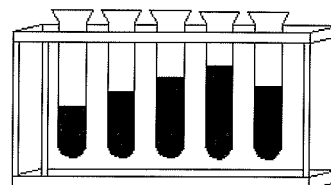


the Test Tube

Newsletter 1999 (#16)



The Department of Chemistry and Biochemistry

Texas Tech University

Lubbock, Tx

Editor: Dominick J. Casadonte, Jr..

The Welch Challenge

A challenge grant from the Robert A. Welch Foundation is prompting Texas Tech's Department of Chemistry and Biochemistry to search for matching funds to enhance the \$1 million Welch Chair in Chemistry.

According to Todd Rasberry, the Senior Development Officer for the College of Arts and Sciences, the Welch Foundation has been a leader in supporting chemistry research in Texas. The Foundation has also demonstrated strong support for Texas Tech through the years. Texas Tech was the first recipient of a \$1 million Welch Chair in Chemistry, established

to \$2 million. This decision is retroactive, which means that in order to bring Texas Tech's Welch Chair in Chemistry to the new mark, the Foundation has issued a challenge grant of \$500,000, bringing the total amount funded to \$1.5 million. Texas Tech must now rely on gifts totaling \$500,000 by May 31 of 2000 to secure the endowment for the Welch Chair."

"This is a timely opportunity for friends and supporters to get involved in this matching challenge and be recognized by having a laboratory, classroom, or office named for them," said Rasberry. "It's also a wonderful way to honor parents or to link a corporate identity to the Department of Chemistry and Biochemistry at Texas Tech University. Permanent placards will be placed within a laboratory, classroom, or office to honor the benefactor or loved one in recognition of these gifts," said Rasberry.

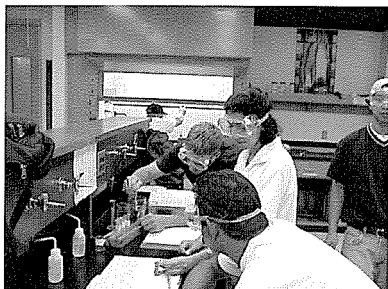
"Endowed Chairs are very important to the mission of the College," said Dean Jane Winer. "These chairs allow us to support the research activities of the faculty who, in turn, expose our students to cutting edge research through the teaching process.

We want our students to learn from the best, and endowed chairs help us to recruit and retain our best."

For more information on how to support this matching challenge grant,

Naming Levels For Welch Challenge

Faculty Office	\$15,000
General Chemistry Balance Room	\$20,000
Small-Large Research Laboratory	\$25-50,000
Very Large Research Lab or General Chemistry/Organic Teaching Lab	\$75-100,000
Small-Large (75-200 Seat) Lecture Room	\$75-150,000
Chemistry Building Foyer	\$300,000
Very Large (300+ Seat) Lecture Room	\$500,000

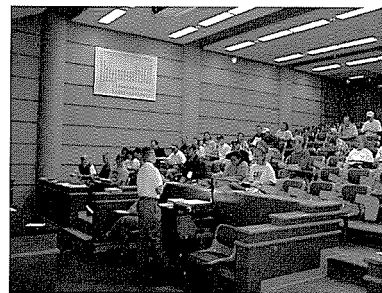


Name This Lab: A donation to the Welch challenge grant is a great way to link a corporate identity to the Department of Chemistry and Biochemistry at Texas Tech.

at the university in July 1965. Professor G. Wilse Robinson is the current holder of the Welch Chair.

"Just recently," said Rasberry, "The Welch Foundation has determined that all of its endowed chairs will be raised

name classrooms, laboratories, or offices, or to learn about other ways to donate to the Department of Chemistry and Biochemistry, contact Todd Rasberry by phone at (806) 742-3833 or by e-mail at todd.rasberry@ttu.edu.



A Class Act: Participating in the Welch matching challenge is a wonderful way to be recognized or to honor parents.

The Chair Conformation by Richard Bartsch

After an almost 10-year absence, I became Chair of the Department of Chemistry and Biochemistry once again on June 1, 1999. My goal is to bring the teaching, research, and service activities of this department to even higher levels. I also envision a greater role for graduates and other friends of this department in helping us reach these objectives.

The arrival of our Varian 500 MHz NMR spectrometer is imminent! It was purchased with funds from a National Science Foundation equipment grant with matching from Texas Tech University. Part of the package is an upgrade for the Varian 300 MHz NMR spectrometer donated by Texaco, so we will soon have two state-of-the-art high field NMR instruments.

We are also excited about two new faculty members. Dr. Paul Pare, a biochemist who studies plant defenses against insects, and Dr. Gayle Nicoll, a specialist in chemical education, will join us this fall.

Finally, the Welch Foundation is providing us with an extraordinary opportunity. As you know, the Welch Foundation plays a pivotal role in our research activities. The Foundation established the Welch Chair in Chemistry as the first endowed chair at Texas Tech University. The research programs of many faculty members (currently 19) are supported by Welch grants that provide stipends for undergraduate, graduate, and postdoctoral co-workers.

With a \$500,000 Challenge Grant, the Foundation is making it possible for us to increase the Welch Chair endowment from the current one million to two million dollars — if we can raise a one-for-one match from other sources by May 31, 2000. We need your help to accomplish this goal!

One approach that we are using is to name classrooms, offices, and laboratories in the Chemistry Building in recognition of sizeable donations from individuals, companies, foundations, etc. I seek your assistance in identifying contacts for such donations. If you have suggestions for ways to reach our goal, please contact me by phone at (806) 742-3067 or e-mail at rabartsch@ttu.edu. We need all the help that we can get! Gifts for the challenge grant are tax-deductible to the extent allowed the donor by law. I hope to be able to announce in the next edition of the TestTube that we successfully met the Welch Challenge.

What's Been Going On? Staff Role Call

Each year we have to say goodbye to wonderful staff members who move on to other challenges. This year Julie Bednarz (Secretary II), John Evans (Business Manager), Dahlia Guerra (Secretary III), Jimmie Hall (Manager, Chemistry Building Operations), and Kathie Marshall (Clerical Specialist II) have all bid adieu. But with all leavings there are new arrivals. So, in continuing with our practice of keeping you up-to-date in case you happen to be in the neighborhood and want to stop by armed with the first names of all the staff, here is the current staff list for the year:

Justo Adame, Stockroom Clerk
Steven C. Bain, Business Manager
Martha Jane Bradley, Secretary II
Kelly D. Diaz, Secretary II
Jennifer Dunfield, Administrative Secretary

Bill Good, Analytical Specialist
James Hildebrand, Building Manager
Duane C. Hindes, Technician IV
Priscilla Jones, Clerical Specialist II
Melissa Martinez, Clerical Specialist III
David Wayne Purkiss,
Spectroscopy Technologist
LaQuetta Purkiss, Prep Lab Chemist
Noah H. Solis, Technician III
Cheryl L. Starkey, Clerical Specialist III
Jim Stephens, Glass Shop Supervisor

Kenneth W. Taylor, Stockroom Clerk
Jerry A. Walton, Technician III

Jimmy Hall Retires after Forty One Years of Service

On January 23, 1999 a very special reception was held in honor of Jimmy Hall's impending retirement on January 31. The reception was held at the home of Dr. D. Max Roundhill. Many of the staff who have served with Jimmy throughout his forty one years in the Chemistry Department were in attendance at the event as well as the current faculty and staff. The department, in honor of his years of faithful service to the department, presented Jimmy with funds to fully equip a shop at home. We are sure that his wife Oneta will be the beneficiary of Jimmy's woodworking skills (as many of you know, Jimmy is a master carpenter), and we wish them both all the happiness in the world.

New Chemistry Conservation Law Discovered

In a new as yet undiscovered conservation law called "The Conservation of Jims", our new building manager is also named Jim (James Hildebrand). We believe that the Conservation of Jims law ensures that the Chemistry Building will continue to be well looked after. Welcome aboard, Jim!



Chemistry "Hall" of Fame: Jimmy Hall Poses With Some Current and Former Members of the Chemistry Department Staff at His Retirement Party. From left to right, Jane Bradley, Jimmy Hall, Don Love, Judy Leuty.

ACS-SA Active, Wins Awards by Carrie Bates

The 1998-1999 school year has been busy for the ACS-SA as they continue to improve the organization. During National Chemistry Week they were out doing chemistry "magic" shows all over town. Performances at the Lubbock Senior Center and Buckner's Children's Home proved to be a great success, as adults and kids alike joined in the chemistry fun.

The ACS-SA also met their goal of bringing in speakers from industry and graduate schools. During the fall semester, recruiters came from such places as Celanese, Purdue, and the University of Texas Medical Center in Dallas.

While the fall was booked with speakers, the spring brought more time to do magic shows for area schools. The ACS-SA participated in the Northridge Elementary Career Day for the second year. During this show, members were not only able to do the magic show, but also tell why they liked chemistry and what it takes to be a chemist.

Among all the activities this year the organization was able to grab a couple of awards as well. First, the ACS-SA received an Honorable Mention from the National ACS for their work during the 1997-1998 school year. The second award was for the Most Improved Student Organization at Texas Tech.

The upcoming year looks promising as well. Already on the schedule is a science teacher's convention (CAST '99), in which the ACS-SA will be presenting three seminars. All of this in addition to the "normal" activities.

Officers 1998-1999

President: Abigail Davalos
Vice President: Denise Butler
Treasurer: Carrie Bates
Secretary: Lena Shoukfeh

Officers 1999-2000

President: Carrie Bates
President Elect: Lisa Walter
Vice President: Miranda Wilkins
Treasurer: Sandra Flores
Secretary: Michelle Magallanez
Activities Coordinator: Martin Pflanz, VIII



Van Gogh, Van der Waals, Van...? A Texas Tech Student Plays Chemical Pictionary During National Chemistry Week, 1998. Pictured (left to right) are Carrie Bates, Abigail Davalos, and Denise Butler of the ACS-SA.

Who's "v" (That's c/λ of Course!) On The Faculty?



Gayle Nicoll (Fall, 1999)

As a relatively new area of chemistry research, chemical education is an exciting program with vast opportunities for research. Because of this, research in the Nicoll group, while having a few general themes to guide research projects, is not confined to one specific focus.

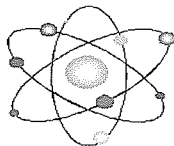
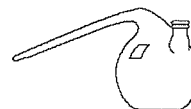


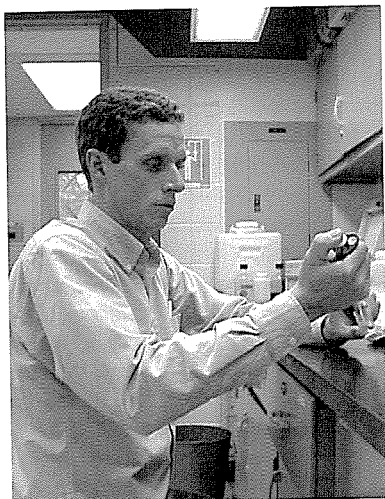
Figure 1: What's wrong with this picture? It's a common symbol that perpetuates the misconception of the Bohr model of the atom.

Based on the **constructivist theory of learning**, which states that all students actively construct knowledge within their own frameworks, research is being performed in three major areas, employing both qualitative and quantitative research techniques. In order to understand how students learn chemistry, research is currently being performed to probe how students link the information they are exposed to in chemistry classes together using concept maps. Concept maps are being used as a novel means of how students mentally construct information. Also as part of the research attempting to understand how students learn, we are attempting to understand how students make links between the different "worlds" or "realms" of chemistry, namely the Symbolic (NaCl), Microscopic ($\phi\Sigma$), and Macroscopic (white crystalline powder) Worlds.

A second area of research is how students' concepts and understandings of specific chemical phenomenon change as a function of educational level. For instance, do senior chemistry majors have a more advanced understanding of what happens in a salt solution than their freshmen counterparts? If they do, how does the conceptual change occur?

Thirdly, research focuses on how students link information they are exposed to in chemistry classes to the world around them. For example, when chemistry students were presented with a TV advertisement that claimed to have a food product that was "chemical free," 33% of both freshmen and senior chemistry majors believed that it was possible to have food products that contain no chemicals. This indicates that students are not using the chemistry they are taught in the classroom to become good consumers. Misconceptions like these are routinely identified as part of the research in the Nicoll group. Chemical misconceptions are prevalent: they appear not only as undergraduate students learn chemistry, but also in graduate students and the popular culture (See Figure 1). Equipped with a battery of data collection techniques and analysis tools, we seek ways to understand how students learn in order to make chemistry easier to teach and to learn.



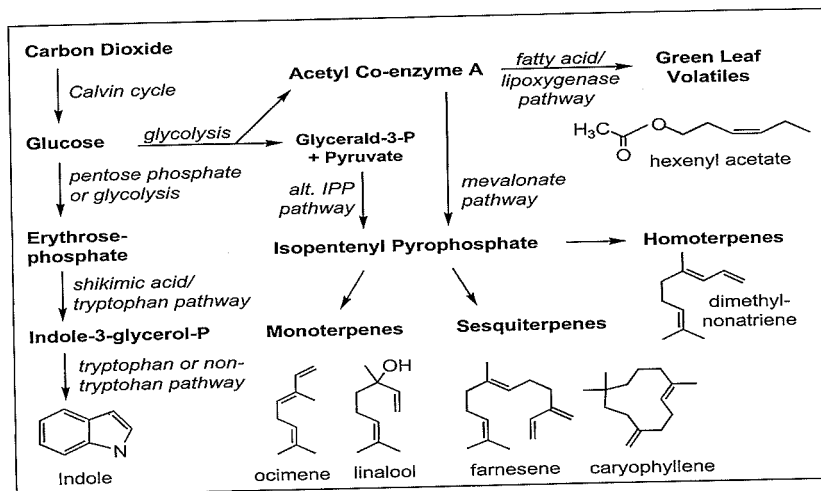
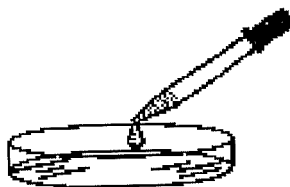


Paul Paré (Fall, 1999)

In response to herbivore damage, plants release volatile compounds that are used as cues by natural enemies of herbivores to locate their hosts or prey. Volatile terpenoids and other metabolites that are emitted from the leaf tissue in response to insect damage allow insect parasitoids, such as parasitic wasps, to distinguish between infested and non-infested plants. Although some volatile compounds are released from storage in plants immediately when cells or glands are damaged, the induced compounds are only synthesized and released from damaged as well as undamaged sections of the plant. We are using chemical markers to identify and track signaling molecules in the plant that mediate the synthesis and release of these volatiles. Since the blend of volatiles differs between artificial and herbivore damage, we are also examining plant responses triggered by specific plant insect signals.

The plant volatiles produced include terpenoids, greenleaf lipoxygenase products and the nitrogen containing compound indole (see box, below). Whether induction of these volatiles is accompanied by increases in extractable activities of key enzymes in their biosynthetic pathways will be examined.

How the synthesis of plant volatiles is connected to other plant-insect defense responses has not been established. Jasmonic acid (JA), a ubiquitous wound-induced hormone is known to activate several chemical defense responses in plants. JA is formed by the enzymatic conversion of linoleic acid via the octadecanoid pathway. Although insect feeding is known to trigger the accumulation of JA, it is not clear what effect the insect derived elicitor, volicitin, that specifically triggers the emissions of plant volatiles, has on JA accumulation in plant tissue. We predict that mutations in the octadecanoic pathway up-stream of JA production will inhibit the synthesis and release of volatiles. Chemical analysis of endogenous levels of JA by gas-chromatography/mass spectral analysis of volicitin-treated plants will provide a direct correlation between JA accumulation and the timing and/or amount of volatiles released from treated plants.



Faculty News and Notes

Richard A. Bartsch was appointed by the Dean of the College of Arts and Sciences as Chair of the Department of Chemistry and Biochemistry effective June 1, 1999.

In late September and early October of 1998, Dr. Bartsch spent three weeks in Poland. The first part of the visit was spent in Wroclaw with Professors Charewicz and Walkowiak in the Technical University of Wroclaw. He then attended the First International Conference on Supramolecular Science and Technology in Zakopane and presented a plenary lecture. Finally he spent several days at the Center for Polymer Chemistry of the Polish Academy of Science in Zabrze discussing a collaborative research project with Dr. Brandt with whom he shares a grant from the U.S.-Poland Maria Sklodowska-Curie Joint Fund II.

Dr. Bartsch continues to serve as a member of the External Review Committee for the Nuclear Materials Technology Division at Los Alamos National Laboratory and as a member of the Editorial Advisory Board for the Journal of Inclusion Phenomena and Macrocyclic Chemistry.

At the May 1999 Commencement, Dr. Bartsch hooded his 32nd doctoral student (Robert E. Hanes, Jr.). Qian Zhang (Dr. Bartsch's 31st M.S.-degree student at Tech) also received his diploma at the ceremony.

Dominick Casadonte received a Fulbright Grant through the Fulbright Senior Scholars program to spend the Spring Semester 2,000 at L'Université de Savoie near Chambéry, France where he will be developing the area of variable frequency sonochemistry with the Petrier group.

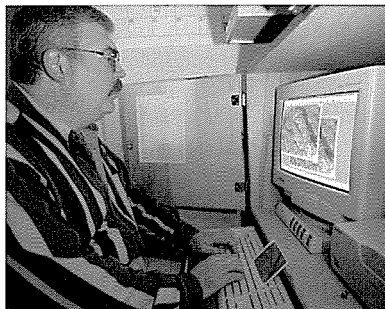
David Knaff spoke at the International Photosynthesis Congress in Budapest last August and will be an invited symposium speaker at the International Botanical Congress in St. Louis this coming August. He gave seminars at: Oklahoma State U.; U. of Alabama, Birmingham; U. of Illinois, Urbana; and U. of Illinois, Chicago. He has been asked, and agreed to accept, a second 5-year term as Director of the TTU Institute for Biotechnology.

Ed Quitevis attended the Spring 1999 ACS National Meeting in Anaheim (March 21-25) and presented a poster entitled, "Raman Studies of Liquid Methyl Iodide in Porous Silica Xerogel Monoliths: Autoregressive Band Shape Analysis," E. Quitevis, R. E. Wilde, and T. R. Bryans.

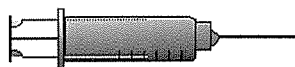
**Dennis Shelly:
Biomaterials Lab Created**

In October 1998 the Leather Research Institute began collaborative occupancy of Room 9 and a biomaterials laboratory was created. The Department and the Leather Research Institute share in the management and benefits of the facility. The Biomaterials Laboratory contains chemical and physical characterization instrumentation, all designed to study bio-derived materials in their "optimum", bioactive state. Among the new equipment is an Olympus BX-60 microscope/image analysis system, a Mettler-Toledo FP90 programmable hot stage, a WPI vibrating microtome, a Fritsch P19 Cutting Mill and a Labconco freeze dryer. The accompanying photograph shows Prof. Dennis Shelly, Leather Research Institute Director, using the image analysis system. The Institute recently purchased equipment for enhanced infrared spectroscopy: a SpectraTech Gemini horizontal ATR/diffuse reflectance sample attachment, a Far IR beamsplitter, the latest version of Omnic software and a new computer, all for the Nicolet Magna 450 FTIR. The Institute has agreed to support a senior-level graduate student to manage the lab and perform selected biomaterials testing. The biomaterials lab is expected to interface with the Welch Summer Scholar Program and the Institute for Biotechnology Core Instrumentation Facility. In fact, the Leather Research Institute and the Institute for Biotechnology have collaborated in the submission of a Integrative Graduate Education and Research Training preproposal to the National Science Foundation with the title "Multidisciplinary Research Training in Biomaterials". If successful, this grant will support 12 to 15 graduate students per year for five years. The Biomaterials Lab is planned to assist with the Welch Summer Scholar Program at Texas Tech, whose program focus for 1999 will be "biomaterials". Finally, the Biomaterials Lab is the focal point for a leather recycling project supported by the Leather Research Institute. Here, gelatin will be extracted from

chrome leather shavings and trimmings, a major source of chromium-containing waste from the leather industry. The Institute is collaborating with a major tannery in the Texas Panhandle area.



It's Clear to Me Now... Dr. Shelly Uses the New Olympus BX-60 Image Analysis System in his New Role as Director of the Leather Research Institute at TTU.



**We're in the Money:
New Grant and Monetary
Support**

Dr. Richard A. Bartsch's research program was supported by the U.S. Department of Energy (two grants), the Amarillo National Resource Center for Plutonium, the Robert A. Welch Foundation, the PG Research Foundation, Argonne National Laboratory, and Eichrom Industries, Inc.

David Birney was the principal Investigator on an NSF equipment grant which netted a new 500 MHz NMR spectrometer for the department. The department has also received a used 300 MHz Varian spectrometer in a donation from Texaco. David also received a Welch grant (\$135,000) for the period 1999-2002.

Dominick Casadonte received \$19,400 from the Fulbright Senior Scholars Program to fund a six-month stay at L'Université de Savoie in Chambéry, France during the Spring Semester of 2000.

David Knaff received a 3-year Welch grant (\$135,000), "Electron Flow in Photosynthetic Bacteria".

Donations which came in for various and miscellaneous purposes include:

**Henry J. Shine Endowment
\$0.00 - \$250.00**

- Joe A. Adamcik
- Sylvia & Cliff Ashby
- Charles M. Baldwin
- B. A. Barasch
- Richard A. Bartsch
- Mark Bass
- David M. Birney
- Mrs. Watson Carlock
- Jiin Duey Cheng
- Charles F. Dais
- Lou Dunn Diekemper
- J. Irvin Gaynor
- Mrs. Frank C. (Grace) Goodwin
- Martin & Joan Kyre
- Harvey E. Mallory, III
- John & Pat Marx
- Gordon Mayes
- Grover E. Murray
- Max & Stephanie Roundhill
- John Simpson
- Dr. & Mrs. Paul D. Walter
- Gerald L. Woolam

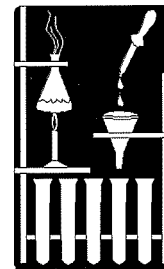
**\$251.00-\$500.00
Kyongtae Kim**

**\$1001.00+
Joe Dennis
Sellie Shine**

**Test Tube Scholarships
\$0.00 - \$250.00
John H. Crow, Carl A. Crow,
Donald E. Crow
(in memory of Billie C. Crow)**

**\$250.00 - \$1,500.00
Dr. G. Gordon Bellah, Jr. (BA 1974)
and Mrs. Kathleen Bellah**

Thank you so much for your generous support!



*Products in High Yield:
Alumni News*

ALBERTA B. BARNETT THOMAS (BS 1940) writes: "My BS in Chemistry was awarded with high honors, but I did not pursue a career since I married George Terrell Thomas, BS in Geology, 1940, in 1941. His total career was with Marathon Oil Company. He died in August, 1996, leaving me with two sons and five grandchildren."

ALBERT T. HALL (BA 1943) celebrated his 60th wedding anniversary last year. He and his wife, Willie McGuire Hale have sixteen grandchildren and ten great-grandchildren.

TRUETT BOLES (1944), a physician, was honored by the Cook Children's Physician Network for his many years of service to the children of Arlington.

DAVID PAUL FRIZELL (BA 1951) is now a technical/management consultant after retirement as a technical manager from Hughes Space and Communications Company.

ALLAN G. CLAYTON (BS 1953) is retired as chief chemist for the Aluminum Company of American (ALCOA).

JAMES O. WHATLEY (BS 1955) is retired and living near Kerrville, TX. He does a lot of traveling, thanks to a son who is a pilot with Northwest Airlines.

BILL J. REYNOLDS (BS 1959) retired from Fina Oil and Chemical Company after 38 years.

ROBERT L. SNELL (PhD 1959) wrote that he "retired poorly — 1 beer/month".

DON HUNT (BA 1961) is an associate director of the division of vascular surgery at Medical Center of Delaware-Wilmington.

CHARLES RAILSBACK, MD (BS 1964) has been in ear, nose and throat medical practice in the midcities area of Texas since 1976. He now is a delegate to the Texas Medical Association, and he is a member of the Board of Governors of the American Academy of Otolaryngology.

JAMES P. STANLEY (MS, 1965) is a Senior Research Scientist for Union Carbide at their Bound Brook, NJ Laboratory.

JUNJAPPA HIRIYAKKANAVAR (Postdoc 1969-70) is employed by the Department of Chemistry, Indian Institute of Technology, Kanpur, India.

HOWARD KAWAZOE (BA 1969) is a senior associate with EduQuest Inc., an internationally recognized consulting group for pharmaceutical and medical device manufacturers.

EARL K. BEAVER (PhD 1970) appeared in the June 8 issue of *Chemical & Engineering News* in an article "Coming Together on Separations" — on a conference that is part of a series called "Separations 2020". Dr. Beaver, one of the four organizers, is now director of waste elimination at Monsanto.

DALE R. MORRIS (BS 1970) is the environmental manager at MAPCO's mid-south refinery in Memphis, TN, the state's only petroleum refinery.

STEPHEN E. EARLE (BA 1974) is an orthopaedic surgeon. He also races Ferraris and has won five national and two world championships since 1993.

ROGER YANDELL (BA 1976) is an associate professor of obstetrics and gynecology at the University of Texas Medical Branch in Galveston. He is chief of endoscopy in the gynecology division and is doing research in laser surgery.

DAVID L. MORGAN (BA 1977) is working at the Texas Tech Health Sciences Center in Lubbock.

JONG GUN LEE (Ph.D., 1978) is a Professor in the Department of Chemistry at Pusan National University.

PEDRO JURI (Ph.D., 1979) is Vice President, Quality Assurance and Compliance for McNeil Consumer Products Company in Fort Washington, PA.

BILL McKERLEY (M.S., 1979) is Group Leader for the Analytical Chemistry Group (NMT-1) in the Nuclear Materials Technology Division at Los Alamos National Laboratory.

BONG RAE CHO (Ph.D., 1980) holds the rank of Professor in the Department of Chemistry of Korea University in Seoul, Korea.

IL-WOO YANG (Ph.D., 1981) is a Professor in the Department of Chemistry at the Korea Military Academy in Seoul, Korea.

RAYMOND T. CUNNINGHAM (BS 1982, PhD 1988) is employed by Chevron Chemical Company - Oronite Additives Division, Houston, TX. He writes that he "was enrolled in Margaret Stuart's last Analytical Chemistry classes and greatly appreciated the comments made by Messrs. Fuller and Poirot" that appeared in the last *Test Tube*.

LARRY AVENS (Ph.D., 1982) is Group Leader for the Advanced Technology Group (NMT-6) in the Nuclear Materials Technology Division at Los Alamos National Laboratory.

GAYLE GLENN (BA 1982), an orthodontist, served as meeting arrangements chairperson for the 98th annual session of the American Association of Orthodontists, held May 15 through 20. About 16,000 orthodontic professionals attended the event.

ALAN BURKE, M.D. (BA 1983) is practicing emergency medicine in southeast Texas in the Conroe and Houston area.

ALAN CROFT (Ph.D. 1983) continues to work for Dow Chemical USA in Freeport, Texas.

GWI-SUK HEO (Ph.D., 1983) is Group Leader for the Organic analysis Laboratory of the Korea Research Institute of Standards and Science (KRISS) in Taejon, Korea.

YUNG LIU (Ph.D., 1983) continues in his position with Texas Instruments Inc. in Dallas, Texas.

DAVID BABB (Ph.D., 1985) is working in Polyolefins Research at Dow Chemical USA in Freeport, TX.

BYUNG-KI SON (Ph.D., 1985) is Director of the Dyestuffs Research Laboratories of the Onsan Plant of LG Chemical Ltd. in Ulsan City, Kyung-Nam, Korea.

SHAWN ROACH (BS 1988) graduated from the University of Texas at Dallas with a doctorate in chemistry. He is doing post-doctoral research at the University of Texas Southwestern Medical Research Center.

LARRY BRATTON (M.S., 1989) is working at Parke Davis Pharmaceutical (a Division of Warner Lambert) in Michigan and is synthesizing new drugs for the treatment of inflammatory diseases.

JOE YOUNG (MS, 1989) works for Air Liquide in Eugene, OR as a QA manager.

JASON LEVY (BS 1990) is a Mission Support Scientist for Lockheed Martin. He married Suzanne Nicholas on June 5, 1999 in Lubbock, TX.

TEDDY C. SCOTT, JR. (BS 1990) is at student at Northwestern University School of Law in Chicago, IL.

LOUIS WHALEY (M.S., 1990) continues to work for Novartis Pharmaceuticals in Summit, New Jersey.

PATRICIA MALONE FERGUSON (BS 1991) is a laboratory technician at Ferro Corp.-Forehearth Color, a company that produces color for glass products such as wine bottles, cosmetic containers, plates and glasses.

PAULA. KING (BS 1991) returned to the U.S. last fall after working at the U.S. Embassy in Rome, Italy.

S. SLADE MYRICK (BS 1991) attends the University of Chicago Graduate School of Business, where he is pursuing an MBA.

TOM ROBISON (Ph.D., 1991) is a Staff Scientist at Los Alamos National Laboratory in Los Alamos, NM.

MIKE PUGIA (Ph.D., 1991) continues to work with Bayer in Elkhart, IN.

LEAH (BITALAC) REIGLE (MS, 1991) continues to work in the Medicinal Chemistry Department at Merck in Rahway, NJ.

JAMES D. SWEET (BS 1991, Ph.D. 1998) is in the U.S. Navy and was deployed to the Western Pacific Ocean and

Arabian Gulf last year with the amphibious assault ship and flagship USS Essex.

JOHN KNOBELOCH (M.S., 1992) is synthesizing pharmaceuticals at Schweizerhall Development Company in Greenville, SC.

JONG CHAN LEE (Ph.D., 1992) is an Associate Professor in the Department of Chemistry at Chung-Ang University in Seoul, Korea.

AMY JO ARRANT POLILLO (BS 1992) is a physician at Parkland Hospital in Dallas, TX.

KIMBERLY JO SMITH (BS 1992, MS 1994) lived for one year in Russia after leaving Tech. She is working with Dr. Richard A. Walton on an inorganic chemistry Ph.D researching rhenium polyhydrides and rhenium oxo complexes.

MARTY UTTERBACK (Ph.D., 1992) continues to work for Nalco/Exxon Energy chemicals, L.P. in Sugarland, TX.

HYUN HO CHO (PhD 1993) is working for Hyundai Petrochemical Co., Korea, as a senior research scientist.

JONG SEUNG KIM (Ph.D., 1993) is an Assistant Professor in the Department of Chemistry of Konyang University in Chungnam, Korea.

DERRICK McGOWEN (B.S., 1993) is a Project Manager for Lambert and Associates, Inc. (Environmental Consultants) in Roanoke, TX.

E. ELIZABETH GENTRY (BETH LANEY) (Ph.D., 1994) is working with Environmental Management in San Antonio, TX.

MATT HANKINS (M.S., 1994) is a Staff Scientist at Sandia National Laboratory in Albuquerque, NM.

MARK PORTER (BS 1994, MS 1996) married Mindy Norman in January 1999.

SHAWN ALMADANI SCHULZE (BS 1994) received his M.S. in Chemistry from UNCL Spring 1997 and is now working with Alliance High Performance Coatings, a new Industrial Division of Monarch Paint Company in Houston, TX.

YOUNG CHAN JANG (Ph.D., 1995) is working in the Kumho Chemical Laboratories of Korea Kumho Petrochemical Co., Ltd. in Taejeon, Korea.

AMANDA DENISE MALOUF (BS 1995) married Adrian Dian Guetersloh on July 18, 1998. Amanda attends the Texas Tech School of Medicine.

CHRISTOPHER STETSON (Ph.D., 1995) has a new position in diagnostic chemistry with Bayer in Elkhart, IN.

QIANG ZHAO (Ph.D., 1995) works in the Advanced Microelectronics Materials Division of AlliedSignal in Sunnyvale, CA.

KATHRYN ALENE BECK (BS 1996) is a medical student at Southwestern Medical School in Dallas and will graduate June 2000.

JAMES (JAY) COLLIER (M.S., 1996) is a Research Associate in the Inflammatory Diseases Unit of Roche Bioscience in Palo Alto, CA.

MARK ELEY (Ph.D., 1996) continues in his position with METCO Environmental in the Dallas area.

HONG-SIK HWANG (Ph.D., 1996) has completed his postdoctoral studies with Professor Darryl Busch at the University of Kansas and accepted a position with the United States Department of Agriculture (USDA) in Peoria, IL.

SHERYL IVY (M.S., 1996) is working for Sigma Chemicals in St. Louis, MO.

BRIAN WAYNE SANDERSON (BA 1996) married Heather Denea Hendrickson on August 1, 1998. Brian works for the U.S. Department of Agriculture.

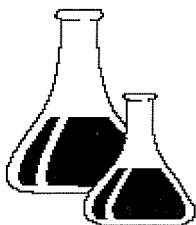
LONGGUI ZHONG (M.S., 1997) is working as a polymer engineer with IM Clipper Corporation in Nacogdoches, TX.

CHERYL BROWN BAKER (Ph.D. 1999) was awarded an ARCS (Achievement Rewards for College Students) scholarship for 1998/1999.

SUSAN THOMAS (Ph.D., 1999) was awarded an ACS travel grant to pay for

her participation in a FASEB Summer Research Conference in 1998.

QIAN (ANDY) ZHANG (M.S., 1999) is engaged in combinatorial synthesis as a Senior Research Assistant for Pharmacoepia in Princeton, NJ.



Scholarships and Awards

It is a pleasure to acknowledge the generous support of our scholarship programs by Phillips Petroleum Company and the Celanese Chemical Division of Hoechst in 1998. Such contributions allow us to recognize and encourage our excellent undergraduates. In addition to our industrial supporters, funds for scholarships are available from the interest generated by the endowment given to the department many years ago by Dr. and Mrs. Joe Dennis and Joe Goodwin. Interest from funds established in memory of Samuel Hunt Lee and Walter J. Chesnavich, two of our late colleagues, are used to fund awards for the outstanding organic chemistry student and the outstanding physical chemistry student for the year. These scholarships are awarded at the annual chemistry and biochemistry banquet, co-sponsored by the South Plains Local Section of The American Chemical Society.

Samuel Hunt Lee Memorial Award
Michelle Magallanez

Walter J. Chesnavich Memorial Award
Kyle Caldwell

Jeannette and Joe Dennis Scholarships
Stephen Hagedorn Sneha Sharma

Robert Goodwin Scholarships
Tim Johnson Amy Sorrells
Lisa Walter

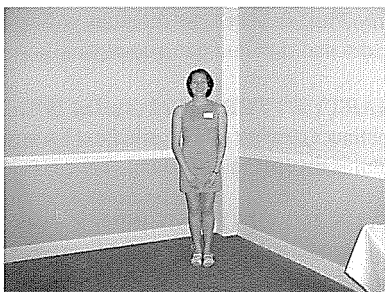
Phillips Petroleum Scholarships
Tamzid Farhat Andy Kahn

Celanese Scholarships

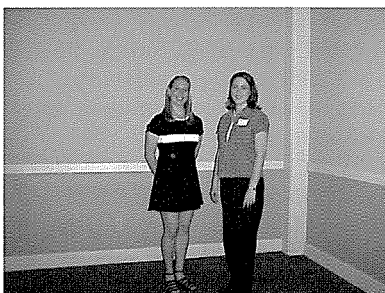
Theresa Breithaupt Bruce McHam
Richard Walulu



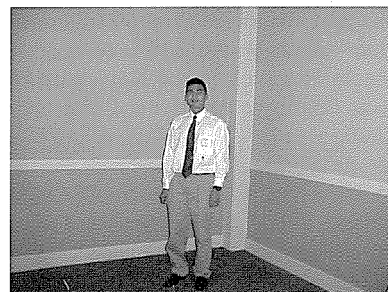
The W. J. Chesnovich Memorial Award winner, Kyle Caldwell.



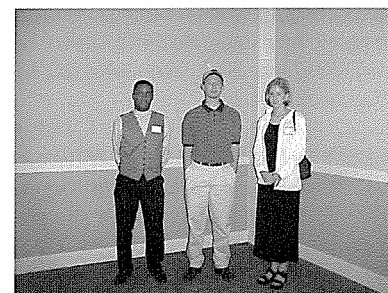
The 1999 Samuel Hunt Lee Memorial Scholarship Award winner, Michelle Magallanez.



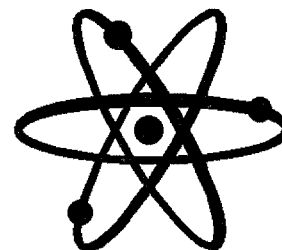
Two of the Recipients of the 1999 Robert Goodwin Scholarship winners, Lisa Walter and Amy Sorrells.



One of the two 1999 Phillips Petroleum Scholarship winners, Tamzid Farhat.



Alfonse Walker (left) from Celanese poses with the 1999 two of the Celanese Scholarship winners, Bruce McHam and Theresa Breithaupt.



Contact Us By E-Mail!

In this electronic day and age it seems that everyone is E-mailing, Faxing, and Cellular Phoning everyone else. So, in our attempt to stay at the forefront of technology (its in our name, after all!), we would like to invite you to send us an E-mail message. These can be changes of address, articles you would like to include in the next *Test Tube* (which will be out in June of 2000), whatever. Send your E-mail comments to:

tkdjc@ttu.edu.

Transition States

• Graduations

Bachelor of Arts in Chemistry

August, 1998

Sara Jane Dunkel
Timothy David Thompson

December 1998

Homan Farzad
Andrew Alan Perego

May 1999

Jason L. Brannen
Courtney Aarant Couch
Casey Martin Frizzell
Jeffrey Kyle Hancock
Jon Michael Montoya
Joshua Glen Palmer
Ruben Parra
David Clark Ward

Bachelor of Science in Chemistry

August 1998

Jana Denise Pennington
Thomas Dean Hampton

December 1998

Bertha M. Cedillo
Robert Champlin, Jr.
Ginger Kay Nelson
Veronica D'Ann Thomason

May 1999

Matthew Thomas Belford
Charles Lance Cowey
Syth Caleb Howell
Richard Luzi Lombardini
Michael Lane Mallinger
Reaves Lynn Prater

Bachelor of Arts in Biochemistry

August 1998

Justin Kurt Roberts

December 1998

Seung Mo Kim

May 1999

Robert Michael Lenington
Angela Ruth Mote

Bachelor of Science in Biochemistry

August 1998

Richard William Broadfoot

December 1998

Thomas Kevin Cook

May 1999

Nassim Nabil Batrice
Christie Lynn Burnette
Toni Renee Field
Jaime Lynn Haberer
James William Haltom
David Robert Huron
Jung Mo Matthew Kim
Lance Alan Nesbit
Carla Ann Neusch
Brandon Lee Pshigoda
Tarra Marie Wright

Master's Degree in Chemistry

August 1998

Monica Lopez

(Biochemistry-Dr. Nes)

"Studies on the Chromatographic Behavior and Distribution of Sterols from *Arabidopsis thaliana*"

Julie Ann Marshall

(Biochemistry-Dr. Nes)

"Active Site Mapping of the (S)-Adenosyl Methionine Delta-24(25)-to-24(28) Sterol Methyl Transferase Enzyme from *Saccharomyces cerevisiae*"

Brian Scott McCourt

(Biochemistry-Dr. Nes)

"Studies on the Purification and Characterization of the (S)-Adenosyl-L-Methionine Sterol Methyl Transferase from *Saccharomyces cerevisiae*"

Shawnn Derrek Nichols

(Biochemistry-Dr. Nes)

"Composition and Biosynthesis of Sterols by *Mortierella Alpina*"

December 1998

Daniel Ta-Jen Chang

(Physical-Dr. Gellene)

"A Systematic Study of Basis Set Superposition Error in the Interaction Energy of Two Hydrogen Molecules"

May 1999

Russell James Johnson

(Organic-Dr. Bartsch)

"Synthesis and Spectral Studies of Lariat Ethers"

Bradley Corbett Riek

(Biochemistry-Dr. Harman)

"Intersubunit Interaction Changes Re-

sulting from cAMP Activation of CRP"

Stephanie Lynn Sharp

(Physical-Dr. Gellene)

"Sigma Bond Activation of the Hydrogen Molecule by Cooperative Interaction with a Boron Cation, a Lithium Anion, and a Beryllium Atom"

Qian Zhang

(Organic-Dr. Bartsch)

"Synthesis of New Crown Ethers"

Ph.D. Degree in Chemistry

August 1998

Charles Bradley Boring

(Analytical-Dr. Dasgupta)

"Capillary-Based Microanalytical Systems"

Si-Hyun Ham

(Organic-Dr. Birney)

"Theoretical and Experimental Studies on the Reactivities of Conjugated Ketenes"

Michael Patrick Houle

(Analytical-Dr. Bornhop)

"Remote Quantitative Transport Investigations of Small Fluorescent Molecular Probes in an Interstitial Tissue Model Using Micro-endoscopy and Capillary Microinterferometry"

Jeanne Louise Kuhler

(Organic-Dr. Marx)

"Synthetic and Kinetic Studies to Determine the Migration Tendency of Substituents in Cationic Rearrangement Reactions"

Anilkumar Trikamdass Mangla

(Biochemistry-Dr. Nes)

"Mechanism and Structural Requirements for Transformation of Substrates by the (S)-Adenosyl-L-Methionine: Delta-Sterol Methyl Transferase from *Prototheca wickerhamii*"

Jae-Wook Nam

(Organic-Dr. Bartsch)

"Synthesis of New Separating Agents for Nuclear Materials"

Stephen Dwight Starnes

(Organic-Dr. Headley)

"Unnatural Amino Acids: Synthesis and Structure — Property Relationship Studies"

• Deaths

December 1998

Rajeswari Ganesan

(Organic-Dr. Headley)

“Structure Activity Relationship Involving Chemotactic Peptide Analog Models”

May 1999

Cheryl Hunt Baker

(Biochemistry-Dr. Harman)

“The Role of Positions 99 and 127 in cAMP-Mediated Activation of CRP”

Robert Eugene Hanes, Jr.

(Organic-Dr. Bartsch)

“New Syntheses of Crown and Proton-Ionizable Lariat Ethers”

Xin Li

(Biochemistry-Dr. Knaff)

“Genetic Abnormalities as Molecular Markers for Cancer”

• Promotions

Assistant to Associate Professor

Carol Korzeniewski

New Associate Chair

James Harman

New Associate Dean of the Graduate School

Allan Headley

• Faculty Leaving TTU

George Makhatadze has accepted a position at the Penn State Medical School. We wish George and his wife Miramar all the best as they head to Nitney country.

Stéphane Quideau has returned to his native France to accept a position at L'Université de Bordeaux. One wonders if he'll remember his Tech connection when the wine is ready to be sampled...

Paul Wenthold is heading back to his Alma Mater (Purdue) where he will be taking a position replacing his deceased graduate mentor Dr. Robert Squires. We hope all the best for Paul and Helen now back with the Boilermakers.

DAVID BEESINGER (BS 1969) died June 9, 1998.

BILLIE CROW (BS 1946) died on March 28, 1998.

DR. ED BAYOUTH (BA 1957) died on February 25, 1998 after a prolonged illness.

DR. MARY L. CLEMENTS-MANN (BS 1968) died September 2, 1998.



Clements,
1968

According to the Avalanche-Journal (from which the photo above was taken) Dr. Clements-Mann and her husband Dr. Jonathan Mann, both world-renowned AIDS researchers, were killed while flying together to attend a meeting of the World Health Organization in Geneva in the crash of Swissair Flight 111.

NORMA BATTLES COFFEE (BA 1964) died August 1, 1998.

ARTHUR DRAPER was a faculty member in the Department of Chemistry and Biochemistry from 1959-1985. Dr. Draper lived in Bowling Green, KY when he died in December 1998.

HAROLD “BOBBY” ROGERS (BA 1959) died on April 20, 1998.

LARRY TRENARY (BS 1939) died in June 1998.

EARL WILLIAMS, former storeroom supervisor in the 1940's (Jimmie Hall began working in the storeroom under Earl, according to Dr. Shine), passed away on January 10, 1999. He was 82 years old.

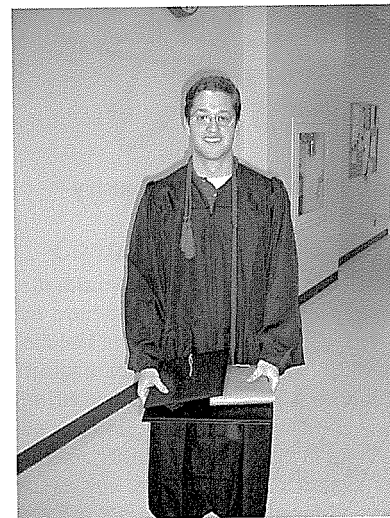


Happy Endings, New Beginnings

Each year we graduate about 10-15 B.S. chemistry majors and approximately 40-50 undergraduate B.A. and B.S. majors in chemistry and biochemistry. Approximately half of our graduates go on to medical school or other professional schools, 1/3 go into industry, and 20% go on to graduate school. Shown below are two of our recent May graduates. We are reminded during graduation at the end of each semester just how strong our program is by the success of students like these.



Jamie Haberer (BS, Biochemistry, Magna Cum Laude) is heading off to the University of Texas where she will be pursuing a Ph.D. degree in marine science and oceanography.



Richard Lombardini (BS, Chemistry/Mathematics, Summa Cum Laude), a 1996 Goldwater Scholar, boasted a perfect 4.0 average on graduation day.

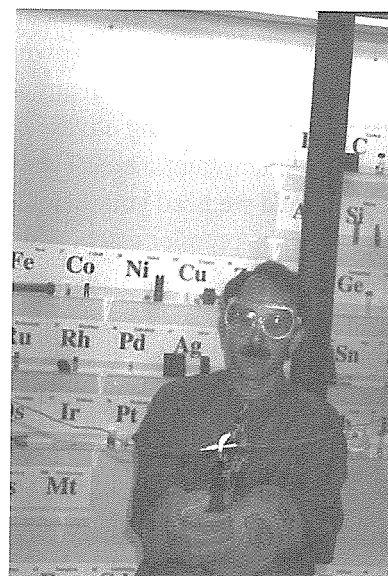
PHOTOCHEMISTRY



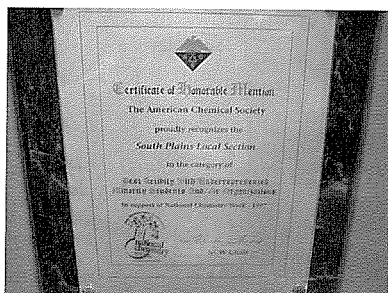
A Phenomenal Year: The 1998-99 ACS-SA Officers (l to r: Carrie Bates, Denise Butler, Abbie Davalos and Lena Shoukfeh) with Advisor Dr. Greg Gellene celebrate their award-winning year at the Chemistry Department banquet.



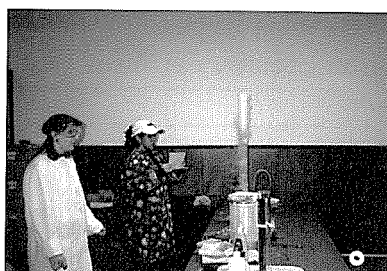
In With The New: The 1999-2000 Slate of ACS-SA Officers Include (l to r) Carrie Bates, Lisa Walters, Martin Pflanz VIII, Michelle Magallanez, and Sandra Flores.



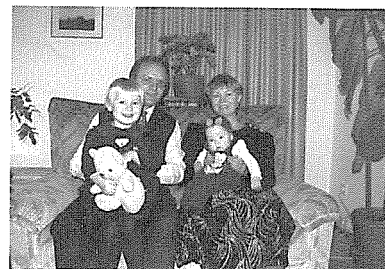
Pyromania, Anyone?: David Birney Dedicates A New Interactive Periodic Table Which Graces the Chemistry Department Foyer. Of Course, A (Magnesium) Ribbon Burning Ceremony Was Most Appropriate.



Award-Winning ACS Local Section: The South Plains Section of the American Chemical Society was Awarded an Honorable Mention In The ACS National Phoenix Awards for "Best Activity With Underrepresented Minority Students and/or Organizations" for their National Chemistry Week Activities.



She's Gonna Blow!: Students Carrie Bates and Veronica Thomason Perform the Boiling Color Tube Demo As Part Of The National Chemistry Week Celebration.



All In The Family: Heribert and Heidi Münsterer (Postdoc, Dr. Shine) with Daughters Julia (l) and Laura. Future Techsans? We Can Only Hope!



1999 Welch Summer Scholar Ashley Spence Obtains UV-Vis Information on Cu(I) Containing Gel Matrices as Part of the Welch Summer Scholars Program Sponsored by the Robert A. Welch Foundation and Hosted by Texas Tech.



Biomolecular Collision: Dr. Bartsch and Jimmy Hall Pose For The Camera At Jimmy's Retirement Gala.



It's "Hall" In The Family: Jimmy and Oneta Hall Pose In A Rare Gathering Of Their Family During Jimmy's Retirement Party.

The Coinage Metals

Our department is, 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 crucial endeavor? Contributions in any amount would be welcome. As you can see from this issue, we are well on our way to establishing a class of students who are second to none in the country. We are currently in the midst of attempting to raise a substantial amount of money for a Welch Foundation Endowment match (see page 1), and we need your help. Please consider helping 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.

Donation Response Form

Enclosed please find a check, made out to "The Department of Chemistry & Biochemistry - TTU", "Welch Chair Endowment Matching Fund" on the memo line, in the amount of \$ _____.

The money this year will be used to help match a \$500,000 challenge grant issued by the Robert A. Welch Foundation for the Welch Chair in Chemistry at Texas Tech. The results of all donations will be reported in future issues of the *Test Tube*.

My employer participates in a matching program for donations by employees.

Please contact _____ at _____

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Address:

Phone Number:

Name:

Degree and Graduation Year

Address (or enclose "Information Update Form"):

E-mail Address:

Please return to:

**Dominick J. Casadonte, Jr., Dept. of Chemistry & Biochemistry
Texas Tech University, Lubbock, TX 79409-1061**

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 my errors about you! It would be a tremendous help to us if you could help us update our information about you and that, in turn, would help you to be better informed about what’s going on here at Tech. Please, at least, fill out the form below and send to the *TestTube* editor.

Information Update for TTU Chemistry and Biochemistry Alumni File

Name _____
Last First Middle Maiden Name

TTU Degree (Circle all that apply): BA BS MS PhD Postdoc

Year(s) of Degree(s) _____
(please give name of research advisor for graduate & postdoc positions, and school, if not TTU)

Address: _____

E-mail Address: _____

_____ Check here if this address is different from the one printed on your issue of the *TestTube*,

Employer: _____ **Position:** _____

Business Address: _____

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

Please return to: Dominick J. Casadonte, Jr., Dept. of Chemistry & Biochemistry
Texas Tech University, Lubbock, TX 79409-1061

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