

The Very Model of a Modern Profession5

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**May/June
2005**

PERIODICAL

FIFTY YEARS AGO IN *THE SOUTHWEST RETORT*

The May tour speaker is Research Professor **Waldemar T. Ziegler** of the Georgia Institute of Technology. His topic will be "Properties of Matter at Low Temperatures."

Dr. Charles W. Arnold of UT-Austin has received first Phi Lambda Upsilon award for the outstanding Ph.D. thesis in chemistry and chemical engineering in the United States. The title of his dissertation was "A Thermodynamic and Spectroscopic Study of Ethylene Oxide." The work was joint research in both chemistry and chemical engineering and was directed by Professor **K. A. Kolbe** from chemical engineering and **F. A. Matsen** from chemistry. The research was funded by a grant from Celanese Corp. The \$500 award was given at the Cincinnati ACS meeting. Also attending the ACS meeting were faculty members Drs. **G. W. Watt** and **H. L. Lochte**. Dr. K. A. Kolbe is the University of Texas representative to the 4th World Petroleum Congress being held in Rome at the end of May. Dr. F. A. Matsen gave one of the four opening papers at the Symposium on Quantum Theory of Molecules held in Stockholm Mar. 21-14.

Solvay's alkali manufacturing plant in Baton Rouge opened 20 years ago. Solvay is now a division of Allied Chemical and Dye Corp.

Pope Laboratories of Dallas was awarded a certificate showing the highest standing in the U.S. in collaborative work on cotton seed. **R. C. Pope**, head of Pope Labs, is a former editor of *The Southwest Retort*. **Richard G. Guerrero** and **C. T. Kenner** of SMU recently had a paper published in *Journal of Sedimentary Petrology*. This was a joint effort of the SMU chemistry and geology departments. **Will Swerdloff** and **Maryann Duggan** of Magnolia's Field Re-

search Laboratory recently presented a paper at the Natural Gasoline Association of America meeting held in Dallas in April. Maryann is now changing duties at Magnolia, as she has recently been named Director of the Technical Library. The D-FW Section's annual picnic will be May 21.

New Southeastern Texas member **Rolie B. Williams** of Humble Oil Co. gave two talks: "Aromatics Characterization by Nuclear Magnetic Resonance Spectroscopy" at the Gulf Coast Spectroscopic Conference in Galveston. He also gave a presentation on "Quantitative Determination of Elemental Hydrogen by Nuclear Magnetic Resonance Spectroscopy" at the recent Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy.

Dr. Fred Jensen, Chemistry Department Chairman, was the only Texas A&M faculty member to attend the Cincinnati ACS meeting. He serves as a member of the ACS Committee on Professional Training. **Dr. Tom Burkhalter** recently gave a talk to the Corpus Christi ACS Section on "Analyses by High Frequency Methods."

At Baylor **Dr. Virgil Tweedie** has received a summer appointment as a research participant in the summer program of the Oak Ridge Institute of Nuclear Studies. Recent instrument purchases in the department include a Beckman DK spectrophotometer from a Geschickter grant to **Dr. William B. Cook**, a Sargent Model XXI polarograph for **Dr. Thomas C. Franklin**, a Rudolph Precision Model 70 polarimeter for **Dr. A. G. Pinkus**, and Tracerlab "64" Scaler radiation counter for **Dr. Virgil Tweedie**. The latter three instruments were funded by a grant from Research Corp.

Editor's Note. Since The Southwest Retort didn't start publishing in September until 1956, this column will be absent in September but will return in October.



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Southwest Retort

FIFTY-SEVENTH YEAR

May/June 2005

THE VERY MODEL OF A MODERN PROFESSION (WITH APOLOGIES TO W. S. GILBERT)

© June 2005

By Dr. John Spessard, 18827 Amador Ave., Dallas, TX 75252
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Editor's Note. We present Dr. Spessard's simple but challenging model for our readers' consideration. As is always our practice, we welcome comments on this piece, both pro and con, for future publication in our magazine.

People use models to understand, provide insights, and predict the behavior of real world systems. Models have proven to be useful. I am providing a model of a profession. I am an Experienced Professional. The opinions expressed are not necessarily mine. I leave to the reader to decide how useful is this model.

I. The Profession

This profession has 40 members in a single organization. The membership is static. A career is 40 years.

Each year a person enters the profession, and one person leaves due to death or retirement. There are 30 Professionals, six Group Leaders, three Managers, and one Director. For the first five years a Professional is at the Entry Level. After that the Professional is Experienced. At between 10 and 20 years a Professional is eligible for promotion to Group Leader. At between 15 and 25 years a Group Leader is eligible for promotion to Director.

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II. Assumptions/Implications

1. The strategy of forced early retirements and downsizing while still hiring new people has the advantage of providing (a) a younger work force without any age gaps and (b) a more constant supply of promotable Professionals.

2. The dynamics of a Profession change depending on whether the population is expanding, constant, or shrinking.

3. The most reliable predictors of the health of a Profession are early retirements and downsizing.

4. Entry Level Professionals will continue to enter the Profession even during hard times. In the worst of times, hiring will be restricted to "A" students.

5. Therefore, if Entry Level "B" and "C" students are not finding jobs, the Profession is in bad shape.

6. Information from Training Institutions (some call them colleges or universities) concerning the job market is easily obtained but provides little valid information about the health of the Profession.

7. Improved health care has prevented Experienced Professionals from dying prior to retirement. This has forced early retirements and downsizing.

8. Once an Experienced Professional has left the Profession, prospects for return are at best bleak.

III. The Static Profession

Membership remains at a static 40 people. Each year one person dies or retires, and the Training Institutions provide one Entry Level Professional. The implications are interesting. First of all, Entry Level Profes-

sionals are always in short supply. There are six groups and only five Entry Level Professionals. A Group Leader can easily provide nurture and guidance to at least two Entry Level Professionals. Entry Level Professionals are always in demand, in part due to their relatively low salaries and to their long term potential. (The reader may mentally review the proportion of employment ads he/she has seen for Entry Level and Experienced Professionals. The reader should remember that many of the ads for Experienced Professionals are not genuine opportunities but are instead ploys to justify the retention of an alien who presently holds the position.)

With 30 Experienced Professionals and only ten Managerial Professionals, it is apparent that not every Experienced Professional can enter management. It also follows that, if a Manager is promoted to Director in the 25th year, there can be no opportunities for 15 years for a Manager to be promoted to Director. In turn, this makes it more difficult for a Group Leader to become a Manager and for an Experienced Professional to become a Group Leader.

Removing an Experienced Professional or non-promotable supervisor through either early retirement or downsizing can resolve these problems. This allows for bringing into the Profession each year **two** Entry Level Professionals to give a total of ten. This allows each Group to have at least one Entry Level Professional and for most groups to have two such people. Even better is each year to remove two additional Experienced Professionals and bring in

three Entry Level Professionals. This strategy provides the Profession with 15 Entry Level Professionals and allows each Group to have a minimum of two Entry Level Professionals.

The strategies delight the Training Institutions in that their market is either doubled or tripled. Therefore, the Training Institutions will enthusiastically cooperate. The Profession has a Professional Organization, and the increased influx of Entry Level Professionals benefits the Professional Organization and provides justification for optimistic forecasts.

An alternate strategy that allows an increased employment of Entry Level Professionals is the alternate career path. Here Experienced Professionals are encouraged to seek alternative career paths and leave the mainstream of the Profession. Examples include sales, banking, security analysis, and entrepreneurship. The Training Institutions will enthusiastically maintain that the prior professional training was an essential ingredient for the Experienced Professional to make the transition. After all, the Training Institutions maintained for centuries that an essential ingredient for success in life was the mental discipline acquired by learning classical Latin and Greek.

This unfortunate situation has been brought on by improved health care and longevity. If we could return to the health care standards of the 1920's and 1930's, death of working professionals would have maintained the balance at a more desirable level.

It is also clear that an Experienced Professional who has left the Profession is not competitive with an Entry Level Professional. Conse-

quently, his/her prospects for rejoining the Profession are poor.

IV. The Expanding Profession

In the early stages a new Profession may experience explosive growth. Examples include polymer chemistry, semiconductor research and production, computer programming, the environmental field, and telecommunications.

Consider our Model Profession with a ten percent growth rate for five years. Each year five Entry Level Professionals enter the field and one Experienced Professional leaves through death or retirement. With five new Entry Level Professionals, each year a new Group and Group Leader is needed. Every second year a new manager is needed. Eventually there may be a second Director and a Vice President. After five years the Profession has 60 people with 25 of them being Entry Level Professionals. This provides a satisfactory ratio of Entry Level Professionals to Experienced Professionals (better than 40%).

Unfortunately, in time the Profession reverts to a static status. Say after five years the population stabilizes at 60 Professionals, with two and one, respectively, entering and leaving in alternate years. There will be 25 people in the five-year group representing the boom years and seven or eight people in the other five-year groups. The opportunities for the 25 person five-year group and the people junior to them will be very limited.

To avoid this situation, Entry Level Professionals must be brought in at a higher rate, and Experienced

Professionals will need to experience early retirements or downsizing.

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V. The Shrinking Profession

Suppose the Profession shrinks at a rate of 2.5% or one person per year for five years. This can be accomplished by not hiring anyone for five years. This creates the problems of a five-year gap with no new people, an aging workforce, and eventually an absence of Entry Level Professionals. This does not bode well for the long-term prospects of the Profession.

What can be done is to reduce hiring to one Entry Level Professional every other year and to use early retirement or downsizing to maintain the target headcount. The Entry Level Professional hiring will be limited to outstanding prospects, the "A" students from the Training Institutions. This will somewhat placate the Training Institutions and the Professional Society in that there will be a supply of new recruits. The Profession may also bring in Entry Level Professionals at the normal rate and use early retirements and downsizing to maintain the head count.

VI. Conclusions

If the reader accepts this model as reality, then the health of a Profession can be measured on this basis:

Are the competent but not brilliant "B" and "C" students finding jobs? If the "B" and "C" students are not finding jobs, then all is not well with the Profession.

This may be a more valid indicator than the pronouncements from the Training Institutions, Professional Society, and Professional Management. They consistently maintain that there is or will be a dire shortage of professionals and that glorious days are just ahead.

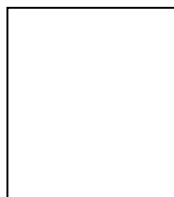
The rates of early retirements and downsizing of Experienced Professionals are also valid indicators. The rate of hiring of Entry Level Professionals from the Training Institutions is easy to obtain but may not be informative. The early retirement and downsizing data are both more difficult to obtain and also paint a less optimistic picture. If one's objective is to provide an optimistic scenario, it is best to avoid this information.

Perhaps *Retort* readers are familiar with a profession that this model describes. If so, it may be crucial for readers to decide if this profession is in the static, expanding, or shrinking mode.

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TI'S TRISH SMITH WINS 2005 DOHERTY AWARD

By E. Thomas Strom



The Gallery of Doherty Award Winners is in the front hallway of Berkner Hall at UT-Dallas. All honorees from the first to the most recent are pictured. When you walk down the corridor, you see large photos of the finest chemists in the history of our section. When I look at my picture as part of this group, I have conflicting emotions of embarrassment and irritation. Embarrassment, because I am in this group of outstanding researchers solely for my work for the local chemical profession, although I do have some good research accomplishments, and irritation, because whenever the organic lab door is open, my picture is covered up. As you peruse the pictures in the Gallery, you are saddened to see that some of the group are no longer with us. Such fine chemists as Morton Mason, Ralph Shriner, Gordon Teal, Tom Kenner, Paul Bartlett, and Paul Sreere have passed on. However, one other thing hits you in the eye. There are no women up there! With women nowadays constituting a large percentage of chemical graduates, how can this be? Well, the streak has finally been broken in 2005 with TI's Dr. Patricia (Trish) Smith joining the ranks of Doherty Award winners.

Trish joined TI in 1986. Her career has been spent working on chemical cleaning and etches for the wafers that make semiconductors work. It's easy to overlook the importance of those processes, but they are the most significant factors that go into the making of the wafers. Without clean surfaces the wafers just don't work! What you **don't want** in the wafer is any trace of the photoresist. In 2001 she received an ACS Southwest Regional Industrial Innovation Award for her development of hydrogen plasma processes for photoresist removal from semiconductor wafers containing copper and low dielectric constant material. During her career she has published 24 papers and holds 16 U.S. patents. Additionally, she has received eight TI patent incentive awards.

The matter of patent incentive awards deserves further explanation. As you readers are aware, industry expects that their chemists will make money for them. A patent gives an industry the right to use a process or make a material exclusively for the life of the patent. However, not all patents are money makers. Some are useless. TI reviews their patents at three, seven, and eleven year intervals to determine their commercial impact. If the inventor can document a significant positive effect of the patent on TI's bottom line, then he/

she can receive a patent incentive award. For patents that have brought in large profits, the cash amount of the award can be substantial. To have half of her patents qualify for such recognition demonstrates Trish's value to her company.

Trish grew up in Springfield, MA. Her parents had limited economic resources, so her going to an Ivy League school was quite a stretch. She was a top swimmer in high school, but she didn't get a swimming scholarship to Brown. She did get other scholarship aid from Brown and outside sources. She had 20 hours of work study all through her career at Brown. She started out on the Brown swimming team, swimming butterfly, breaststroke, individual medley, and butterfly in the medley relay, but she eventually had to give that up to keep her grades where she wanted them to be. She had had a poor high school chemistry course, so first semester freshman chemistry was difficult, but from then on she had caught up with her fellow students, ranking at or near the top in all of her courses.

Her undergraduate research mentor Aaron Wold encouraged her to go to graduate school, so she chose Princeton. There she worked with Steven Bernasek. She was his first Ph.D. student to work in a joint research project between Bernasek and Princeton organometallic chemist Jeffrey Schwartz. The project involved applying organometallic chemistry to rationally modify surface properties. Trish developed protocols for modifying metal oxide surfaces. She was among the first to apply ultra-high vacuum surface

science tools, such as electron diffraction and electron spectroscopy, to these large molecule interactions with well-characterized surfaces. She published four papers in this area, and since that time her work has been continued by eight graduate students.

Trish had met her future husband Brian, a mechanical engineer, at Brown. They both went to graduate school at Princeton and were married after Trish's first year there. Brian works for Lockheed-Martin. The couple have three children: Emily, age 14; Matthew, age 12; and Bradley, age 5.

She has been active in science education within the D-FW community. She met two high school teachers who worked at TI summers. These contacts led to her speaking to classes at J. J. Pearce and Hockaday. When her children started school, she then asked to talk to their classes about science. She uses examples from silicon chemistry and from mineralogy. Over the past ten years she has given well over 100 presentations at elementary, middle, and high schools.

At TI Trish has the position as Distinguished Member of the Technical Staff. Technical advancement at TI is done by peer review, so Trish's promotion was voted on only by other Distinguished Members and by TI Fellows. Only 2% of TI staff have the position of Distinguished Member. Trish mentioned that the climate at TI was tremendously supportive of her when she joined her present group in 1995. Her colleagues encouraged the thinking "outside the box" that resulted in her technical advances.

Trish says she has way too many hobbies. They include swimming, golf, downhill skiing, most any sport, photography, crocheting, and cooking. She faithfully attends her children's many school activities. On top of that, she is serving her third term as secretary of the Dallas-Fort Worth ACS Section. The section will certainly learn more about her research when she receives her \$1500 award and gives her award talk at a fall meeting of the section.

It was about time that a woman won the Doherty Award, and Trish Smith sets a high standard for other women (and men!) to match. *The Southwest Retort* congratulates Trish Smith for the well-deserved honor.

[Place Am Polymer Ad here]

Letter to the Editor

Dear Editor:

ACS President Bill Carroll put forth in the January, 2005 *Southwest Retort* a number of excellent suggestions for strengthening U.S. chemistry. Certainly it is to be hoped that chemists who change careers turn in large numbers to educational work of one sort or another. Unfortunately, however, the many among us who have been "involuntarily early retired" see little reason to worry whether the

public does or "does not think as badly of us as we think they do;" involuntary early retirees see even less reason to sing the praises of "chemistry as their life's work."

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CORRECTION

In the interview with ACS President-Elect Ann Nalley published last month in *The Retort*, your Editor stated that he thought the election turnout was greater in 2004 than for the preceding year. ACS President Bill Carroll pointed out to me that my conclusion was incorrect, because second place votes are counted in a three-way election. In 2003 there were 22,646 votes cast, and in 2004 there were 21,679 votes cast. Therefore, the distressing trend of continually lower turnouts in ACS presidential elections continues.

NEW RETORT DEADLINES

You readers will have noticed that your *Retort* issues have been running late. Not every delay can be blamed on the U.S. Postal Service. In January your *Retort* Editor was sick, which delayed writing of copy. In March your *Retort* Managing Editor was taken ill as well. However, most of the delays **can** be attributed to the Postal Service. About two-and-one-half years ago, we could count on two-day delivery in the Metroplex

and only slightly slower deliveries elsewhere. Now delivery takes from seven to fourteen days. Until recently our printers, Minuteman Press, had also done our mailings. Hoping that switching to a commercial mailing service might speed things up, Minuteman Press and your *Retort* staff mutually agreed to use Summers mailing service. So far as we can tell, this change has not resulted in any improvement. We also are troubled by the fact that chemists on our mailing lists often never receive our magazine. Summers tells us that about 1% of second class mail never does get delivered. I am writing this item in June, and I still haven't received my April *Retort*; nor do I expect to.

We can't do anything about the U.S. Postal Service. However, we can make a change in our deadlines. In theory the deadline for copy has been the 1st of the month, but I have always taken copy up to the 5th of the month. In hopes (possibly vain hope) that adhering to the deadline will give us five extra days so that our readers will receive their magazine in the listed month, starting with our fall issues we will hold to that 1st of the month deadline. Readers who miss an issue should let us know, and we will see that they get one.

Place Fox Scientific Here

FAREWELL ALEX

Science coverage in *The Dallas Morning News* took a body blow with the departure of science writer Alexandra Witze at the end of April. Alex was the last full-time survivor of the dismantling of the Discoveries Section in *The News*, which took place in Oct. 2004. She wrote a fine feature in the penultimate Discoveries Section on Jim and Jenny Marshall and the SWRM history symposium. Alex left to become senior news and features editor at the Washington, D.C. offices of *Nature* magazine.

When *The Morning News* eliminated the Discoveries Section, both then ACS President-Elect Bill Carroll and I wrote strong letters to Editor Bob Mong deploring the loss. In his responses to us Mong claimed that science would still have a high priority in the newspaper, and there would be a full page on science and medicine in the main section of every Sunday *Dallas Morning News*. With Alex's departure, I noticed on some occasions that "full page" had ads taking up 40% of its space, and one Sunday the page wasn't even there.

The dumbing down of *The Dallas Morning News* continues.

PURDIE IS 2005 OKLAHOMA CHEMIST

This year's winner of the \$1000 Oklahoma Chemist Award is Dr. Neil Purdie of Oklahoma State University. A profile of Dr. Purdie will appear in a future issue of *The Southwest Retort*.

CHEM GEMS & JOULES

ACT2 Biennial Silver Edition Conference Coming Up. This is a reminder that the ACT2 Biennial Silver Anniversary Conference will be held at UNT in Denton July 5-9. An outstanding group of plenary presenters will be involved. Among them are **John Gelder**, Chief Reader for AP Chemistry at Oklahoma State, **Andy Cherkas** from Stouffville, Ontario, Canada, **Bette Bridges** from Bridgewater, MA, and **Pat Funk** from Pickerington, OH. Special workshops include Lab Coat Tie Dye presented by Pat Funk, Burning Book presented by **Dr. Larry Peck**, and Living Periodic Table presented by **Dr. Jim Marshall**. Come one;

come all! For information contact Diana Mason at dmason@unt.edu, or refer to http://www.statweb.org/ACT2/biennial_information.htm.

Schulz Award. The Dallas-Fort Worth Awards Committee has decided not to give a Schulz Award this year. The Committee solicits high school chemistry teachers within the Metroplex to nominate worthy colleagues to receive this prestigious award. You all are the best judges of the type of teacher who deserves this award. It is something of a chore to work up the nomination packet, but it is necessary that teachers undertake the work anyway to insure that the stature of this award is maintained.

RELECTIONS OF A MASTER TEACHER: JERRY MULLINS

Editor's Foreword. The title of this piece is mine, not Jerry's. Jerry is too modest to claim such a title. However, my giving Jerry the title of Master Teacher is completely justified. Jerry won the Southwest Regional Award for High School Chemistry Teaching in 2001, and he won the Schulz Award in 1995. He was given a D-FW Salutes to Excellence Award last February. His accomplishments are noted in greater detail in pp. 20-21 of the January, 2005 issue of The Southwest Retort. I felt that the reflections of a fine teacher like Jerry on retirement would be interest not only to high school chemistry teachers but to all readers of our magazine.

When Tom Strom called and asked me to contribute to this month's *Retort*, I really didn't know exactly where to start. He suggested that it might be interesting or useful (?) to reflect back on my 35 years of high school teaching and to share some of my thoughts with the *Retort* readers.

After teaching my first three years in the Dallas ISD (biology, physical science, and chemistry), I moved to Plano High School in 1972. I taught chemistry there until I retired in 2004. I returned in January, 2005, just for the spring semester due to an unexpected vacancy on the chemistry team. It proved to be beneficial to both Plano Sr. High School and myself to finish my career with five regular first year chemistry courses.

When I ask myself about my feelings on high school science education, I find myself about as confused as everyone else with whom I talk. If there is anything certain about what should be done to improve the "state of high school chemistry," it is that everyone is very uncertain. The current emphasis on the TAKS appears to be the guiding force (for the moment) in directing the curriculum emphasis. There also appears to be widespread differences of opinion among my colleagues as to the usefulness of such statewide tests. I do know from my own experience that the state testing program has dramatically altered the *ChemCom* curriculum that our district adopted as the chemistry course for regular high school students. The relevant social issues that the ACS used in the development of the *ChemCom* curriculum have taken a back seat to the

concepts that teachers feel they have to cover in order to meet the objectives of the TAKS. As a result, our students are no longer given the opportunity to make connections between the issues presented and the chemistry that helps provide solutions to such issues. That, I believe, limits the student's ability to develop the problem-solving skills that ACS intended when it developed such a unique approach. It also diminished the "chemical relevance" to which students were exposed.

I'm also surprised to see such heavy emphasis by school districts, at least in the suburbs, on assuming that everyone who enters high school must be college bound. Students in the Plano ISD are routinely encouraged by counselors, who I think are pressured by district personnel, to take chemistry when their past record indicates that they are very limited in their chances for success. Students who have trouble in chemistry today have trouble for the same reasons they always did. Poor study habits, weak math skills, poor reading skills, absences coupled with the lack of make-up work, and lack of parental guidance are the main culprits for lack of performance. There is almost a universal feeling among the students that school and learning are simply not priorities in their lives. They do the minimum to just "get by" and avoid the momentary ire of mom and dad (or, in many cases, just mom or just dad). It appears that one of the criteria for "exemplary status" on the state school report card is the number of students enrolled in the "recommended plan." This plan requires that both biology and chem-

istry be completed with a third year coming from another science, usually physical science. Counselors indicate to parents and students that failure to graduate under this plan may severely restrict their chances to get into a good college or university.

It probably looks like I am quite pessimistic about the future of chemical education at the pre-college level. I really do have mixed feelings about where our standards are now compared to 20 years ago. It seems that we are constantly trying to find ways to keep fairly large numbers of students from failing the course, since many of them now need it for graduation. Our expectations of student performance appear to have declined over the past years. Part of the reason appears to be that 20 years ago the bottom 40% of the class never enrolled in chemistry. While reading passages in the text are routinely assigned, the vast majority of students will tell you that they never read the text to any extent. Most of them take their book home and never open it. So, now we teachers use a larger majority of assignments that can be handed out in class, or we make use of the Internet in class to provide the practice. Homework, again routinely assigned, is rarely completed by the majority of the class unless you specifically tell them it will be graded. Even then, students make no attempt to hide the fact that widespread plagiarism occurs.

Before you get tired of reading what appears to be "gloom and doom," I will tell you that I am highly pleased with the top 10-15% of each graduating class. These young

men and women seem to be very good at balancing all the requirements of a demanding schedule, in both school and extracurricular activities. Out of a class of 28 students I see at least 3-5 students on the average who have great math skills, are well organized, and genuinely appear to respect "learning" as a noble trait. They like to be challenged, and they typically rise to the occasion. I am particularly impressed with the students who choose to take AP chemistry. On our campus it requires two hours per day each week. The lab work is extensive, and the pace is demanding. Unfortunately only twenty or so students out of a student body of 2300 choose to take such a course. These students go on to competitive universities and do quite well. I am quite certain that the AP students are the ones who will become the innovators and problem solvers of the future. The rest of the students will sort themselves out to various strata in our culture depending on their maturity, interests, and changes in the way they view the world as they get older.

I leave this world of chemical education much as I entered, teaching regular students. I am certainly older and wiser in some respects. I also realize that I still don't really understand what makes a student want to learn chemistry. I applaud the efforts of local ACS sections, such as D-FW, to continue to offer support to the high school chemistry teachers. Many need the resources that ACS has to offer. Not all are fortunate enough to teach in a good school district, and not all are well versed in their content or their pedagogy.

Many will never teach the “AP type” student. Many will teach two or three class preparations. Some will actually teach four or five preparations. Can you really expect miracles from such teachers?

My thanks to the section chairs under which I have worked, and to outstanding chemical educators in the area such as Diana Mason, Ken Ashley, and Tom Strom, who continue to offer wonderful opportunities for current and future high school

chemistry teachers. As Bob Hope stated, “Thanks for the memories.”

Because of her increased family obligations and professional responsibilities, Robyn Shipley-Gerko can no longer be high school chemistry editor. Until a new editor is chosen, please send material to either Editor Tom Strom or Managing Editor Mary Teasdale at the addresses shown on page 3 of this issue.

AROUND-THE-AREA

Wichita Falls-Duncan

Halliburton Energy Services.

Tom Dealy presented a paper in April on *Adding SCMs to Portland Cement: Impact on Oilwell Cementing Additive Performance* at the 27th Annual International Cement Microscopy Conference in Victoria, B.C. In May he presented a paper on *Viscometer for Multi-Phase Slurries* at the 2005 Drilling Engineering Workshop in Galveston.

Midwestern University. **Judlyn Telesford** and **Juliette Commodore**, students of **Dr. Phillip D. Voegel**, presented posters at the Tri Beta (biological honor society) South Central Regional Convention. These two students plus student **Sigmund Courtney** gave poster presentations at the 2nd MSU Science Symposium and oral presentations at the 38th Annual D-FW Meeting-in-Miniature. Judlyn's paper placed 2nd in the undergraduate section at the meeting (details elsewhere in this issue). This year the Voegel group had papers published in *J. Undergraduate Chemistry Research*, *Chemistry and Ecology*, and *J. Chem. Ed.* Dr. Voegel will be leaving Midwestern over the summer to start a new position as assistant professor of chemistry at Southeastern Louisiana University.

East Texas

The April section meeting featured Texarkana students **Angela Burns** and **Andrea Rhodes** speaking on

Water Quality Studies in the Northeast Texas Area. The Texarkana College Chemistry Club has been conducting water quality studies in the Northeast Texas area for over ten years. The students described their experiences in this water monitoring program. The section's September meeting will be the week of Sept. 19, although the exact date that week has not yet been set. The speaker will be **Dr. L. H. Sperling** lecturing on *Why Does a Rubber Band Snap Back?*

Congratulations to the ACS Student Affiliate Chapters at **UT-Tyler**, **Northeast Texas Community College**, and **Texarkana College** who received chapter activity awards at the ACS San Diego meeting.

Heart o' Texas

Baylor University. Students **Benon Mugabe** and **Francisco Gonzalez** presented posters at the Annual Meeting of the American Society of Biochemistry and Molecular Biology held April 2-6 in San Diego. Mugabe's coauthors were **M. L. Trawick**, **K. A. Monk**, **E. S. Rogelio**, **B. H. Mallinath**, **C. M. Garner**, **R. R. Kane**, and **K. G. Pinney**. Gonzalez's coauthors were **S. Chen** and **M. L. Trawick**. **Dr. David E. Pennington** gave a presentation on *Establishing an Advisory Program* as part of a panel at the Southeastern Association of Advisors for the Health Professions meeting, April 14-17 in Nashville. **Dr. Kevin G. Pinney** attended a research collabor-

ation meeting in Tempe, AZ on April 15 with Professor George R. Pettit of Arizona State and Dr. David Chaplin of OxiGene, Inc. **Dr. Darrin Bellert** gave a presentation on Baylor chemistry to approximately 60 families of high school students during Spring Fling.

Colloquium speakers were: April 22, **Dr. Ginette Tolleson** of Eastman and April 29, **Dr. David H. Russell** of TAMU speaking on *Proteomics: The Catalyst for Modern Mass Spectrometry*.

South Plains

Texas Tech University. Effective Aug. 1, **Professor Dominick Casadonte** has been appointed as Department Chair. **Professor Richard Bartsch** is stepping down after six years of service. At the April Faculty Honors Convocation, **Dr. David Birney** was honored with the President's Academic Achievement Award. This came with a \$2000 stipend and a medallion. Dr. Birney states that it is the accomplishments of his graduate and undergraduate students that make him look good. At this Convocation **Drs. Jim Herman, John Marx, and Richard Redington** were awarded status as Emeritus Faculty. This status is not automatic upon retirement but is granted in recognition of University service.

Also in April the Success Center in the Department of Housing at Residence Life at Texas Tech acknowledged 15 Texas Tech faculty members who by their interaction with students have upheld a standard of excellence in education. Depart-

mental honorees were **Dr. Bob Blake** and **Dr. Pramod Chopade**.

Dr. Blake is a founding member of the International Center for First-Year Undergraduate Chemistry. The Center just had their first conference titled *First-Year Chemistry: The Richness of Difference* at the University of Illinois May 22-25. Dr. Blake led a break-out session on *Analogies in the Classroom* and gave a talk titled *Placement, Remediation and Improved Learning in First-Year Chemistry: A Ten Year Study*."

The honor society Phi Kappa Phi inducted new faculty, alumni, and student members recently. Initiates included chemistry professors **Dominick J. Casadonte** and **Purnendu K. (Sandy) Dasgupta**, graduate students **Dianjun Chen** and **Ademola David Idowu**, and undergraduate student **Ryan Wayne Jacobs**. **Natchanon Amornthammarong**, a student in Professor Dasgupta's group, received the best student poster award at the International Conference on Flow Injection Analysis held in Las Vegas in April for his paper *Measurement of Ammonia by Hybrid-FIA*.

University of Arkansas

Two students from the Department have become Barry Goldwater scholars, raising the total from the Department to eleven and giving a total of 30 from the University. This year's scholars are **Joshua T. Liu** and **Rohitha (Ami) P. SriRamaratnam**. Goldwater Scholars typically hold a GPA of 3.9 or higher, must be entering their junior or senior year in college, and are selected on their

academic record and commitment to pursue careers in mathematics, natural sciences, or engineering. Liu plans to do graduate work in biophysics, while SriRamaratnam plans graduate work in biochemistry.

Distinguished Professor Charles Wilkins was awarded the Fulbright College Master Researcher Award in April. Only one award is given in this category each year. Dr. Wilkins presented a talk at a meeting sponsored by the Department of Homeland Security in Boston April 27-28. **Xiaogang Peng** organized a symposium at the Materials Research Society Meeting in San Francisco at the end of March. In April he gave seminars at Duke and Rochester Universities. He was the keynote speaker for the Molecular Electronics track at the 2nd Annual Conference for Foundation of Nanoscience April 26. Travelers to the Electrochemical Society Meeting in Quebec include faculty member **David Paul** and students **Emily Clark**, **Padhmodhbhava Yoga Narasimhan**, and **Jody Buckholtz**. Dr. Paul and **Dr. Don Davis** have received Research Incentive Grants.

Bob Gawley participated in an NIH Fellowship Study Section in March. In May he gave lectures at University College in Dublin and at the 2005 Lakeland Conference on Heterocyclic Chemistry in Grasmere, UK. **Peter Pulay** attended the Hungarian Academy of Science Meeting in Budapest April 29-May 6. **Roger Koeppe** attended an NIH review panel meeting in Washington May 6-7. **Jack Lay** went to the University of Oklahoma Health Sciences Center for proteomics research Mar. 31-

April 1. **Ryan Tian** traveled to UAMS April 22 and Washington, D.C. April 26-28.

Many departmental students won awards this year. They are noted as follows: Barbara Wertheim Campbell Award (for B.S. chem. majors who intend to pursue a professional career in chemistry), **Leah Bullard**, **Michael Cate**, **Grace Ong**, **Dragos Seghete**; Merck Index Award (for an outstanding senior chem. major), **Eric Heim**; Jacob Sacks Award (for outstanding junior pre-med chem. majors). **Danis Copenhaver**, **Helen Hayes**, **Jennifer Pharr**; Kekulé Award (to the outstanding B.S. sophomore chem. major), **Aireal Haley**; Kathy Noland Award (to a freshman student with outstanding ability in lab work); **Layna Dee McGuire**; ACS Achievement Awards (for outstanding freshman chem. Majors) **Randy Carney**, **Christy Dean**, **Eric Flagg**, **Holly Greenway**, **Emily Gregory**, **Natalie Lawrence**, **Melinda Mundy**, **Gale Raymond**, **Aaron Relic**, **Kristen Scogin**; Chemistry and Biochemistry Achievement Awards (for scholastically outstanding and professionally active chem. majors beyond their freshman year), **Rebecca Adair**, **Eric Braun**, **Juan Chipollini**, **Andrew Cogbill**, **Danis Copenhaver**, **Jonathan Gintonio**, **Aireal Haley**, **Ryan Hall**, **Jennifer Harp**, **Nicole Hart**, **Helen Hayes**, **Eric Heim**, **Jessica Hinegardner**, **Jay Hinkle**, **Shelly Kaufman**, **Benjamin Kirksey**, **Chris McClinton**, **Melissa McGraw**, **Michael McLaughlin**, **Ioana Peret**, **Jennifer Pharr**, **Ashley Phillips**, **Blake Rainwater**, **William Revenga**, **Dragos Seghete**.

Dhaval Shah, Clark L. Smith, Clark S. Smith, Ami SriRamaratnam, Neil Tracy, Blake Williams, Zachary Weatherford, Andrew Whiteley, Laura Wilson. All of this latter group have a minimum 3.89 GPA with outstanding performance in chemistry coursework.

Awards given from outside the department include the Alpha Chi Sigma Award to an outstanding freshman chemistry major, **Blake Williams**; Mary and Leta Potter Endowed Scholarship for an Arkansas resident pursuing a career in medicine, **Jennifer Pharr**; Dr. Allan Arthur Gilber Sr. Endowed Scholarship to outstanding premedical students, **Jennifer Pharr**; **Helen Hayes**, and **Robert D. Maurer**, Physics Research Fund for physics majors with achievement in undergraduate research, **Dhaval Shah**.

The following graduate students have passed enough cumes to be admitted to the doctoral program: **Steven Neal, Silvana Dormi, and Shuming Zhang**.

Dallas-Fort Worth

A Message from the Section Chair. Elections for section offices will be coming up at the end of the summer. At least two candidates are needed for each slot. The positions available are Chair-Elect (involves three years on the Execom), Councilor (three year term), Alternate Councilor (three year term) and Secretary (two year term). Any local section member is eligible. Our local section offers a great way to volunteer, meet new chemists, and work toward developing your career. If

you are interested in being part of the cadre of local section officers, please e-mail John St. John at (jvs@accesspharma.com).

Fifty Year Members Honored.

The May 26 local section meeting also served as a forum to honor the section's 50 year members. They are: **Ms. Jeanne M. Buch, Mr. Walter B. Dempsey, Mr. Robert Dean Dobrott, Mr. Karl Norbert Gutzke, Dr. Donald Everett Lewis, Lt. Charles R. Ritchey, Mr. Richard F. Stringer, Mr. Kenneth M. Waters, Dr. Arthur M. Wilson.**

Meeting-in-Miniature. The 38th annual D-FW Meeting-in-Miniature was held at UT-Arlington April 30. There were 12 undergraduate presentations and 46 graduate presentations. The meeting coordinator was **Dr. Dmitry Rudkevich**. Judges were **Drs. Thomas Cogdell, Robert Francis, Henry (Jim) Kelly, Don Stewart, E. Thomas Strom, and Urszula Wettermark**. The morning coffee and donuts and afternoon social hour were provided courtesy of Armstrong Forensic Laboratories.

The prizes given were \$150 for 1st place, \$125, 2nd, and \$100, 3rd. Award winners in the graduate division were: 1st, **Andrew Washington, Jr.**, UT-Dallas, *Electrospun Conjugated Polymers*; 2nd, **Benjamin Mintz**, UNT, *Basis Set Truncation: A Means to Reduce the Computational Scaling of Ab Initio Methods?*; 3rd, tie, **Ann Chacko**, UT-Dallas, *Novel Acid-Doped Membranes for High Temperature PEM Fuel Cells* and **Sashikala Somasundaram**, UT-Arlington, *Titanium Dioxide Based Heterogeneous Photocatalytic Reduction of Metal Ions with Very*

Negative Reduction Potentials. Award winners in the undergraduate division were 1st, **Remond Moningka**, UT-Arlington, *Approaches to the Pyrroloquinoline Alkaloids, Martinelline and Martinellic Acid*; 2nd, **Judlyn Telesford**, Midwestern State University, *Evaluation of Cobalt(II)-tetrapyrrolineporphyrzine, Cobalt(II)phthalocyanine, and Cobalt(II)-tetranitrophthalocyanine Chemically Modified Electrodes*, 3rd, tie, **Amy Shah**, UNT, *Reduction of Computational Scaling Via Basis Set Truncation* and **Evan Gawlik**, UNT, *A Computational Study on New Rare Gas-Bonded Molecules*. The section's thanks go to Professor Rudkevich and the faculty and staff at UT-Arlington for hosting this important event.

Metroplex Student Award Winners. Each year the D-FW ACS Section honors outstanding senior chemistry majors at area colleges, who are nominated by their departmental chairs. The Section gives them a \$100 award. This year's winners are: **Lina Bernal**, Texas Wesleyan; **Scott Dunkle**, TCU; **John Hatcher**, UNT; **Connor Parker**, Abilene Christian; **Brian Rodgers**, Texas A&M-Commerce; **Sally Thomas**, UTD; and **Hannah Toomey**, UT-Arlington.

Texas Christian University. **Bob Neilson** received a Welch Foundation grant (\$150,000, 3 years) for the proposal, "Phosphazene-Based Hybrid Polymers". **Jeff Coffer** presented two seminars during a recent trip to the University of Rochester. The first, "Nano and Microcrystalline Silicon as a Diverse Biomaterial Platform" was a lecture

sponsored by the Materials Research Society, while the second "Erbium-Doped Group IV Semiconductor Nanowires: Structural and Photophysical Effects of Rare Earth Incorporation" was a talk presented to the Institute of Optics.

UNT. The Department of Chemistry at the University of North Texas salutes Dr. **Robert Desiderato**, who will be retiring this year after a 38-year career at UNT. Bob obtained his B.S. at Columbia College in New York City and his Ph.D. at Rice University. Bob has been exemplary in his dedication and service to the department. We will miss him.

This summer Dr. **Diana Mason** and **Christina Forsbach** will attend the Gordon Research Conference in Chemistry Education. Dr. Mason received a Learning Enhancement Grant to develop an online professional developmental course for science teachers, *Improving Pedagogical Content Knowledge (PCK)* for science teachers. This course will be available for distribution this coming fall.

Drs. **Tom Cundari** and **Angela Wilson** have received a Congressional set-aside of \$248,000 (Department of Education) for the formation of the Center for Advanced Scientific Computing and Modeling, CASCaM. Other grants include Computational Studies of Ligand and Catalyst Design and Catalytic Mechanisms, Dept. of Energy, 2005-2007. Dr. Cundari presented *Analysis of Catalytic Loops in Human Glutathione Synthetase* at the 2005 National Meeting of the American Society for Biochemistry and Molecular Biology. Ian Haken in Dr. Wilson's group

was an Intel Science Talent Search Finalist.

For the 3rd year the very successful NSF Research Experiences for Undergraduates Program (REU) will be conducted this summer at the UNT chemistry department. Sponsors are Drs. Wilson and Cundari. Twelve students will be arriving from all over the U.S. for the program that commences May 30.

Tom Grimes (with Dr. Cundari) and **Scott Yockel** (with Dr. Wilson) have been awarded 2005 NSF East Asia and Pacific Summer Institute (EAPSI) fellowships. Scott Yockel has also won the CCG Excellence Award from the ACS Division of Computers in Chemistry.

Dr. **Teresa Golden** has been named Acting Director of UNT's new Forensics Program.

Dr. **James Marshall** delivered the keynote address at the International Mineralogical Symposium in Rochester NY April 14. On February 19, he and his wife presented a workshop at the Texas High School Teachers Convention in Austin TX.

UT-Arlington. Professor **Martin Pomerantz** has accepted a one year position as a Program Officer in the Chemistry Division of NSF in Arlington, VA, beginning at the end of Aug., 2005. Graduate student **Jun Yin** gave an oral presentation at the San Diego ACS Meeting on *Efficient Synthesis of Oligomeric and Polymeric Bibenzimidazoles* and a poster presentation on *Synthesis and Properties of Multi-Nuclear Ruthenium(II) Complexes Based on Ologmeric Bibenzimidazoles*, coauthor **Ronald L. Elsenbaumer**.

Professor Richard B. Timmons was a coauthor on the paper *High-k Polymerized Dichlorotetramethyldisiloxane Films Deposited by Radio Frequency Pulsed Plasma for Use as Gate Dielectrics in Polymer Field Effect Transistors* given at the Spring Materials Research Society Meeting held in San Francisco.

UT-Dallas. Assistant Professor **Donovan C. Haines**, Assistant Professor **Jung-Mo Ahn**, Professor **Anvar Zakhidov**, and Professor **A. Dean Sherry** were all awarded three-year research grants from the Robert A. Welch Foundation. Associate Professor **Gregg R. Dieckmann**, along with two international collaborators, was awarded a \$1M Young Investigator's Award from the Human Frontier Science Program. **Sally Thomas**, an undergraduate research student in Professor Sherry's group, won first prize at the UTD ChemBio Symposium at UTD for the best undergraduate poster presentation. **Xinyu Zhang**, a graduate research student in Associate Research Professor **Sanjeev K. Manohar's** group, was awarded the prestigious Outstanding Overseas Chinese Students Scholarship, which is administered by the China Scholarship Council and judged, in part, by members of the Chinese Academy of Sciences.

[Place Chemir Ad here]

2005 National Chemistry Week

One of the most popular toy stores in Austin is Toy Joy on Guadalupe Street in Northeast Austin. Inside you will find a rotating collection of toys that have been selected from the classical, the unusual, the current or endearing fads, and the import market. Toys for just about any age can be found there and, best of all (!!), the store's staff members let you play with the toys right there in the store. Of course, they will not invite you to play, but rather to try out or test the toy, which sounds so much more palatable to grown-ups. Therefore, you can spend hours in this store investigating the over-stuffed shelves and cluttered floorspace while stepping over a child or two here and there. However, it was at the checkout counter in a box that had yet to be shelved that I spied the Magic Fortune Telling Fish – a small piece of blue cellophane that tells your fortune when you lay it on the flat of your palm by responding to the moisture in your hand. Around for at least fifty years, this toy is featured in *Teaching Chemistry with Toys: activities for grades K-9* by Jerry and Mickey Sarquis and John Williams for illustrating to young children the concepts of absorption and the nature of cellophane. The authors have included cross-curricular activities in Language Arts and Life Science. What other toys do you think could or should be highlighted this October 16th through 22nd when National Chemistry Week celebrates *The Joy*

of Toys? If you have a cool toy or a great idea on how *TOYS* can demonstrate scientific principles, contact Jane Smith, our NCW Coordinator for the D-FW local section! smithj@cfbisd.edu

57TH Southeast/ 60TH Southwest Regional Meeting

November 1 – 4, 2005, Peabody
Hotel, Memphis, Tennessee

The two regions meet jointly every five years. This meeting promises an exciting program at an historic site, just a block or two from Beale Street and its blues. Their abstract program and early registration are now open and you can reach them through the ACS regional meetings web site: www.acs.org/meetings/regional or the SE-SW meeting web site: <http://www.chem.memphis.edu/acs/seswrm.html>.

Organizers are seeking papers in the areas of: Computational Chemistry; Environmental Health and Safety; Advances in Chiroptical Methods: A New Resource for Chiral Chemistry; AFM and STM; Chemistry and The Law; Nanomaterials and Composites: Synthesis, Properties and Applications; Developments in NMR Spectroscopy; NMR and Structural Biology; Biomedical Applications of Polymers; Spectroscopy of Matrix-isolated Species; Frontiers in Nucleic Acid Chemistry; Cope Award Symposium; Biosensors; and Bioactive Lipids.

[Place TAMU Ad here]

HIST SPONSORS CONCERT AT ACS MEETING

The ACS Division of the History of Chemistry (HIST) and The Chemical Heritage Foundation will sponsor a free **Piano Concert at the 230th National Meeting of the American Chemical Society, Tuesday evening, August 30th, 2005, at the Washington DC Convention Center.** Ms. Victoria Bragin, who won the prestigious Van Cliburn International Piano Competition for Outstanding Amateurs in 2002, will perform (see program below). Ms. Bragin will also present a commentary on the musical compositions of chemist-composer, Alexander Borodin, preceding the performance of the Borodin works. Please check the final program for the exact time.

Program subject to change.

- Beethoven, Sonata in E-flat, Op. 31, No. 3
- Borodin, "Au Covent" from "Petite Suite"
- Borodin, Scherzo in A-flat

INTERMISSION

- Chopin, Sonata No. 3 in B Minor

This concert is free. Seats are limited, first come – first served.

Fascinating Facts to Go

Flies have been used in medicine since ancient times. The maggots they lay in open wounds eat necrotic flesh and prevent gangrene – a fact that has been rediscovered at various times throughout history. In the mid-1800s, maggots in wounds were killed with chloroform. Preparation of chloroform for use as an anesthetic was of interest in the mid-1800s according to Harold Goldwhite, who presents excerpts from the 1851 edition of *The Year Book of Facts in Science and Art*, by John Timbs, in his column *THIS MONTH IN CHEMICAL HISTORY* prepared for *SCALACS*, the Journal of the Southern California, Orange County, and San Gorgonio Sections of the American Chemical Society.

"Several new relatively large scale preparations of chloroform are reported. They all involve reactions among bleaching powder, water, and ethanol, though in different proportions and under different conditions. For example reaction among 5 kg of bleaching powder, 9 kg. of water, and 1.2 kg of 85% ethanol (Carl's Process) gave 285 g of chloroform. This period was early in the development and use of anesthesia in medicine; hence the interest in chloroform which was overtaking ether as the anesthetic of choice in surgery and childbirth."

Goldwhite also highlights an excerpt by C.S. Lyman relating to the California gold rush: “The Gold, the past season, has turned out much better than was expected. ... On the middle fork of the Rio de los Americanos, two men recently dug 28,000 dollars in two months. I saw a portion of it in lumps of the size of hen’s eggs, and larger....But for these few fortunate diggers, there are thousands who scarcely earn a dollar a day Industrious workers have not averaged more than eight or ten dollars a day – some estimate it much lower.” Despite such realistic appraisals of the prospects of riches, thousands rushed to California in those heady days just a couple of years after 1849 to seek their fortunes.

Nitroglycerin has been important both as an explosive to miners and construction workers and as a life-saving medicine to heart patients. But in 1851 it was still a hot research topic, so to speak. Goldwhite introduces Timbs’ description of one preparation.

Meanwhile M. Sobrero was preparing pyroglycerin from the reaction between glycerine and a mixture of nitric and sulfuric acids in the same ratio as that used in making guncotton. “The product is liquid, and explodes very violently; its taste (!) is very distinctly bitter, and is a very active poison; two or three centigrammes immediately kill a dog.”