks to the local McDonald's restaurants for participating in this National Chemistry Week activity.



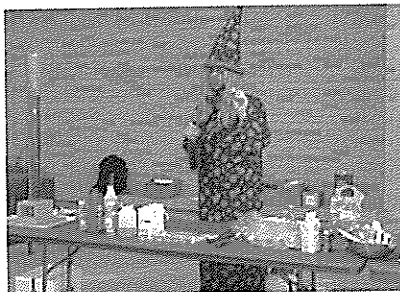
Professor **Dominick Casadonte** (right, representing the South Plains ACS Section) and student **Joanna Morton** (left, ACS-SA) show KCBD-TV Weatherwoman **Shar Spaulding** the fine points of making ice cream using liquid nitrogen. As part of National Chemistry Week 2000's theme of "Cooking With Chemistry", they performed a demo called "Cookin' with Chemistry".

ACS-SA Web Page:

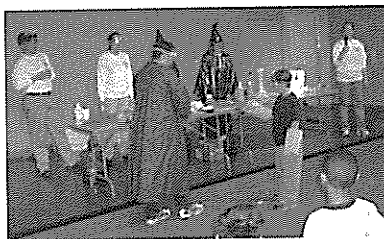
<http://www.ttu.edu/~chemical>

and email address:

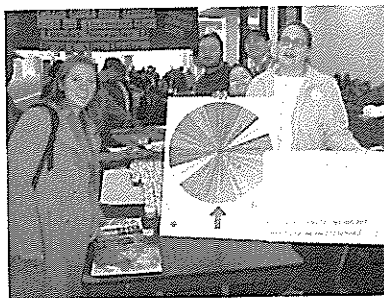
ttu_acs@yahoo.com



During National Chemistry Week 2000, Professor **Dominick Casadonte** performs a "Chemistry Cooking Show" at the University Center at Texas Tech.



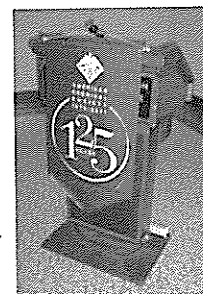
The ACS-SA display the wonders of liquid nitrogen and oversized gloves as interested kids watch at the Science Spectrum during NCW 2000.



ACS-SA Officers (right to left) **Jessica Patton**, **Martin Ziska**, **Melissa Patton** and **Larry Shaw** show history major **Stephanie Fain** (left) the finer points of "Chemistry Wheel of Fortune" during NCW 2000.



ACS South Plains Chair and ACS-SA Advisor **Dr. Greg Gellene**, and ACS-SA officers **Michelle Magallanez** and **Jessica Patton** show off the ACS Award in Recognition of Commendable Achievements for 1999-2000.



The ACS celebrates 125 years.

Officers from the Texas Tech ACS Student Affiliate group accepted the ACS Award in Recognition of Commendable Achievements for 1999-2000 at the 221st ACS National Meeting in San Diego, California in April. This year, our SA chapter received an Outstanding Award for activities conducted during the 2000-2001 academic year. This is the highest ranking given annually by the American Chemical Society to only 24 chapters nationwide! This is the fourth consecutive year our ACS-SA has achieved national recognition for their efforts promoting chemistry and chemical education.

In addition to accepting national awards, the ACS-SA stayed busy doing a variety of activities during the 2000-2001 school year:

- Held bi-monthly meetings with speakers.
- Performed demos at local schools and gave a demo for about 1,000 junior high students in Crowley, Texas (Suburb of Fort Worth).
- Manned a periodic table made of cupcakes at the UC during National Chemistry Week.
- Participated in the Adopt an Angel program as a volunteer activity, buying clothing and shoes as a Christmas present for an underprivileged boy.
- Performed a demo show for all the children and their mothers at Women's Protective Services.
- Collected donations for our spring semester fund-raising event, the ACS garage sale. Money was raised to help send officers to the National ACS meeting.
- Held a blood drive at United Blood Services on March 3.
- Sent officers **Melissa Patton**, **Jason Lovell**, **Jessica Patton** and **Michelle Magallanez** to San Diego for the national conference. They attended the Awards Ceremony, performed a demo show for other Student Affiliates, and went to workshops on *Kids in Chemistry*, *How to Make Your Student Affiliate More Successful*, and *National Chemistry Week*.

(continued on page 9)

ACS-SA Officers 2000-2001

President: **Michelle Magallanez**
Vice-President: **Jason Lovell**
Treasurer: **Melissa Patton**
Secretary: **Shannon Curtice**
Activities Coordinator: **Jessica Patton**
Historian: **David Snow**

ACS-SA Officers 2001-2002

President: **Jessica Patton**
Vice-President: **Martin Youngs**
Treasurer: **Paula Simoni**
Secretary: **Eunice Orozco**
Activities Coordinator: **Michele Risko**
Historian: **Shannon Curtice**



Clockwise from lower left, April Nesbit, Deborah Gellene, Dr. Greg Gellene, Dr. Jorge Morales, Dr. Guigen Li and Ravi Srinivasa enjoy the annual ACS Awards Banquet, April 2001.



During the Annual Awards Banquet, Professor John Marx presents the Senior 2001 South Plains Regional Science Fair award to Greg Gellene, son of Professor Greg Gellene, as Junior winner Kellen Carl looks on (top photo) and then awards the Elementary prize to Richmond Lee (bottom photo).

◆ Scholarships ◆ and Awards

The generous support of our scholarship programs by Celanese Chemicals, a Division of Celanese AG, by Phillips Petroleum Company, the Celanese Chemical Division of Hoechst, and by Halliburton Energy Systems continue to allow us to recognize, reward and encourage our outstanding undergraduate students. In addition to our industrial supporters, funds for scholarships are available from the interest generated by the endowments established many years ago by Dr. and Mrs. Joe Dennis and by Dr. Joe Goodwin. These scholarships are awarded at the annual Chemistry and Biochemistry Awards Banquet, co-sponsored by the South Plains Local Section of The American Chemical Society.

Celanese Scholarships

Bruce McHam
Nicholas Miersma

Halliburton Scholarship

Michelle Wells

Jeannette and Joe Dennis

Scholarships

Jennifer Lacina
Joanna Morton

Robert G. Goodwin

Scholarships

April Nesbit
Ravi Srinivasa
Lyndsi Caddell

Phillips Petroleum Scholarship

Huong Mai

Alumni Scholarships

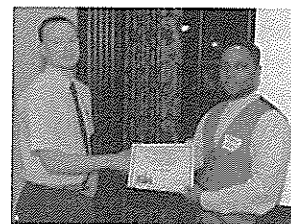
Colton Street
William Turner

ACS-SA Scholarship

Martin Douglas Youngs

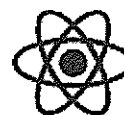
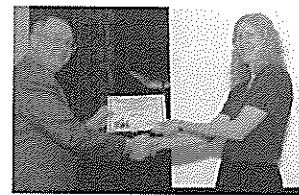
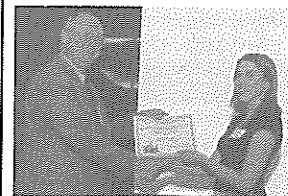
Outstanding General Chem TA

Zhengrong Li (Fall 2000)
JaneAnne Bell (Spring 2001)



Bruce McHam (left) receives the Celanese Scholarship from Alfonse Walker, Celanese representative.

Chairman Richard Bartsch congratulates (top to bottom); Joanna Morton and Jennifer Lacina, Jeanette & Joe Dennis Scholarship recipients; Martin Douglas Youngs, ACS-SA Scholarship winner; and Ravi Srinivasa and April Nesbit, Robert G. Goodwin Scholarship recipients.



◆ Faculty News and Notes ◆

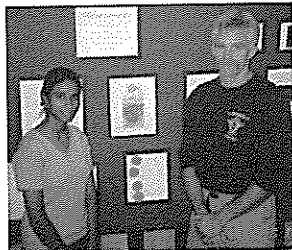
DICK BARTSCH passed the "300 mark" for refereed publications this year. He was awarded a two-year, \$150,000 supplement to his current Department of Energy grant to support a postdoctoral associate synthesizing specialized macrocyclic multidentate ligands for use by researchers in the Chemistry Division at Argonne National Laboratory. **Dr. Bartsch** also received a three-year, \$150,000 grant from The Welch Foundation to continue studies of "Macrocyclic Multidentate Ligands and Their Complexation of Metal Salts".

DARRYL BORNHOP gave invited talks this year at:

- NanoTech2000, Montreux Palace, Montreux-Switzerland
- Institute of Microtechnology, University of Neuchâtel, Neuchâtel-Switzerland
- Pacifichem 2000, Honolulu, Hawaii
- Laboratory Automation 2001, Palm Springs, CA
- BiOS-2001, San Jose, CA
- NASA Glenn Research Center, Cleveland, OH
- University of West Indies, Mona, Jamaica
- The Beckman Laser Institute, University of California, Irvine
- University of Southern California, Los Angeles
- University of Delaware, Newark
- Georgia Institute of Technology, Atlanta

Dr. Bornhop has been appointed to the scientific committee for The SmallTalk Conference and LabAutomation Editorial Board for *J. Biomedical Optics*. He has had the majority of the claims approved on a patent: "Interferometric Detection System and Method", **D.J. Bornhop, D. Markov and K. Swinney**, US Patent Filed July 1999, Claims allowed Nov. 2000. And, these grants were recently funded:

- National Science Foundation: "On-Chip Interferometry", \$360,000, 04/15/01 - 03/31/04.
- National Institutes of Health: "Contrast Enhanced Spectroscopic Detection of Oral Cancer", \$250,000, 6/01/01 - 5/30/03.



Dr. Bornhop and Welch Summer Scholar Sheetal Wadera.

DOMINICK J. CASADONTE was presented with the Piper Professor Award for 2001 (see cover story). He reports on other activities, "On January 8-10, I was the keynote speaker for F.O. Birmingham Memorial Lecture Series in Wiley, TX. I did a series of 10 chemical demonstration shows and lectures entitled 'Why Would You Want to Become a Chemist?' I subsequently did a series of chemistry workshops at Wiley High School May 17 and 18. I was an invited speaker for Pacifichem 2000 in Honolulu, Hawaii (December 18, 2000) and at the University of Coventry (June 5, 2000), where I gave a talk entitled 'Enhanced Degradation of Environmental Contaminants Using Pulsed Ultrasound'.

Dr. Casadonte recently received \$23,000 from Sandia National Labs for a sonochemical synthesis project involving polysilynes. He and **Greg Gellene** received \$44,250 in support from the Dreyfus Foundation to develop materials modeling in the Undergraduate Physical and Inorganic Chemistry Laboratories and phase II development of the Undergraduate Materials Lab.

SANDY DASGUPTA gave these talks during 2000-01:

- Measurement of Trace Atmospheric Gases: How Many Dollars for a Part Per Trillion? Eastern Analytical Symposium, Atlantic City, NJ.
- Semicontinuous Automated Analysis of the Composition of Soluble Gases and Particulate Matter at The USEPA Atlanta Supersite in 1999 and the Houston Supersite in 2000. Pacifichem 2000, Honolulu, HI.
- Use of Liquid Core Waveguides in Environmental Analysis. Light up your Lab with Liquid-filled Optical Fibers!. Pacifichem 2000, Honolulu, HI.
- Field Measurements of Atmospheric Trace Gas and Particle composition. Pittsburgh Conference, New Orleans, LA.
- Affordable Fluorescence and Luminescence Measurements with Liquid Core Waveguides: Principles and Applications. Pittsburgh Conference, New Orleans, LA.

In 2001, **Professor Dasgupta** was the invited speaker for the William J. Probst lecture series at Southern Illinois University. In the immediate past years, the Probst lecturers have included Allen J. Bard, Janet Osteryoung, Ronald Breslow, Fred Basolo, Alfred Bader, and Roald Hoffman.

Dr. Dasgupta also received these new research grants:

- Low wavelength synchronous fluorescence measurements on a chip. DARPA, \$710,000, 9/01/00 - 8/31/04.
- UV Fluorescence/Absorption Microanalysis system. National Science Foundation, \$936,000, 10/01/00 - 9/30/03.
- Large Surface Bio-Chem Decontamination, SBCCOM \$400,000, 10/01/00 - 09/30/01.
- Biofluidic Chips. Bioarray LLC, \$294,000, 10/01/00 - 9/30/03.
- Detection of Chemical and Biological agents, SBCCOM \$400,000, 10/01/00 - 9/30/01.
- Curriculum Development, Micro-machining, Microfluidics and Microsensors. National Science Foundation, \$477,000, 10/01/00 - 9/30/03.
- Philadelphia Field Studies. US Environmental Protection Agency via Man-Tech Environmental, \$41,500 6/01/01 - 12/3/01.
- Basic Research in Ionic Analysis. Dionex Corporation. \$55,560, 7/01/01 - 6/30/02.



Texas Tech Reunion in Japan, Tokyo Garden Palace Hotel, August 11, 2001. Standing L to R: Professor K. Toda (Kumamoto University), Ms. Y. Hisamatsu, Professor H. Tanaka (Tokushima University), Mrs. S. Ray, Mrs. Y. Ishihara, Professor O. Ishihara (Yokohama National University, Adjunct Professor of Electrical Engineering, TTU), Ms. S. Ishihara, Ms. M. Ito, **Prof. P. Dasgupta**, Ms. A. Ito, Prof. T. Okada (Tokyo Institute of Technology), Mrs. H. Okada, Ms. A. Okada, Mrs. Y. Ito, Mrs. J. Toda, Ms. T. Hisamatsu, Sitting L to R: A. and H. Toda, Prof. T. Hayashita (Tohoku University), Prof. K. Ito (Kinki University), Mrs. K. Hisamatsu, Prof. Y. Hisamatsu (Tokyo Inst. of Public Health).

Professors Toda, Tanaka, Okada, Hayashita, Ito and Hisamatsu have all spent time as visiting research scientists in the TTU Chemistry Department.

(faculty news continued on page 11)

Faculty News and Notes continued ...

GREG GELLENE was co-recipient, with **Dominick Casadonte**, of a \$44,250 grant from the Dreyfus Foundation. This spring and summer he gave invited talks at:

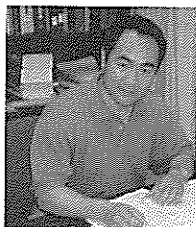
- The Royal Society of Chemistry, Faraday Discussion 118, on Cluster Dynamics, University of Durham, UK
- International Symposium on Isotopomers, Yokohama, Japan

ALLAN HEADLEY was named Outstanding Professor of the Year for 2001 by Alpha Epsilon Delta, the Premedical Honor Society at Tech. An engraved brick in his honor will be placed in the College of Arts and Sciences Memorial Brick Garden.

Dr. Headley currently serves as Associate Dean for Research in the Graduate School. This year, he presented a technical paper, "Properties of Ionic Liquids", at the National Organization of Black Chemists and Chemical Engineers in Baltimore, MD; a seminar, "Analysis of the Properties and Conformation of Amino Acids and Formyl Peptides", at Southwest Missouri State University in Springfield, MO; and chaired a review panel on the Course, Curriculum and Laboratory Improvement Program for The National Science Foundation. He has also recently received a \$135,000 Welch Foundation grant.

BOB HOLWERDA's research currently focuses on transition metal bioavailability in animal science applications and has received new support from Nutreco, the largest European manufacturer of products for the animal science industry. He has recently published his first two contributions to the *Journal of Animal Science*.

GUIGEN LI gave a talk entitled "New Electrophilic Addition Reactions of Olefins" at the NSF Workshop (July 13-16, 2001) in Colorado. He was one of 14 junior organic faculty from America and Canada selected for this annual meeting.



DAVID KNAFF recently served as a panelist on the Department of Energy's Basic Biological Sciences Program's annual national review of grant proposals and reports that he "(of all things) chaired a search here at Texas Tech to fill the Qualia Distinguished Chair in Spanish Literature".

Dr. Knaff has traveled quite a bit this year, making symposium presentations at:

- The International Conference on Photosynthetic Prokaryotes in Barcelona, Spain
- The International Conference on Thioredoxin and Related Proteins in Smolenice, Slovak Republic
- The Western Regional Photosynthesis Conference in Asilomar, California.

He has also presented seminars at:

- Arizona State University
- The University of Pennsylvania
- The University of Indiana

JOHN N. MARX was presented with the Silver Beaver award for 2001 by the South Plains Council of the Boy Scouts of America, for distinguished service to boyhood. He is an Assistant Scoutmaster with Troop 157 in Lubbock.

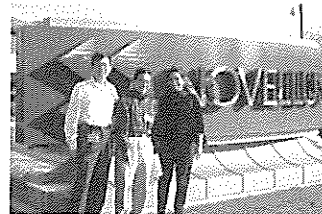
JORGE MORALES presented a talk entitled "'Classical' Charge-Transfer Models For Hybrid Quantum/Classical Dynamics: A Wavefunction Approach" at the American Chemical Society National Meeting in Chicago, August 2001.

DAVID NES has received two grants to develop drugs targeted to enzymes in ergosterol synthesis of opportunistic pathogens and to understand the structure, function, and mechanistic enzymology of these enzymes. The four-year, \$810,000 grant from the National Institutes of Health is for "Enzyme Targets in Sterol Synthesis of Opportunistic Pathogens." The three-year, \$300,000 grant from the National Science Foundation is for "Enzymatic C-Methylation Reactions in Phytosterol Biosynthesis." **Dr. Nes** is also Editor-in-Chief for the monograph series *Advances in Plant Biochemistry*.

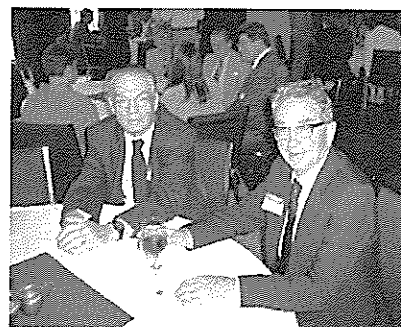
BILL POIRIER has received a Welch grant of \$150,000 for 2001-04 and an ACS-PRF Type G Research Grant of \$25,000 for 2001-03. In the summer of 2000, he received the First Place Award for Best Poster Presentation at the Atomic and Molecular Interactions Gordon Research Conference.

ED QUITEVIS presented a poster entitled "Femtosecond Optical Kerr Effect Studies of Ionic Liquids" at the 2001 Gordon Conference on the Chemistry and Physics of Liquids at the Holderness School in Plymouth, NH. He has received a \$7,200 supplemental grant from the Texas Higher Education Coordinating Board to support Mrs. Rubeth Griffing, a teacher from O'Donnell High School, for eight weeks in Summer 2001. She will work on an ARP project entitled "Vibrational Dynamics of Microconfined Liquids".

Dr. Quitevis is pictured here with his former students **Miin-Liang Horng**, PhD 1992, (left) and **Archita Sengupta**, MS 1996, (right), who work for Novellus Systems in San Jose, CA.



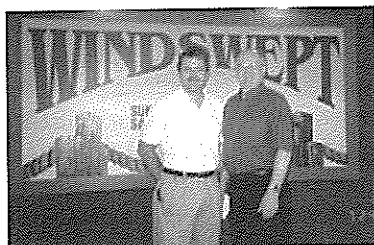
HENRY SHINE writes from England that he attended the 12th European Symposium on Organic Chemistry (ESOC 12) in Groningen, Holland, July 13-18 and presented the results of some of his research with Dr. Ding Quan Qian. On July 6, he attended the symposium in honour of the retirement of Prof. James Utley from Queen Mary College, University of London.



Professor **Henry Shine** (right) visits with Professor Emeritus **Joe Adamcik** at the ACS Awards Banquet in April.

◆ **Products in High Yield** ◆
Alumni News

DAVID A. BABB (PhD Bartsch 1985) has a new position as Technical Leader in the Polyurethanes R&D Division of The Dow Chemical Company in Freeport, Texas.



David Babb and Chairman Dick Bartsch at a favorite restaurant in Freeport, Texas.

KELIA ALLEN BALLOU (BS 1972) writes: "We home-schooled our children all the way. After getting associate degrees at Florida College, our son and daughter are now at UT Austin. For several years, I have taught a home-school science lab, including chemistry. I also teach adult and children Bible classes and am a volunteer in both Boy Scouts and Girl Scouts. I have great memories of the Tech chemistry department. P.S. My mother took chemistry from **Dr. Dennis** in the early '40's. She got a D."



Kelia Ballou (left) with her husband Troxel (right), son Kennon, and daughter Marla.

JIMMIE W. BRASCH (BS 1957, MS Rekers 1959) is the owner of J B Labs in Columbus, Ohio. He was in Lubbock recently to attend his 50th reunion at Levelland High School.

LARRY D. BRATTON (MS Bartsch 1989) is a Scientist with Pfizer, Inc. in Ann Arbor, Michigan.

ANTIONETTE BURSE (BS 1991) is a Counselor with the Texas Tech Career Center in Lubbock.

DENISE BUTLER (BS 1999) is a Polyurethane Thermal Method Specialist for The Dow Chemical Company in Freeport, Texas.

MARTIN (MARTY) J. CAMPBELL (PhD Bartsch 1999) has accepted a position as

Assistant Professor in the Department of Chemistry at Henderson State University in Arkadelphia, Arkansas.

C. VICTOR CASON (MS Bartsch 1986) is a Senior Project Manager for GZA GeoEnvironmental, Inc. in Dallas.

CHRISTIE L. CHILDERS (MS Korzeniewski 1999) is a formulation chemist and Technical Director for Continental Products of Texas, in Odessa. They sell products designed for corrosion inhibition, scale inhibition and biocides for pipelines, cooling towers, boilers, etc.

BONG RAE CHO (PhD Bartsch 1980) is Professor in the Department of Chemistry at Korea University in Seoul, South Korea.

JAMES L. COLLIER (MS Bartsch 1996) is a Research Associate with Roche Bioscience in Palo Alto, California.

CHARLES L. (LANCE) COWEY (BS 1999) is a medical student at UTMB in Galveston, Texas.

LEONARD (LEN) CRIBBS (PhD Mills 1984) is a Research Scientist in the R&D Group of Equistar Chemicals, LP in Cincinnati, OH working on new product development in flexible packaging. **Len** and his wife **Lorie** have lived in Cincinnati since being transferred from Houston in 1998. He has been involved in catalyst research, process research, commercial business development, polymer development, and new product development. What a winding road from the high vacuum lines of **Prof. Mills'** labs!

ALAN P. CROFT (PhD Bartsch 1983) is a R&D Leader with The Dow Chemical Company in Freeport, Texas.

DANIEL M. DABBS (BS 1977) has been employed at Princeton University since 1992 as a Research Scientist in Chemical Engineering and the Princeton Materials Institute.

JAMES HAROLD DENT (BS 1953) writes: "After serving in the Korean War, I attended seminary and was ordained – and served in the chaplaincy and pastorate for 40+ years. I have fond memories of **Dean Goodwin (A&S)** and **Margaret Stuart** of the late 40's to early 50's!! (I also learned much from **Joe Dennis!**) I still maintain an enlightened interest in science and technology, enriched and broadened by the brief four years at Tech!!"

NAZAR ELKARIM (PhD Bartsch 1999) is an Analytical Chemist with Northern Lipids, Inc. in Vancouver, BC in Canada.

EVELYNE (BETHLANEY) GENTRY (PhD Bartsch 1994) is a Project Manager for Science Applications International Corporation in San Antonio. **Beth** and her husband **Geoff** are the proud parents of **Ryan Andrew Gentry**, born May 4, 2001.

JOHNNY L. HALLMAN (MS Bartsch 1988, PhD Bartsch 1991) is a Process Quality Engineer with Samsung Austin Semiconductor.

ROBERT E. HANES (BS 1994, PhD Bartsch 1999) is a Postdoctoral Fellow at the University of Texas in Austin.

MATTHEW G. HANKINS (PhD Bartsch 1994) is now a Senior Member of the Technical Staff at Sandia National Laboratory in Albuquerque, NM.

GWI SUK HEO (PhD Bartsch 1983) is a Principal Research Chemist at the Korea Research Institute of Standards and Science in Taejeon, South Korea.

NEWTON P. HILLIARD, JR. (PhD Shaw 1995) is Assistant Professor of Chemistry at Eastern New Mexico University in Portales, New Mexico.

SHERYL N. IVY (BA 1993, MS Bartsch 1996) has been promoted to Scientific Fellow II with ChemRX in Tucson, Arizona.

YOUNGCHAN JANG (PhD Bartsch 1995) is a Researcher with Korea Kumho Petrochemical Company, Ltd. in Taejeon, South Korea.

RANDY JOHNSON (PhD Holwerda 1984) has been promoted to full professor and is chair of the physical science department at Union College in Jackson, Tennessee.

RUSSELL J. JOHNSON (MS Bartsch 1999) is a Scientific Fellow II with ChemRx in Tucson, Arizona.

PEDRO (TINO) N. JURI (PhD Bartsch 1979) is Vice President for Quality Assurance and Compliance for McNeil Consumer Healthcare, a Johnson & Johnson Company in Fort Washington, Pennsylvania.

(continued on page 13)

Alumni News Continued ...

SANG IHN KANG (PhD Bartsch 1983) is a Senior Scientist with Cognis Corporation in Cincinnati, Ohio.

DAWN KARDASH-RICHARDSON (PhD Korzeniewski 2000) is currently a NIH postdoctoral fellow working with Dr. Terri Wood at Penn State University College of Medicine. She is involved with analytical biochemistry and molecular biology, studying the role of the insulin-like growth factor type I receptor (IGF-IR) in mammary cells.

JONG SEUNG KIM (PhD Bartsch 1993) was promoted to Associate Professor of Chemistry at Konyang University in Nonsan, South Korea. He was an invited speaker at Calixarene 2001 in Twente, The Netherlands, and at the International Symposium on Macrocyclic Chemistry in Kyushu, Japan.

JOHN M. KNOBELOCH (MS Bartsch 1992) is an Organic Chemist with Eli Lilly & Company in Indianapolis, Indiana.

JONG CHAN LEE (PhD Bartsch 1992) is Associate Professor in the Department of Chemistry of Chung-Ang University in Seoul, South Korea.

YUNG LIU (PhD Bartsch 1983) is the Transfer Project Manager for Texas Instruments in Dallas.

JIANPING LU (PhD Bartsch 1997) is now a Software Engineer for Multi-Media Communications, Inc.

ZUANG-CONG (GEORGE) LU (MS Bartsch 1990) is Vice President for Great Western Inorganics in Arvada, Colorado.

DWIGHT LUNDBERG (BS 1961, PhD Shoppee 1976) is a Programmer for Poka Lambro Telephone Coop in Tahoka, Texas.

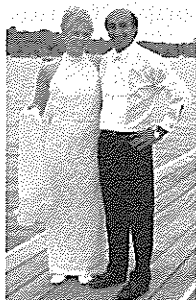
HARVEY E. MALLORY (BS 1961) is retired and living in Georgetown, Texas. He reports that it's "good to be back in Texas".

ANIL MANGLA (PhD Nes 1998) works for Medtox, a comprehensive toxicology company in St. Paul, Minnesota. After leaving TTU, he took a postdoctoral position at the University of Minnesota with Dr Forsyth, studying the involvement of the nucleocapsid Protein of HIV-1 and targeting this chaperone as a candidate for anti-virals.

Through this research, he began working with AIDS patients, drug interactions and medications. Congressman Arlen Ardahl, former Secretary of State of Minnesota, nominated **Anil** to sit on the Board of Directors for the United Nations Association in Minnesota as a Health Advocate.

Anil writes, "Since then I have been to many conferences and was invited to attend the General Assembly in New York, a special session on AIDS. I have also been invited to meet with Canadian government officials on HIV issues in Canada. I am a certified community health educator and, in June, was nominated for the 'Outstanding Young Minnesotan of the Year' award. I also chair the Global Health and Infectious Disease Committee for the UN."

Anil was recently married, and has begun work on a MPH degree in epidemiology to help the UN in the battle to fight HIV AIDS. He and his wife, **Patricia**, are pictured here.



NANCY MCGUIRE (BS 1978) is Associate Editor for the ACS magazine publication *Chemical Innovation* and works at the ACS National Headquarters in Washington, DC.

HOWARD MERKEN (PhD Marx 1996) writes that after "graduation" he and his wife, Casandra, went to the University of Alaska Fairbanks to teach. **Howard** then did a thirty-one month postdoc at the Food Composition Lab at the USDA's Beltsville Agricultural Research Center near Washington, D.C. Now the **Merkens** are in Illinois where **Howard** lectured freshman chemistry at Southern Illinois University in Carbondale during the Spring 2001 semester.

WILLIAM THAD MILLER (BA 1962) is the principal plastic surgeon at Texas Tech University Health Science Center at El Paso and the President of the El Paso Society of Plastic Surgeons.

MELISSA HISEY MISKELL (BA 1984) has just finished an OB/Gyn residency at TTUHSC and now lives in New Braunfels, Texas. She received her DO degree from the University of North Texas Health Sciences Center in 1996.

BRAJ M. MISRA (Postdoc 1988 Bartsch) writes that he heads the Desalination Division at the Bhabha Atomic Research Centre in Mumbai, India.



SHANDA O'BRIANT (BS 1998) married Jeff Young on March 3, 2000.

AKIRA ROHKE (Postdoc Bartsch 1992-93) has been promoted to Professor in the Department of Applied Chemistry of Kagoshima University in Japan.

CHUNKYUNG PARK (PhD Bartsch 2001) is a Postdoctoral Associate in the College of Pharmacy at the University of Minnesota in Minneapolis.

MICHAEL J. PUGIA (PhD Bartsch 1986) is the Senior Manager for New Products of the Diagnostic Business Group of Bayer Corporation in Elkhart, Indiana.

HONG QIN (MS Knaff 1994) has become a senior research technician at Bayer's Central Research Laboratory in West Haven, Connecticut.

RUSS REDDELL (BA 1994) is a dentist and has accepted a position with Denkor Den al Group in Albany, Oregon.

LEAH (BITALAC) REIGLE (MS Bartsch 1991) is a Staff Chemist for Merck and Company in Rahway, New Jersey.

THOMAS W. ROBISON (MS Bartsch 1987, PhD Bartsch 1991) is a Technical Staff Member at Los Alamos National Laboratory.

WILLIAM SHUMWAY (PhD Birney 2001) currently works for Halliburton Energy Systems in Houston. He does new product development in the baroid drilling fluids research division.

KIMBERLY JO SMITH (BS 1992, MS Metz 1994) received her PhD (Inorganic and Chem Ed) in 2000 from Purdue and joined the University of Northern Colorado faculty. From 1994-1995, she studied at the St. Petersburg Polytechnical Institute in Russia.

(continued on page 14)

Alumni News Continued ...

RANDY SNYDER (BS 1981) attended dental school from 1989-1993, then did his residency in endodontics. He is now in private practice in San Angelo, Texas.

BYUNGKI SON (PhD Bartsch 1985) is Director of the Dyestuffs Research Center for LG Chemical Ltd. in Ulju-Gun, South Korea.

STEPHEN D. STARNES (PhD Headley 1998) was recently appointed Assistant Professor in the Department of Chemistry and Biochemistry, New Mexico State University.

CHRISTOPHER M. STETSON (PhD Bartsch 1995) is a Research Scientist in the Diagnostics Division of Bayer Corporation in East Walpole, Massachusetts.

LOUIS E. STEWART (MS Bartsch 1984) is the Minister for Christian Education at the Mt. Olive Missionary Baptist Church in Fort Worth.

KELLY SULLIVAN (PhD Gellene 1994) writes she is "Manager of the Office of Fellowship Programs at Pacific Northwest National Laboratory. This is a new office under PNNL's Office of Science where all educational programs are housed. Everyone (high school students, summer undergrads, post-docs, faculty collaborators) who comes to PNNL on a temporary appointment will come through my office. I am responsible for making sure we get the best and most diverse possible applicant pool to further the educational and scientific missions of PNNL."

JACOB URQUIDI (MS Robinson 2000, PhD Redington 2001) is a postdoctoral researcher at Argonne National Laboratory, working on the GLAD (Glass Liquid and Amorphous Materials Diffractometer).

MARTY UTTERBACK (PhD Bartsch 1992) is the Commercial Development Manager for Uniqema in Sugar Land, Texas.

WLADYSŁAW WALKOWIAK (Postdoc Bartsch 1984-85, 1989, 1996-97) has been promoted to Professor at the Wroclaw Technical University in Poland.

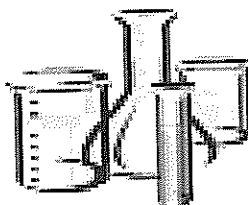
DARCEY WAYMENT (PhD Casadonte 1997) has taken a tenure track position on the chemistry faculty at Our Lady of the Lake College in San Antonio.

IL-WOO YANG (MS Bartsch 1979, PhD Bartsch 1981) is Professor of Chemistry and Dean of the Natural Science Division at the Korea Military Academy.

QIAN (ANDY) ZHANG (MS Bartsch 1999) is a Senior Research Assistant with Pharmacoepia, Inc. in Monmouth Junction, New Jersey.

QIANG (SHAWN) ZHAO (PhD Bartsch 1995) is a Staff Applications Engineer for the Film & Surface Technology Division of KLA-Tencor Corporation in San Jose, California.

QINGXIANG (ELLEN) ZHAO (PhD Bartsch 2001) has joined the R. W. Johnson Pharmaceutical Research Institute in Raritan, New Jersey as a Research Associate.



✦ Letters ✦

Excerpts from an email sent to **Dr. Henry Shine** from a former student:

I was an organic chemistry student of yours in 1980-82. Just wanted to tell you that organic chemistry was one of my favorite classes at Tech. I always read my organic textbook with a British accent in my head! Thanks for making the class fun -- hope teaching is still fun for you.

I made "A's" in 335 and 336. I was a Chemical Engineering major, receiving my BS in 1983. I went on to graduate school at Arizona State University, was there for 2 years, and then went to work at Eastman Kodak Company in Rochester, NY, with my husband (also a ChE from ASU). I finally earned my MS in Chemical Engineering in 1987.

Congratulations on 45 years of teaching! I'm pleased that research is satisfying to you after so much time with many rambunctious students.

Sincerely, **Terry Lokken Moses**

✦ Transition States ✦ Deaths

MARY SUFALL, former staff member, died February 3, 2001. Mary was born August 24, 1923 in Dallas, graduated from Idalou High School in 1940, and earned a B.A. in Spanish from Texas Tech in 1944. From 1944-1946, she served as a WAVE in the U.S. Navy and was a member of the U.S. Navy Reserves for nine years.



Mary taught school in Idalou from 1947-48 and in O'Donnell from 1948-51. She served as entertainment director for the U.S. Air Force at Reese Air Force Base from 1952-1954. She then moved

to Salt Lake City and worked at the University of Utah until 1961, when she moved back to Lubbock and began working at Texas Tech as the Chemistry Chairman's secretary. She retired in 1988. She was a member of the Heart of the Plains Kennel Club. Survivors include three nieces, two nephews and two great-nieces. Memorial contributions may be made to the department (see page 19.)

Current staff member WILLIAM H. GOOD died April 27, 2001. Bill was born November 5, 1957 in Odessa, Texas. He married Ellen Todd on May 11, 1984. He had been an Analytical Instrumentation Specialist in the Department of Chemistry and Biochemistry at Texas Tech since 1997. Survivors include his wife, Ellen Todd-Good; a son, Alex of Lubbock; his parents, William D. and Doris Jean of Geary, Oklahoma; a sister Dee Dee of Mandeville, Louisiana; and two brothers, Terry and David, both of Odessa.

Bill was the IBM-PC expert in the department and maintained our web site. In the fall of 1998, he underwent a successful lung transplant operation. He is greatly missed.

★ Transition States ★ Graduations

Bachelor of Arts in Chemistry

August 2000

Lady Ashley Groves
Sneha Surendra Sharma

December 2000

Kyra Ann Lain
May 2001

Matthew Eugene Powell
August 2001

Debra Michelle Marks
Kyle Wayne Caldwell

Bachelor of Science in Chemistry

August 2000

Becky Rene Coats
December 2000

Cary JaneAnne Bell
August 2001
Richard Walulu

Bachelor of Arts in Biochemistry

December 2000

Michelle Marie Morales
Michael David Poynor
Lawrence Anthony Shaw
May 2001

Stephanie Christine Burden
Tracey Diane Gayle
Heidi Gerstenschlager
Stephen Cyril Hagedorn
Michelle Magallanez
Melissa Michelle Sweeney
August 2001
Ryan Chad Cowan

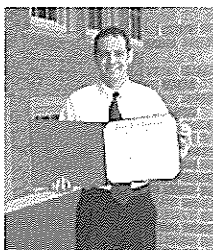
Bachelor of Science in Biochemistry

August 2000

Hussam Hisham Shaheen
December 2000

Matthew Thomas Dyson
May 2001

Nancy Lea Layland
Darla Elizabeth Smiley
Harley Brandon Wayne Stokes
Martin Ziska
August 2001
Robert Kent Bogle
Timothy Gray Johnson
Steven Aric Smith



Former ACS-SA
President **Martin
Ziska** proudly
displays his TTU
diploma.

Master's Degrees in Chemistry

August 2000

John Griffin (Analytical-Bornhop)
*Synthesis and Characterization of
Lanthanide Chelate for Biomedical
Imaging*

Jacob Urquidi (Physical-Robinson)
*The Structure of Liquid Water Explained
by a Two-State Model*

May 2001

Allen Lee Dennis (Biochemistry-Nes)
*Studies on the Purification and Charac-
terization of Sterol Methyl Transferase*

Ju Gao (Organic-Li)
*Titanium (IV) Halide Mediated Baylis-
Hillman and Related Reactions*

Qingxiang (Ellen) Zhao (Organic-Bartsch)
*Synthesis of New Ligands for
Metal Ion Complexation*

August 2001

Hui Hu (Organic-Bartsch)
*Synthesis of Proton-ionizable Lariat
Ethers*

Evgeniy Vasiljevich Kobzar
(Analytical-Bartsch)
*Metal Ion Complexation by Lariat Ethers
with Partially Fluorinated Side Arms*

Zhuhua Qi (Analytical-Shelly)
*Bonded Phase High Performance Liquid
Chromatography of Spore Mycotoxins*

Justin Wade Westfall (Organic-Marx)
Formal Synthesis of Aplysistatin

Ph.D. Degrees in Chemistry

August 2000

Bijan Amiri-Eliasi (Analytical-Bartsch)
*Metal Ion Separations by Proton-
Ionizable Macrocyclic and Acyclic
Polyether Ligands*

Kang Tian (Analytical-Dasgupta)
*Industrial Applications of Flow Injection
Analysis*

December 2000

Dawn Jo-elle Kardash Richardson
(Analytical-Korzeniewski)
*An Electrochemical and Spectroscopic
Investigation into Carbon Monoxide
Surface Poisoning*

Kelly Ann Swinney (Analytical-Bornhop)
*An On-Chip Universal Detector Based on
Backscattering Interferometry*

May 2001

Thomas Scott Kephart
(Analytical-Dasgupta)
*Explorations in Reverse Phase Liquid
Chromatography*

Julie Ann Marshall (Biochemistry-Nes)
*Studies on the Enzymology of Sterol
Methyl Transferase from *Saccharomyces
cerevisiae**

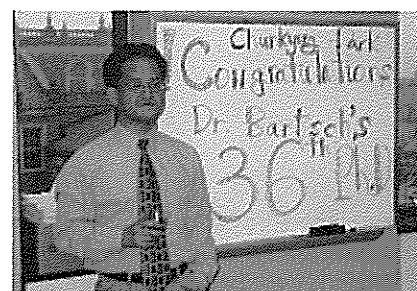
Chunkyung Park (Organic-Bartsch)
*Synthesis of Proton-Ionizable
Lariat Ethers and Calix[4]arenes*

William Walter Shumway
(Organic-Birney)
*Diastereoselectivity and Reactivity
of Oxoketene and Imidoyleketene: Investi-
gating the Pseudopericyclic Reaction
Mechanism*

August 2001

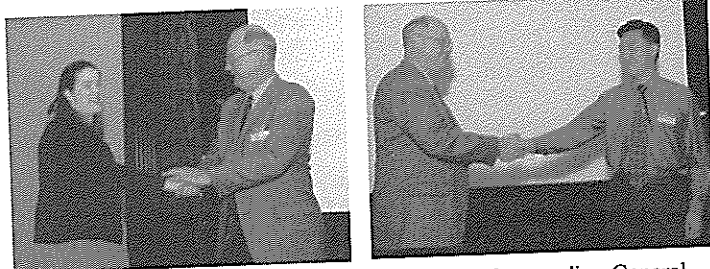
Steven Richard Tomlinson
(Biochemistry-Harman)
cAMP-Mediated Effects on CRP Subunit

Jacob Urquidi (Physical-Redington)
Theoretical Studies on Liquid Water

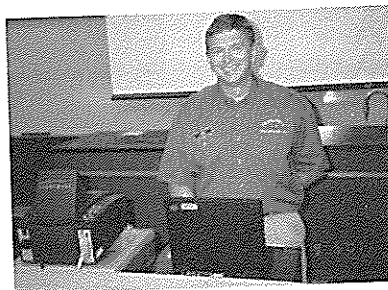


Congratulations to Dr. Chunkyung Park,
Dr. Bartsch's 36th Ph.D.

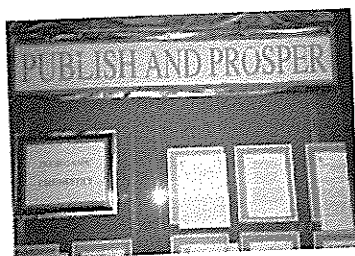
★ PHOTOCHEMISTRY ★



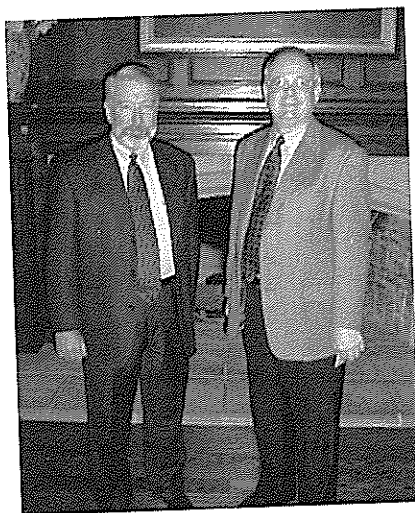
Chairman **Richard Bartsch** congratulates the Outstanding General Chemistry TAs, **JaneAnne Bell** (left, Spring 2001) and **Zhenrong Li** (right, Fall 2000).



Philip J. Carlberg from The Dow Chemical Company in Freeport, Texas gave tips to students on resume writing and interviewing.



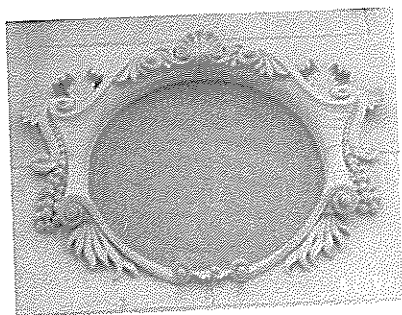
Instead of "Publish or Perish", we have a different positive approach.



Ron Kendall (left), ACS Awards Banquet speaker, and Chairman **Dick Bartsch**.



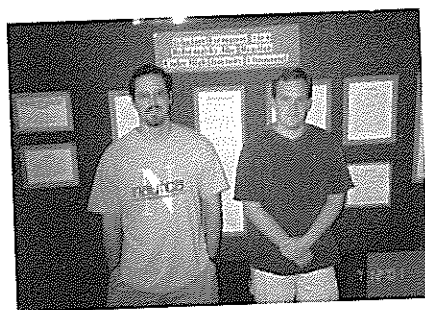
The north side of the Chemistry Building received a landscaping update this spring.



Can you translate the Latin phrase engraved in this medallion located on the east side of the Chemistry Building? It reads, "Visita interiora terrae rectificando invenies occultum lapidem".



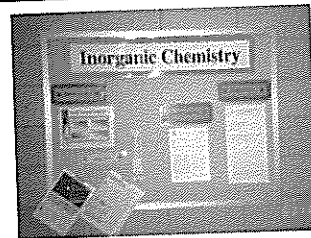
Other sites around campus have been beautified, including the Memorial Circle.



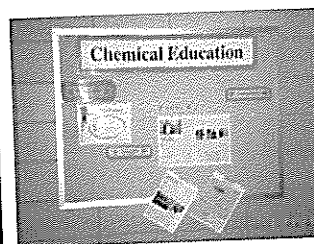
Graduate student **Nathan Ross** (left) and Welch Summer Scholar **Bobbie MacGregor** at the WSSP poster session.



During the Annual Awards Banquet, Professor **John Marx** (left) shakes the hand of Bill Lees, ACS Outstanding High School Teacher for 2000. Bill teaches at Lubbock's Monterey High.

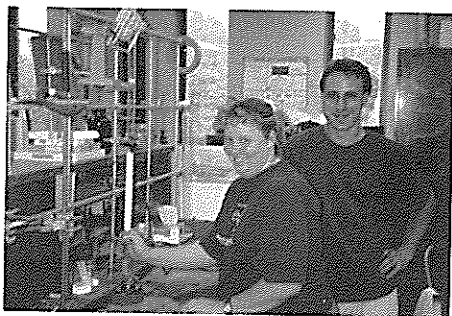


New bulletin boards on the first floor.



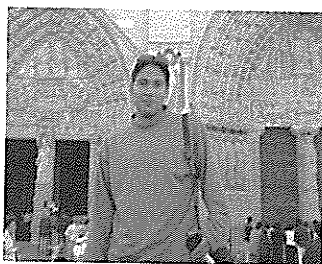


A memorial display of the last 100+ publications of Welch Professor **G. Wilse Robinson** fills the 2nd floor display case. Professor Robinson died in September 2000.



Mrs. Sonja Crowell, a chemistry teacher at Lubbock High School, works with graduate student **Sergei Dzyuba** to synthesize ionic liquids as part of a project supported by the Texas Higher Education Coordinating Board - Advanced Research Project.

★ Matthew Looney ★ Studies in France



TTU chemistry student **Matthew Looney** in front of Notre Dame Cathedral in Paris.

by Matthew Looney

I received an invitation to study and do research under the guidance of former Texas Tech organic chemistry professor **Dr. Stephane Quideau** of the Universite of Bordeaux, in southwestern France. The research I performed, from February 20, 2001 until July 20, 2001, involved the two-electron oxidation of phenolic compounds for use in the synthesis of natural products. I developed methodologies and performed experimental conditions on model compounds. We then applied the methodologies to natural targets, including puerphenone-related sponge shikimate-sesquiterpenoids, lycorine-type Amaryllidaceae alkaloids, as well as other terpenoids, alkaloids, angucycline antibiotics, and polyphenols.

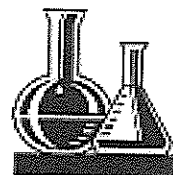
The time I spent in France provided me with an invaluable education, from both personal and professional standpoints; it gave me the opportunity to be a foreigner working and studying in a place I did not call home.

★ Advising ★ Update

Bob Holwerda, Undergraduate Advisor, reports that we currently have 117 biochemistry majors and 64 chemistry majors. New procedures used in advising are the TTU online registration system (students can register over the Internet) and weekly emails to our majors.

Greg Gellene, Graduate Advisor, reports the department currently has 24 MS students and 52 Ph.D. students. Sixteen new graduate students entered the department in Fall 2000, six in Spring 2001 and 18 in Fall 2001.

Dr. Gellene also reports the prestigious Chancellor's Fellowship was awarded to **Henry Charles Manning** in Fall 2000 and to **JaneAnne Bell** in Fall 2001. **Christopher Truitt** continues his Ph.D. studies in his third year as a Chancellors' Fellow. In addition, three new Fall 2001 students received Research Assistantships from the Graduate School -- **JaneAnne Bell**, **Dianjun Chen**, and **Kyu Mee Kim**.



★ Gift ★ Acknowledgements

We express our appreciation for these gifts made to the Welch Chair Endowment Matching Fund:

\$1500 - \$5000

D. G. Bellah

\$50 - \$500

J. D. Cheng
Candice Rohr



Dr. Sandy Dasgupta (in center with crossed arms) was inducted as an honorary member of the Korean Society for Environmental Analysis and presented with a bell weighing 15 pounds.

★ **Dear Family, We Are Fine, How are You?** ★

Please let us hear from you, whether it be a quick "hello", a lengthy epistle, or a cool note to correct our errors about you! It would be a tremendous help to us if you could update our information about you and that, in turn, would help you be better informed about what's going on here at Tech. Please fill out the form below and mail it to *the TestTube* editor. An interactive online form is now available, at <http://www.ttu.edu/~chem/AlumniForm.html>. Or, send Kathy.Jones@ttu.edu an e-mail message with this information (and maybe a photo or two for the next issue of *the TestTube*).

Information Update for TTU Chemistry and Biochemistry Alumni & Friends File

Name _____
Last First Middle Maiden

TTU Degree(s): B.A. B.S. M.S. Ph.D. Year(s) of Degree(s): _____

Research Advisor: _____
(Please provide for graduate and postdoc positions; if not TTU, please give school name)

Former Employee: Faculty Staff Postdoc Years Employed: _____

Address: _____

_____ Check here if this address is different from the one printed on your *TestTube* label .

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Comments, Corrections, News (photos are welcome!):

Please return this page to: Kathy Jones, Texas Tech University, Department of Chemistry and Biochemistry,
Box 41061, Lubbock TX 79409-1061
OR use the online form: <http://www.ttu.edu/~chem/AlumniForm.html>
OR e-mail info to: Kathy.Jones@ttu.edu
OR Fax this page to: 1-806-742-1289

◆ **The Coinage Metals** ◆

Our department is, now more than ever, dependent upon non-state sources of funding in the form of endowments and personal donations. The continued success of and improvement in our department depends upon the establishment of a stable endowment-based foundation. Would you please consider helping us in this critical endeavor? Contributions in any amount would be welcome. As you can see in this issue of *the TestTube*, we are well on our way to establishing a class of students who are second to none in the country. Please consider helping the Department of Chemistry and Biochemistry at TTU as it strives to be one of the premier teaching and research departments in the United States and the world.

Please return this page with your donation.

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*Please make checks payable to the Department of Chemistry and Biochemistry - TTU
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- ☐ Welch Chair Endowment Matching Fund (The Welch Challenge)
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☐ \$1000 ☐ \$500 ☐ \$250 ☐ \$100 ☐ Other _____

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