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September
2005

PERIODICAL

Bill Carroll's *Extreme* National Chemistry Week Tour

By Tom Strom

All of you *Retort* readers have heard of extreme sports, such as Ironman Triathlons. Well, ACS President Bill Carroll is also going to extremes. In connection with National Chemistry Week (NCW), he will travel nearly 13,000 miles in ten days to be present for a number of NCW events all over the country.

Carroll will start his marathon on Friday, Oct. 14th, when he leaves D-FW for events in San Juan, Puerto Rico. The next day he will travel from Puerto Rico to Memphis for activities there. Next come visits to Nashville and Oak Ridge. On Tuesday, Oct. 18, he will be in Toronto. He then drives to Oswego, NY, for a Syracuse Section meeting. Wednesday morning he'll be in Schenectady, and Wednesday afternoon he goes to

Burlington, MA. Thursday our president shows up in Charlotte, NC, for a while before arriving in Miami for a late afternoon section meeting. Friday he takes wing to Los Angeles for a number of events. He takes the red-eye from LA to Pittsburgh, arriving for morning events on Saturday. By Saturday afternoon, Oct. 22nd, he's in St. Louis for events there. Sunday morning, Oct. 23rd, he'll be back in Dallas for NCW events at The Science Place. A highlight of the Sunday events will be demos by the Mean Green Chemistry Team from UNT, led by **Professor Diana Mason**.

The hope is that this endurance event will focus attention nationwide to NCW. My hope is that our president survives this killing schedule.

Don't Forget Those Local Section Dues

It won't be long until you will be receiving your 2006 dues statement from ACS. Among the various dues in your statement will be a listing for optional local section dues. Since it's optional, your temptation will be to forget about it. **Please** pay that small sum; don't cross it out. Those

optional dues make a world of difference to the programs that your local section can offer. They are *vital* to your local section, so go ahead and pay them. You won't miss the money, but your local section surely would.

Living is expensive, but it includes a free trip around the sun every year.



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Editorial and Business Offices:

Editor: E. Thomas Strom, 1134 Medalist Dr., Dallas, TX 75232, 214-376-9602; FAX 817-272-3808; tomstrom@juno.com.

Managing Editor: Mary Teasdale, 1801 SW Jewell Ave, Topeka, KS 66621; 785-670-3414; FAX 785-670-1077; owlcritic75@yahoo.com

Business Manager: Ken Ashley, Chemistry Dept., Texas A&M-Commerce, Commerce, Texas, 75429; 903-886-5384; FAX 903-468-6020; ashleyk@tamu-commerce.edu

Associate Editor: Ken Ashley, Chemistry Dept., Texas A&M- Commerce, Commerce, Texas, 75429; 903-886-5384; FAX 903-468-6020; ashleyk@tamu-commerce.edu

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Southwest *Retort*

FIFTY-EIGHTH YEAR

September 2005

THE FUTURE OF CHEMICAL WORK IN THE UNITED STATES

By Dennis Chamot

Editor's Foreword. This piece by Dr. Dennis Chamot is taken from the Professional Relations Bulletin, No. 73, June, 2005 with the permission of Editor Dennis Chamot.

Chemical work in the United States is being affected by the same pressures and trends affecting many other kinds of work. Currently, and for years to come, the primary driver for industry (the major employer of chemical professionals) is international competition in production and a concentration on reducing costs, but in the future there also will be even more direct competition as the capacity for innovation increases in other countries. In this piece I will concentrate on technological change and globalization as two of the most important determinants of the rela-

tionship between economic performance and the availability of jobs in the United States.

Technology development and outsourcing are not new, and usually begin as an attempt to reduce costs. Indeed, manufacturing work has been going offshore for many years. What is new? It's the ability to move sophisticated white collar work overseas as a *substitute* for the work being done in the U.S., e.g., computer programming, engineering design, economic analysis, medical consulting, technical assistance – and science R&D. The major technologies

are computers and telecommunications. Once the work, or the results of the work, can be digitized, then the speed of electronic transmission makes the physical location almost irrelevant.

The trends are related to continuous improvements in *productivity*, which is defined as some measure of output divided by a measure of the labor required to produce it (widgets per hour, for example). If one considers a country as a whole, then the total output of goods and services produced is GDP (gross domestic product), and the total labor used is the total of all those people employed in the country to produce the goods and services (E):

$$\text{Productivity} = \text{GDP}/E,$$

or on rearrangement of terms,

$$E = \text{GDP}/\text{Productivity}$$

Hence, if productivity increases rapidly (e.g., through technological change) and overall economic growth is slower, then labor demand will drop. In other words, higher productivity results in being able to produce more with less labor (fewer employees). There can be economic growth and wealth creation with slow or no growth in employment demand.

These trends have been going on for a long time. The early United States was an agricultural nation. Technological developments in the nineteenth century greatly reduced the need for labor, and people left the farms in droves. Over time, there was a great expansion of manufacturing and construction, and this growth provided a lot of new jobs. Similarly,

in the twentieth century technological advances and automation greatly reduced the demand for blue collar workers, but the enormous growth of the service sector created a lot of new jobs in white collar areas. In more recent years, we have seen both technological advances and automation come to many kinds of white collar work, and this, combined with increasing globalization, is leading to relatively stagnant job growth overall – in the U.S.

The U.S. Bureau of Economic Analysis in the Commerce Department collects data on employment and capital investment of multinational companies. If one compares jobs created overseas by American companies with jobs created in the U.S. by American affiliates of foreign companies, there was a net increase of one and a half million jobs *overseas* from 1988 to 2003. Large as it is, that number is a tiny fraction of the American workforce. Nevertheless, the trend is accelerating. Economic pressures and international competition continue. Domestic innovation and economic growth may not be enough. Many high value businesses are not labor intensive, and even they can use foreign facilities and labor.

Chemistry is expanding into biology, medical research, materials sciences, and more. Potential advances in the chemical sciences are limitless. However, both chemical production and chemical R&D are globalizing. *Where* the work will be performed, and by whom – basic science, development, engineering, production – is no longer certain.

Place ad for K-Force here.

TEXAS TECH'S DASGUPTA WINS CHROMATOGRAPHY AWARD



Professor Purnendu K. (Sandy) Dasgupta is the 2005 recipient of the Ion Chromatography Achievement Award. The award will be presented

at the International Ion Chromatography Symposium in Montreal in midSeptember. Sandy has been invited to give a forty-minute talk as part of the opening session. Previously he received this award in 1989. He is only the second person to receive this prestigious award twice. The only other person to be so honored is Hamish Small, who invented the technique of ion chromatography.

Sandy Dasgupta was born in India, and he received B.Sc. and M.Sc. degrees from the University of Burdwan in India. He received his

Ph.D. from LSU in 1977. After post-doctoral appointments at LSU and UC-Davis, he joined the Texas Tech faculty in 1981. He became full professor in 1988, and he was appointed a Horn Professor in 1992. He has over 260 peer reviewed publications in primary journals and holds 15 U.S. patents. During his career he received over 14 million dollars in grants. His research interests include novel approaches to ion chromatography and electrophoresis, fluid flow in thin films, measurement of trace atmospheric species, automated process control in the chemical industry, automated intelligent analyzers, and microscale analytical systems.

The Southwest Retort congratulates Sandy Dasgupta on these singular achievements. We suspect that there are more awards to come.

[Place SciConsult ad here]

STATEMENTS FROM ACS PRESIDENTIAL CANDIDATES

***Editor's Foreword.** As a service to our readers, we are publishing 300 word statements provided to us by this year's two candidates for ACS president. [Third candidate John Kozarich withdrew from the race.] The order of statements is alphabetical by last name. The percentage of ACS members voting has been shrinking yearly. This cannot be a good thing. Voting for president is one of the easiest things to do in the Society and one of the most important. We urge you readers to read these statements carefully and then vote!*

STATEMENT FROM GEORGE E. HEINZE

AN ACS FOR THE 21ST CENTURY

The entire chemical enterprise, as well as the ACS, stands on the cusp of substantial change as we enter the 21st century. Chemistry as taught and practiced in the 20th century will no longer suffice. If we look at the totality of the scientific literature published today, there is more chemical science in place than ever before – however, not all of it is called chemistry, nor are the people doing it calling themselves chemists.

To accommodate even more rapidly occurring changes, I believe the ACS has to take a leadership role in catalyzing this transition, by proactively reaching out to various scientific organizations, both domestic and foreign, as well as forging stronger links among government, academia, and industrial interests. As president of the ACS, this pro-active program would be one of my two principle priorities.

The other area in which the ACS can provide leadership is that of chemical education. Increasingly, chemistry in its broadest applications is multi-disciplinary, but that is not the way we teach it. Chemistry can no longer be nearly classified as inorganic, organic, or physical. Therefore, we must teach it in a way that provides our students with the appropriate skills for a multi-disciplinary work place. The challenge goes deeper still in how we teach science at the elementary and high school levels, so as to attract bright, pre-prepared students for a university program. We need a well-educated general public that can appreciate the contributions chemistry makes to society, thus leading to greater public support for research and jobs associated with it.

I believe my 35 years of ACS governance experience and track record of industrial management accomplishments give me the foundation to lead the ACS forward towards these goals. I ask for your vote to do this! Please visit me at (www.HeinzeForPresident.blogspot.com).

**SEPTEMBER, 2005, DFW ACS MEETING
UNIVERSITY OF TEXAS AT ARLINGTON
ARLINGTON, TEXAS
THURSDAY, SEPTEMBER 29, 2005**

**THE DOHERTY AWARD LECTURE
DR. PATRICIA (TRISH) SMITH, TEXAS
INSTRUMENTS
“PLASMA CLEANING FOR STATE-OF-THE-ART
INTEGRATED CIRCUIT MANUFACTURING”**

6 p.m. Social Hour, Carlisle Room, Hereford Student
Center

Courtesy of Ricca Chemical Company

7 p.m. Dinner and 8 p.m. Lecture, Carlisle Room

About the Speaker: Dr. Trish Smith is the winner of the 2005 Wilfred T. Doherty Award. She received her degrees at Brown and at Princeton. She joined Texas Instruments (TI) in 1986. She has published 24 scientific papers, holds 16 U.S. patents, and has received eight TI patent incentive awards. In 2001 she received an ACS Southwest Regional Industrial Innovation Award. She currently has the position as Distinguished Member of the TI Technical Staff. She is the first woman recipient of the Doherty Award.

How to get there: From either Interstate 20 or 30, take the Cooper Street exit to Arlington and travel either north (I-20) or south (I-30). Parking can be difficult at night. From either direction turn east at the light at Mitchell. Mitchell is at the far south end of the campus, just north of the huge parking lot at Mitchell and Cooper. Go one block on Mitchell to the light at West Street and turn left. Go about half a block and turn left into the faculty-staff parking lot at Nedderman and West. After 5 p.m. the bar should be up. If the lot is full, exit the lot on Nedderman, turn right, continue to West, turn left on West, and go to the parking garage on the left. Parking for the evening would be about \$4.00. If the parking garage is full, park in the big student lot at Mitchell and Cooper. From the faculty-staff lot, cross Nedderman at the crosswalk. Continue walking north to the Baker Chemistry Research Building, connected by a bridge to Science Hall. Go to the next big walkway, turn right (east) and travel past two sets of buildings to the University Center on your left. The Carlisle Room is on the second floor. From the parking garage, travel north on West, which will dead end into the Student Center.

Reservations: The dinner will cost \$12.50, payable at the door, and will consist of grilled chicken, herb roasted new potatoes, mixed green salad, green beans, rolls, double chocolate cake, tea, and coffee. Make reservations by noon Monday, Sept. 26, to Ruth Handley, Tel. Metro 817-272-3171 or by E-mail to handley@uta.edu. Members are financially responsible for reservations made but not used.

STATEMENT FROM CATHERINE T. “KATIE” HUNT

I'm Katie Hunt, the leader for Technology Partnerships at Rohm and Haas. I'm honored to have this opportunity to talk to you about the future of the American Chemical Society and to thank you for making ACS what it is today:

- A strong voice for the chemical sciences
- An important network for technical activities
- A valued resource organization

These remain essential elements for our continued success, but it's not enough. I believe it's time for America to re-ignite its commitment to science and technology – and ACS can lead the way!

The keys to success are: Education, Collaboration and Innovation!

1. Education: Promoting Science and Engaging Students

Today's students are future scientists, technologists and policy makers. We need to engage the next generation in the exciting and challenging field that is science. My 13-year old son frequently says, “Mom, you would have everyone believe that everything is based on chemistry!” And I smile and say, “So, you've been listening!”

2. Collaboration: Building Strong Partnerships

Science and technology partnerships are essential. As ACS President, I will join forces with leaders across academia and industry to advocate for better legislative support for Science and Technology – by giving ACS a stronger voice on Capitol Hill, and becoming a familiar face to the public.

3. Innovation: Recreating our Companies, our Universities and Ourselves

Investing in the physical sciences is an investment in the future! Incremental improvements are important, but we will not “tweak” ourselves to greatness. Sustainable growth will be driven by ongoing investment in cutting-edge, step-out innovation.

In closing

Thank you for your support and your vote for Katie Hunt for President-elect of the ACS.

**It's time to re-ignite America's commitment to science and
technology;**

Working together we can change the face of chemistry!

Contact Katie: catherinehunt@verizon.net

and visit: www.catherinehunt.com

CHEM GEMS AND JOULES

by Jane Smith, NCW Coordinator,
R. L. Turner High School, e-mail: SmithJ@cfbisd.edu

NCW 2005: THE JOY OF TOYS. That's right, National Chemistry Week is October 16-22, and this year's theme is "The Joy of Toys." What a great excuse to have fun and teach some chemistry at the same time! Think back to your favorite toys as a child, or perhaps ones you've enjoyed with your own children or grandchildren. Classics like Silly Putty, Play Doh, Magic Crystal Gardens, and Invisible Ink can join the ranks of new favorites like Slime or Gak, Light Sticks, Touchabubbles and Growing Creatures. Find that groovy Lava Lamp and plug it in! What a soothing way to illustrate lessons on density, immiscibility, convection, and heat expansion.

Even simple items like a balloon can provide a teachable moment or two.

- Illustrate effusion – put a drop of vanilla extract inside and tie the balloon off
- Illustrate polymer structure – put a bamboo skewer through the balloon
- Illustrate a chemical reaction – blow up the balloon with Alka-Seltzer and water
- Illustrate Charles' Law – expand a balloon by heating it

The official ACS portal for National Chemistry Week is <http://www.chemistry.org/ncw>. There you can find some great ideas in the *Celebrating Chemistry* publication. Although geared for elementary

grades, many of the activities can be used to spark interest in polymers, gases, surface tension, and chemical reactions. The timeline of historical toys will elicit a wave of nostalgia for adults. The ACS store has items of interest including scratch 'n sniff stickers and Hooray for Chemistry wrist bands.

The Oregon Museum of Science and Industry's *Experiencing Chemistry* online site has a whole section of activities on the chemistry of toys: <http://www.oms.edu/visit/chemistry>. Resources include full experiments on Flubber, Magic Inks and Fireworks, and ideas for other take-home activities. The site http://www.chymist.com/toy_store.html can also provide you with recipes for making homemade slime, magic sand, crystal trees and many others.

American Science Surplus <http://www.sciplus.com> has ever changing stock, but items that spin, ooze, glow in the dark, and inflate always seem to be available. Can't locate your Lava Lamp? They have a low-tech version – the Goo Tube – that's great for talking about viscosity. Their Touchabubbles come in a test tube container with pocket clip. Kids will have great fun seeing how many bubbles they can stack with these long-lasting bubbles. If you want to purchase magic sand, thermosensitive paper, goldenrod (acid-base indicator) paper, liquid bluing for crystal gardens, gro-beasts and UV sensitive beads, a great source is Education

Innovations, Inc., <http://www.teacher-source.com>.

So have some Fluorine – Uranium – Nitrogen and celebrate chemistry with toys!

[Place Chemir ad here.]

In Memorium: Ted Resetar.

Chemistry teacher Theodore J. (Ted) Resetar died on July 18 of a heart attack after teaching a night class at Richland College, where he was an Adjunct Professor. His main job was as a chemistry teacher at Ursuline Academy. He was born in Albany, LA, and received bachelor's and master's degrees from Southeastern Louisiana College in Hammond. He also completed all the degree work save a dissertation for a Ph.D. at the University of Southern Mississippi. For a time he taught at the East Baton Rouge Parish School System. In 1986 he won the ACS Chemistry Teacher of the Year Award. He joined Ursuline Academy in 1994. He is survived by his wife Jane, a son David Resetar of Denton, a daughter Stacey Resetar of Rockwall, and a stepson Trent Dawson of New York.

[Place TAMU-Commerce ad here]

CORRECTION

Alert *Retort* readers will have noticed an error in Dr. John Spessard's feature article in the May/June, 2005, issue of *The Southwest Retort*. The last six lines of the Editor's Foreword are really Dr. Spessard's introduction to his model.

LETTER TO THE EDITOR

Dear Editor:

The joke might be lost on some readers, but John Spessard makes his intention clear by mentioning W. S. Gilbert in the title of his May/June article; the article is evidently meant as an elaborate hoax. How well does it succeed? Opinions are bound to differ, but those least amused will be Dr. Spessard's "experienced professionals," they whose plight has been described time and time again in these pages; see in particular the issues of May/June, 2002 (p.5) and Sept., 2003 (p.5).

Dr. Spessard's joke is featured in the very issue of *The Southwest Retort* that reminds us (p.12) how "the distressing trend of continually lower turnouts in ACS presidential elections continue."

We can agree that this at least is no laughing matter.

Erwin Klingsberg,
4000 Massachusetts Ave.,
NW, Apt. 930,
Washington, D.C. 20016,
e-mail: anerwk@juno.com.

This Month in Chemical History

Harold Goldwhite, California State University, Los Angeles
Prepared for SCALACS, the Journal of the Southern California, Orange County,
and San Geronio Sections of the American Chemical Society

A few weeks ago, in casual conversation at a party, a regular reader of my column (Professor Harry Gray of the California Institute of Technology) challenged me with a history of science question. Did I know the origin of the term "photon" as used in physics and chemistry? I flunked abysmally! Thanks to the kindness of Professor Gray, who forwarded to me several relevant documents and citations, I am now much better informed on this topic. So I might say that this column is guest written by my generous informant. Of course I take full responsibility for all errors and omissions of fact or interpretation.

The word photon in its present sense was first applied to the quantum of electromagnetic radiant energy by none less than Gilbert N. Lewis, that great contributor to our modern views of electronic structure, acids and bases, thermodynamics, and many other areas, and head of the Chemistry department of the University of California at Berkeley, in a letter to the journal "Nature". The letter appears on pages 874 and 875 of the issue of December 18, 1926 (No. 2981, Vol. 118) and is titled "The Conservation of Photons."

While Max Planck invented the idea of the quantum of radiation as a purely formal device to explain the phenomena of black-body radiation in 1900, and Albert Einstein had applied this idea to explain the photoelectric effect in 1905, thus gaining for it the attention of the scientific community, they had referred to it as a light quantum. By 1926 the supporting evidence for this aspect of quantum theory was so strong that Lewis could write: "Indeed, we now have ample evidence that radiant energy (at least in the case of high frequencies) may be regarded as traveling in discrete units, each of which passes over a definite path in accordance with mechanical laws." The parenthetical proviso reminds us that perhaps the most convincing evidence for quantized radiation up to 1926 came from the observation of the Compton effect by Arthur Compton in 1923, which involved X-radiation.

Lewis went on much further than we would accept today with his views on light quanta. "Had there not seemed to be insuperable objections, one might have been tempted to adopt the hypothesis that we are dealing here with a new type of atom, an identifiable entity, uncreatable and indestructible, which acts as the carrier of radiant energy and, after absorption, persists as an essential constituent of the absorbing atom until it is sent out again bearing a new amount of energy." So Lewis' view of the light quantum is that it is a new kind of fundamental particle. "I therefore take the liberty of proposing for this hypothetical new atom, which is not light but plays an essential part in every process of radiation, the name photon."

Lewis proposes six fundamental postulates for the properties of photons, of which I will just mention a couple. In any isolated system the number of photons is constant. All photons [like all electrons or all protons HG] are intrinsically identical. He then goes on to suggest that the thermodynamics of radiation (the

origin of Planck's invention of quantum theory) and the laws of spectroscopy lend substantial support to this view of the photon. And finally he proposes some new experiments to clarify the proposal: " .. a molecular stream might be passed through the centre of a tube cooled to a very low temperature....in such circumstances ... fluorescence or the emission of light from activated atoms, would be profoundly changed."

Although the scientific world did not accept the extended views of Lewis on the nature of photons, the word was rapidly incorporated into scientific vocabulary. But this was a new use of a word apparently first coined (according to the authoritative Oxford English Dictionary) in 1916 by L. T. Troland to describe a unit of illumination of the retina, and it was still being used in this context as late as 1953. In 1921 J. Joly gave yet another meaning to the word. He proposed that the unit light stimulus discharged by a single visual fiber, which represents a very small amount of energy and must not be confused with the quantum of energy, should be called a photon. There are no subsequent citations for this use of the word.

So take care in your reading of early literature when you encounter the word photon. And make sure, when your friends ask you questions you cannot answer, that they help give you the information that will lead you to a fuller understanding.

[Place Katie HUNT Ad here.]

Around-the-Area

University of Arkansas

Analytical faculty member **Ingrid Fritsch** has been promoted to full professor. She joined the faculty in 1992. On May 30 she and **Charles Wilkins** welcomed the birth of their second child together, Eric Fritsch Wilkins. Eric's older brother is Connor Wilkins Fritsch. Physical chemist **Xiaogang Peng** was also promoted to full professor. He joined the faculty in 1999. Cosmochemist **Derek Sears** has been promoted to distinguished professor. He joined the faculty in 1981.

Thirty-three faculty and students attended the annual float trip on the Buffalo River in May. Renovation has begun on the Chemistry Building. The department has ten new graduate students for the fall term.

A. J. Jaber, Jeff Jones, and Coy Batoy presented papers at the American Society for Mass Spectrometry meeting held in June in San Antonio. **Bob Gawley** spoke in June at the Gordon Conference on Mycotoxins and Phycotoxins. **Jack Lay** attended the American Society for Microbiology meeting in June. He attended an NIH review panel meeting in July. Undergraduate **Shelly Kaufman** and graduate student **Yonghai Chai** gave papers at the National Organic Symposium held in Salt Lake City in June. Also attending were faculty member **Matt McIntosh** and undergraduate **Aireal Haley**. Dr. McIntosh attended a Cottrell Scholars meeting in Tucson in

July. He also served as the Vice Chair of the Organic Reactions and Processes Gordon Conference and attended the Fall ACS Meeting in Washington, D.C. **Neil Allison** attended the Organometallics Gordon Conference at Salve Regina University in July. **Bill Durham** gave a paper at the 16th International Symposium on the Photochemistry and Photophysics of Coordination Compounds in Pacific Grove, CA in July. **David Vivic** gave talks in July at the Organometallics Gordon Conference, the Organic Reactions and Processes Gordon Conference and the Inorganic Gordon Conference. **Frank Millet** presented a talk at the Molecular and Cellular Bioenergetics Gordon Conference. **David Paul** traveled to Moscow July 11-23. Graduate student **Cynthia Sides** collected data at Argonne Labs July 13-16. **Joshua Sakon** attended a Gordon Conference July 23-27. **Xiaogang Peng** gave a series of talks in China and Singapore in June and July. He also served as an NSF panelist. **Peter Pulay** was an invited speaker at the Computational Nanoscience International Conference in Nara, Japan, June 14-17. He also gave talks at Kyoto University and Waseda University. Attending and giving papers at the Fall ACS Meeting in Washington, D.C. were **Ingrid Fritsch, Peter Pulay, Charles Wilkins, and Jeff Jones**.

Sacred cows make the best hamburgers.
- Mark Twain

South Plains Section

Texas Tech University. Niwayama Wins Award. Associate Professor **Satomi Niwayama** will receive The Japanese Society for Process Chemistry 2005 Award for Excellence. Among other things, Dr. Niwayama is being honored for his work on practical monohydrolysis of symmetric diesters. His award lecture and award ceremony are scheduled for July 20-21, 2006, during the Summer Symposium of The Japanese Society for Process Chemistry, which will be held in Kyoto.

In Memorium: Jerry Mills. *This obituary was contributed by one of Dr. Mills' Ph.D. students, Dr. David Harwell.*

Professor Jerry L. Mills, Professor Emeritus of Chemistry at Texas Tech died Mar. 17, 2005, at the age of 62. An advocate for students and a mentor to many, Jerry will be remembered for his caring personality, illustrative lectures and mischievous sense of humor.

Synthesized in Midland, TX, Jerry attended the University of Texas, where he first earned a B.S. in 1965 and later a Ph.D. in 1969 with Alan Cowley. After graduation Jerry moved on to postdoctoral studies under the direction of Sheldon Shore and Larry Anderson.

Jerry swept into Lubbock, TX on the heels of a powerful tornado, where he conducted research and taught at Texas Tech University for 22 years. During his tenure he authored approximately 65 technical papers in main group chemistry published in major journals. He also

had additional publications in chemical education including several study guides developed for McGraw-Hill. During his academic career, Jerry served as research advisor for 22 students (18 Ph.D. and 4 M.S.).

Jerry's research was in the field of inorganic chemistry focusing on the synthesis, structure, and reactivity of main group and other non-transition metal compounds. Specifically of interest were main group elements of unusual oxidation state and coordination. He had a longterm interest in the polymers of the Group 5 elements including rings, chains, and cages formed by phosphorus as well as Lewis acid-base interactions.

While at Tech, Jerry served the Department in several roles including undergraduate advisor, pre-med advisor, and associate chair (1975-82). Jerry was a member of Phi Eta Sigma, Phi Lambda Upsilon and Sigma Xi honor societies as well as ACS, The Royal Society of Chemistry, the Association of University Professors, and the Texas Academy of Science. While a member of the South Plains Section of the ACS, Jerry served as secretary, chair, councilor and student affiliate advisor, but not at the same time.

At age 50 Jerry left the bureaucracy and politics of academic life to pursue his second love: cooking. He moved to the big island of Hawaii and opened a restaurant in the shadow of Mauna Kea in the town of Waimea. Jerry was a consummate chef attracting a loyal following of patrons who came every Friday night for his weekly culinary feature.

Jerry will be missed by his extended family of students and

friends. *A Hui Hou*, Jerry! May you find peace (and a good kitchen) on your journey.

Professor Shaorong Liu has been awarded a three year grant for \$385,000 from NSF to study "Liquid Behavior Unique to Nanochannels: Modeling and Applications." **Professor Guigen Li** will be a member of the Editorial Advisory Board for the new journal *Chemical Biology & Drug Design*. **Welch Professor William L. Hasse** served as a member of the NIH committee reviewing proposals for National Centers for Biomedical Computing. Professor Hasse has also been appointed as a member of the Pacific Northwest National Laboratory (PNNL) Directorate for 2005-2008. The Directorate met in June to review PNNL programs.

Dallas-Fort Worth Section

In Memorium Roy Wilkins.

Roy Allen Wilkins, Jr., chemist and inventor, passed away on May 21, 2005, at the age of 79. Roy served in the U.S. Army 94th Chemical Mortar Battalion during World War II, fighting in the Battle of the Bulge. He earned a B.S. degree in chemistry from LSU in 1951 and a doctorate from Ohio Christian College. He was a fifty year plus member of ACS. He is survived by his wife, Gwen, and several children and grandchildren.

TCU. Tracy Hanna was a session chair at the Inorganic Chemistry Gordon Conference in July, and presented a poster titled "Synthesis and Ligand Exchange of Homo- and Heteroleptic Bismuth Aryloxides and Amides" at the National ACS meet-

ing in Washington, DC in August. Her graduate student, **Mauricio Quiroz**, won an ACS Inorganic Chemistry Division Travel Award to present his poster titled "Synthesis, Characterization, and Catalytic Activity of Molybdenum (VI) Mono- and Dioxo Compounds with Bulky Aryloxide Coligands" at the same ACS meeting; his poster was selected for a second presentation at Sci-Mix.

In June, **Jeff Coffer** gave an invited presentation at the European Materials Research Society in Strasbourg titled "The Impact of Erbium on the Structure and Photophysics of Silicon-Germanium Nanowires." In August, he gave an invited presentation at the InterAmerican Materials Science Workshop in Cancun titled "Fabrication and Photophysics of Erbium-Doped Zinc Oxide Nanowires." Students **Scott Dunkle** and **Vladimir Sereguine** also attended this meeting.

UT-Arlington.

Faculty

Changes. The University has hired three new chemistry faculty. **Dr. Kevin A. Schug** is assistant professor of analytical chemistry. He received his undergraduate degree at the College of William and Mary and his Ph.D. from Virginia Tech, working for Professor Harold McNair. In 2002 he began a postdoctoral appointment at the University of Vienna with Professor Wolfgang Lindner. His work there focused on fundamental biomimetic and chiral separation strategies by electrospray ionization mass spectrometry. At UTA he will continue to focus on molecular recognition and the bridging of interdisciplinary fields using

analytical separation and mass spectrometric techniques.

Kevin's upbringing centered on horseback riding and team sports. He actually played football for one year at William and Mary before giving it up to concentrate on his studies. He is married to his college sweetheart Dani, and the couple expect their first child in October.

Dr. Richard (Xiyun) Guan is also a new assistant professor of analytical chemistry. He received his undergraduate training at the Chira University of Geosciences in Wuhan. His master's degree was obtained at the Chinese Academy of Geological Science in Beijing, where he worked in the area of geochemistry. He received his Ph.D. from the University of Kentucky in 2002. There followed a post-doctoral appointment at Texas A&M from 2002-2005.

Richard considers himself a bio-analytical and biophysical chemist. He is interested in single molecule studies using nanopore techniques, developing biomaterials for use in sensors, and direct and in-situ environmental monitoring and medical diagnosis. He is married to Jingyu Zhou, a computer scientist. The couple have a daughter Rebecca. One of Richard's big hobbies is fishing.

Dr. Subhrangsu S. Mandal is a new assistant professor of biochemistry. He received a B.Sc. degree with honors in 1989 from Midnapore College in India. His M.Sc. degree with first class honors was obtained in 1992 from Kalyani University in India. He received his Ph.D. from the Indian Institute of Science in Bangalore. His postdoctoral appointments were at University of Alberta and at

the Howard Hughes Medical Institute at the University of Medicine and Dentistry of New Jersey.

Subhrangsu plans to do research on the biochemistry of eukaryotic transcription and gene regulation in humans. His hobbies are playing soccer and hiking. He is married to Saoni Mandal, who has a graduate degree in botany. The couple have one daughter, Subarna.

Dr. Gary Kinsel has left UT-Arlington to become Professor of Chemistry at Southern Illinois University. His wife **Dr. Mary Kinsel** will head the mass spectrometry facility there and also teach chemistry.

Dr. Dmitry M. Rudkevich presented a talk on "Supramolecular Materials for Sensing and Fixation of Gases" at Nano Summit-2005 in Houston in July. Dr. Rudkevich's and **Dr. Rasika Dias'** synthesis of a novel group of nanotubes received wide coverage in the latest issue of *Chemistry World*, a Royal Society of Chemistry journal. The isolation a number of years ago by Dr. Dias and graduate student **Weichang Jin** of a bottle stable tricarbene has been recognized as a world record in chemistry. Dr. Dias' research activities were recently highlighted in the Robert A. Welch Foundation annual report. Dr. Dias and **Ms. Bhupinder Mangat** of Sunset High School in Dallas received a High School Teacher Grant from the Texas Higher Education Coordination Board to work on the development of environmentally friendly catalysts and light emitting materials.

Dr. Dennis Marynick gave an invited lecture in August at the symposium on "Structure and Function

of Chemistry and Biology: A Symposium for Celebrating the 85th Birthday of Professor William N. Lipscomb” held in Shanghai, China. Dr. Marynick’s talk was titled “Modeling Intermolecular Interactions in MALDI Mass Spectrometry.”

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LATE SEPTEMBER AND OCTOBER METROPLEX SEMINAR SCHEDULE

Area universities are just now arranging their fall seminar schedules, so this schedule is incomplete. Seminars are sometimes postponed or cancelled, so readers are urged to call the departments or check departmental websites before attending.

UT-Arlington. Sept. 23, Douglas F. Taber, University of Delaware, “Computational Organometallic Chemistry: Synthesis of the Hepatocyclic Pyrazine Core of the Ritterazine Alkaloids.” **Sept. 30**, Jon Parquette, Ohio State, “Structure and Function of Folded Dendrimers.” **Oct. 7**, Jack Norton, Columbia, “Ruthenium-catalyzed Ionic Hydrogenation of C=N: Scope and Enantioface Selectivity.” **Oct. 14**, Angel Kaifer, University of Miami, “Cucurbit[n]urils: A New Class of Molecular Receptors.” **Oct. 21**, Karen Goldberg, University of Washington, “Mechanistic Studies of Fundamental Reactions Steps in Late Metal Homogeneous Catalysis.” **Oct. 28**, Jeff K. De Brabander, UT-Southwestern Medical Center, Dallas, “Natural Product Synthesis: A Platform for Discovery.” Seminars are normally at 2:30 p.m. in Room 114, Baker Chemistry Research Building.

University of North Texas. Sept. 23, Steve Nolan, University of New Orleans, “The Use of N-Heterocyclic Carbenes in Homogene-

ous Catalysis.” **Oct. 7**, Kirk Peterson, Washington State University, “Correlation Consistent Basis Sets.” **Week of Oct. 10**, John Richard, University of Buffalo, “Binding Energy and Catalysis by Small and Large Molecules.” **Oct. 21**, Richard Larock, Iowa State, “Polymeric Materials from Biological Oils.” **Oct. 28**, Oliver Chyan, UNT, TBA. Seminars are normally at 3:30 p.m. in Room 324, Masters Hall.

Texas Christian University. **Sept. 20**, Ling Hua, SMU, “Enzyme Catalysts for Organic Synthesis.” **Oct. 4**, Camille Falck, UT-Southwestern Medical Center-Dallas, “The Chromium Chronicles.” Seminars are normally at 11 a.m. in Lecture Hall 3, Sid Richardson Science Building.

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Editing at a Distance

Managing Editor **Mary Teasdale** is now a chemistry instructor at Washburn University in Topeka, KS. She will continue her duties as Managing Editor. Material sent to Mary by U.S. mail will probably take a day longer to reach her, so contacting her by e-mail is encouraged. Her e-mail address is still owlcritic75@yahoo.com. Her mailing address is 1801 SW Jewell Ave., Topeka, KS 66621, and her phone number is 785-670-3414.

This Month in Chemical History

By Harold Goldwhite,
Prepared for SCALACS, the Journal of
the Southern California, Orange County,
and San Geronio Sections of the
American Chemical Society

When I first encountered Le Chatelier’s principle in my physical chemistry course ... I somehow assumed that its propounder was an early eighteenth century scientist. Later, when I became more aware of the historical development of the sciences I realized that my assumption could not hold. In fact Henri Louis Le Chatelier lived well into the twentieth century. He was born in Paris on October 8th 1850 and died in Miribelle des Echelles, in the Isere, on September 17th 1936, just short of his 87th birthday.

Le Chatelier’s career is fully described by Cecil H. Desch in *Chemical Society Memorial Lectures Volume IV, 1933-1942* and this article is based on that account. His father had been educated at the Ecole Polytechnique and the Ecole des Mines and played an important part in many industrial developments including steel and aluminum production. He was friendly with many leading French chemists including Chevreul and Dumas, and maintained a private chemical laboratory. Henri, the oldest of six children, entered the Ecole Polytechnique, the most respected scientific and technical university in France, in 1869. In 1871, following in his father’s footsteps, he transferred to the Ecole des Mines

for more work in engineering. During a brief interlude in government service he published his first short article on the analysis of slag in wrought iron.

Le Chatelier was asked to rejoin the Ecole des Mines as professor of general chemistry in 1877 and in addition to teaching began research on cements for his doctoral thesis. He clarified the mechanisms of setting of a wide range of siliceous and calcareous cements. Throughout his career Le Chatelier recognized no distinction between pure and applied research. One of his favorite examples was the work of Sadi Carnot trying to understand the efficiency of steam engines, which led to the second law of thermodynamics. In 1887 he greatly improved the operation of thermocouples developing the platinum/platinum plus 10% rhodium couple which became the international standard.

The next set of researches was on the problem of methane and carbon monoxide explosions in mines. Ignition temperatures and flame velocities of various gas mixtures were determined, as well as heat capacities and enthalpies of combustion, and Le Chatelier and his collaborators developed improved methods for analyzing gases in mines, and safer explosives for mining. These studies of gas mixtures and concurrent work on thermal dissociation of calcium carbonate led Le Chatelier to a fuller appreciation of thermodynamics and in 1884, generalizing an idea put forward by van't Hoff for the effects of temperature on equilibria, came the first statement of what later became famous as Le Chatelier's Principle.

In a paper of over 100 pages published in the *Annales des Mines* for 1888 the Principle was stated in a compact form which I can recommend to instructors of chemistry: "Every change of one of the factors of an equilibrium occasions a rearrangement of the system in such a direction that the factor in question experiences a change in a sense opposite to the original change." The Principle was applied to a wide range of systems in this article, but the *Annales* was not a widely read journal, and it was not until 1909 that Nernst made a wider range of scientists aware of this work.

Le Chatelier was among the first in Europe to appreciate the thermodynamic ideas of J. Willard Gibbs, and he translated some of Gibbs' work into French and used the Phase Rule in metallurgical studies. In 1898 he moved to the Chair of mineral chemistry at the College de France where his clear and thorough teaching was widely admired. He also published a number of authoritative texts. Entering a new field he began lecturing on metallurgy, and started a study of alloys which led him to develop new microscopy methods for metals and alloys. During World War I Le Chatelier worked on improving casings of artillery shells and after the war he contributed articles on the relationship between science and industry and the teaching of chemistry and technology.

Le Chatelier [...] married in 1876 Mlle. Genevieve Nicolas and his surviving family in 1937 included his widow, seven children, thirty four grandchildren, and six great grandchildren.

October, 2005, D-FW ACS Meeting

University of Dallas

Tuesday, October 18, 2005

Dr. John Fish, UT-Dallas

***“History of Semiconductor Chemistry
in the Southwest”***

After Texas Instruments obtained the license for making germanium transistors from Bell Labs, they hired several chemists and chemical engineers to make and manufacture the first silicon transistor. The overwhelming challenges of this task and the accomplishments of these gifted scientists will be presented. Their further remarkable careers will be discussed. The founding of Intel by chemist Gordon Moore along with Bob Noyce is also part of this story.

About the Speaker: Dr. John Fish was a longtime employee of Texas Instruments and after retirement became affiliated with UT-Dallas. He has been active in local section affairs and has served the D-FW ACS Local Section as chair.

Time: Social Hour 6 p.m. – Upstairs Haggard Hall
Dinner 7 p.m. – Upstairs Haggard Hall
Lecture 8 p.m. – Room 2, Science Building

Dinner: Dinner will be Texas Barbeque Buffet at \$14 per person. Make reservations by 5 p.m., Thursday, October 13th. Contact Bill Hendrickson, 972-721-5069, by e-mail hendrick@udallas.edu. Members are responsible for reservations made but not used.

Directions: Coming from either east or west, take the Tom Braniff exit off Highway 114, near Texas Stadium. Turn South on Tom Braniff Drive. Then turn right onto East Northgate Drive. If you are coming on Highway 183, take the Carl Road exit and go north on Carl to the traffic light at East Northgate, turning right as above. Park in Lot A by the tower. Haggard University Center is the first building north of the tower.