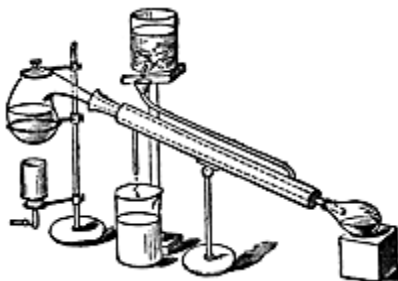




SOUTHWEST RETORT



SIXTY-FOURTH YEAR

FEBRUARY 2012

*Published for the advancement of
Chemists, Chemical Engineers
and Chemistry in this area*

published by

The Dallas-Fort Worth Section, with the cooperation of five other local sections of the American Chemical Society in the Southwest Region.

Vol. 64(5) February 2012

Editorial and Business Offices:

Editor: Connie Hendrickson, 802 South Jefferson, Irving, TX 75060; 972-786-4249; retort@acsdfw.com

Copy Editor: Mike Vance: vance2276@gmail.com

Business Manager: Kirby Drake, 9715 Dartridge, Dallas, Texas, 75238-1827; 214-553-9810;

kdrake2000@yahoo.com

The Southwest RETORT is published monthly, September through May, by the Dallas-Ft. Worth Section of the American Chemical Society, Inc., for the ACS Sections of the Southwest Region. Contact the Editor for subscription and advertisement information.

Interview with Michael Trulson.....	7
-------------------------------------	---

Vol. 64(5) February 2012

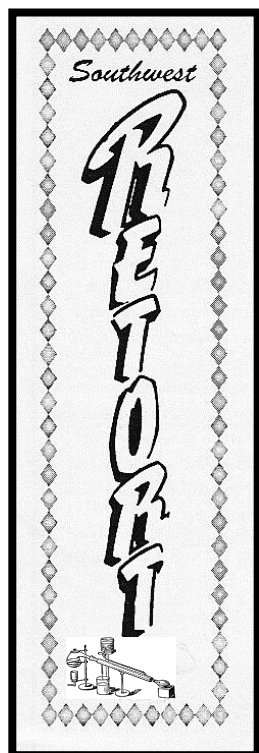


TABLE OF CONTENTS

Fifty Years Ago.....	6
----------------------	---

ARTICLES and Columns

Five Questions.....	16
Interview with Michael Trulson.....	7
Lost Retorts.....	4
WHY, WHY, WHY.....	4
Mercury Releases.....	14
Biofuel Cells and Cockroaches.....	15
From the Editor.....	23

AROUND-THE-AREA10-13

DFW ARKANSAS UNT	
UTA BAYLOR TWU	
Employment Listings.....	4
Call for nominations.....	11

DFW SECTION MEETING NOTICES:

February 2012.....	18
March 2012.....	19
April 2012 Meeting-in-Miniature.....	20

OTHER MEETINGS:

ACT2 Biennial Conference.....	21
Chirality 2012.....	22

INDEX OF ADVERTISERS

ANA-LAB.....	10
Huffman Laboratories.....	3
Chirality 2012.....	22
Sponsor Members.....	2

Contact the DFW Section

General: info@acsdfw.org
 Education: ncw@acsdfw.org
 Elections:
candidates@acsdfw.org




Twitter: [acsdfw](https://twitter.com/acsdfw)

SPONSOR MEMBERS

OXYCHEM

HALLIBURTON

TEXAS EASTMAN

Elemental Analysis CHNOS Ash ICP · AA · ICP/MS TOC · TOX · BTU Problem Solving	HUFFMAN LABORATORIES, INC. <i>Quality Analytical Services Since 1936</i> Phone: (303) 278-4455 FAX: (303) 278-7012 chemistry@huffmanlabs.com www.huffmanlabs.com   
---	---

www.huffmanlabs.com

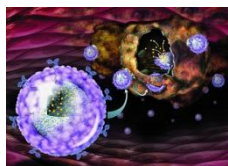
SUPPORT OUR ADVERTISERS!



EMPLOYMENT CLEARING HOUSE

The **RETORT** is including this new section free of charge for DFW Section members and those seeking employment in the area. Job applicants should send name, email, and phone, along with type of position and geographical area desired; employers may contact job applicants directly. If you have an opening, send your listing, including contact info for your company, to retort@acsdfw.org. Deadlines are the 7th of each month.

Seeking employment:



Two (2) qualified doctoral level scientists to work on a recently-funded project in nanoscale materials, effective immediately. Due to the nature of the funding source supporting these positions, US citizenship/permanent residency status is required. Interested individuals contact **Jeff Coffey** (j.coffey@tcu.edu) or by phone at (817)257-6223.



Laboratory technician full-time DFW area: Recent graduate with experience in chem, organic, and environmental chem labs looking for full time lab tech work in the DFW area. Takes and executes instructions quickly, efficiently, and effectively. Contact **Will Colbert**, colbertw@gmail.com, 832-217-6975.

MISSING OR LOST—TWO *SOUTHWEST RETORTS*

Drs. Jim Marshall and Tom Strom have started a project to make all back issues of *The Southwest Retort* available online in a key word searchable format. They are being assisted by **Ms. Hannah Tarver** of the UNT library staff. *The Retort's* predecessor for the 1944-1948 time period, *The Activator*, has already been put online as well as the first four volumes of *The Retort*. Obviously it is desirable to have complete *Retort* volumes. Their researches have turned up two missing issues of the magazine--- April 1962, and November 1963. If you have either one of those missing issues, please contact either Jim (jimm@unt.edu) or Tom (tomstrom@juno.com) as soon as possible. This archive will certainly be valuable even without these two issues, but for scholarly use the archive should be as complete as possible. Please hunt through your old magazines to see if you can turn up one of these old issues.

Why, Why, Why?

Denise L. Merkle, PhD

It is true. I whine. About almost everything, but I am here to tell you that even a whiner can contribute to the local section American Chemical Society. Why contribute? you ask. Why volunteer? You're busy - I know. You have family commitments. You travel.

You write papers. Your teenager has swimming practice. You guide students, meet with colleagues, and act as treasurer for your neighborhood association. It's impossible to figure out how to add volunteer time into the schedule - I know these things, too.

I also know that, if the people who care enough about science to pursue a career in chemistry, chem education or chemical engineering do not support science - who will?

The American Chemical Society (ACS, www.acs.org) is a 164,000 member non-profit organization. ACS in the USA is divided by focus - the Technical Divisions (BIOT, POLY, HIST, etc.) and also by geography - the Local Sections - all 187 of them. Each local section is governed by elected volunteers, who administer the section, arrange events and meetings, distribute student, research and teaching awards, and bring the news from the National meetings back to the local members. Why? Why would busy professionals spend their precious time on behalf of ACS? Motivations range from the joy of meeting other local ACS members, to the responsibility to support nascent chemists, to (I must admit) the inability to avoid being volunteered, to the satisfaction of doing a job right while advancing science. Many reasons, all with useful - and important - outcomes.

Opportunities abound in ACS. The local section recognizes the vital role of those

who run for office, whether the candidates are elected or not. Elected officers' valuable efforts are appreciated, whether the volunteers chair the section, act as secretary or treasurer, or are alternate councilors, ready to attend a National meeting in the place of a councilor. Meeting hosts and their helpers, Speakers, Committee chairs, National Chemistry Week and Chem Olympiad coordinators, and Event Sponsors all make crucial contributions to the vibrant and important culture that exists to advance chemistry in the Dallas-Fort Worth Local Section.

So - feel free to whine, but consider volunteering, too. Send a note to info@acsdfw.org, or find more information through the local section's website, www.acsdfw.org, and the officers' contact information.

Why? Because nothing's perfect, but we try, and those who chip not-so-free bits of volunteer time from their busy lives can use your help in supporting and promoting chemical professionals and chemistry.

Contributors wanted!

The RETORT seeks articles on technical topics, scientific and opinion papers, as well as news items and announcements.

**DEADLINE:
7th of each month**

**Submit to
retort@acsdfw.org**

FIFTY YEARS AGO IN *THE SOUTHWEST RETORT*

February 1962

In the Dallas-Fort Worth Section, the Dallas Society of Analytical Chemists elected the following officers for 1962: **Tom Kenner**, Chief Analyst; **Phil Kane**, Assistant Chief Analyst; **Bruce Hart**, Statistical Analyst; and **Graydon Larrabee**, Recording Analyst.

This month there are three ACS tour speakers here in the Southwest. **Dr. Zevi W. Salsburg** of Rice University will speak on "Theory of Solutions" and "Theory of Detonations and Reactive Flow." **Dr. Frank E. Critchfield** of Union Carbide in South Charleston, WV, will talk on "Acid-Base Behavior in Solution." **Dr. Helmut A. Abt** of Kitt Peak National Observatory in Arizona will lecture on "The Evolution of Stars" and "Radio Astronomy."

At Texas Woman's University, the Welch Lecturer on Jan. 29 was **Dr. Farrington Daniels**, whose topic was "Solar Energy." **Dr. Harold T. Baker** attended a meeting in Washington, D.C. for Directors of NSF programs. **Dr. Lyman Caswell** and **R. D. Campbell** published a paper in *J. Org. Chem.*

At the University of Texas (*now UT-Austin*), **Dr. W. A. Cunningham** attended the AIChE national meeting

held in New York Dec. 2-7. **Dr. G. W. Watt** presented a paper before the D-FW ACS Section in October. **Dr. R. M. Roberts** gave a seminar at Tulane on Nov. 30. **Dr. A. J. Bard** attended the December ACS Regional Meeting in December and gave a paper.

The University of Arkansas Section's March speaker will be **Dr. Melvin J. Astle** of Lubrizol Corp. His topic will be "The Oxidation of Hydrocarbons." **Dr. Paul Kuroda** attended a conference Jan. 23-24 on "The Origin of the Solar System" sponsored by NASA.

At Baylor, **Dr. John S. Belew** went to Tucson, AZ, to attend a symposium in honor of **Dr. Carl S. Marvel**, formerly of the University of Illinois. **Dr. James L. McAtee, Jr.** is planning to attend the API Oil Recovery Technology Domain Committee Meeting in Tulsa Mar. 1-2. Attendees from Baylor at the December SW/SE ACS Regional Meeting in New Orleans were faculty **A. G. Pinkus**, **John S. Belew**, **Leone D. Cockerell**, **Thomas C. Franklin**, **Charles E. Reeder**, **W. R. Stephens**, and **Virgil L. Tweedie** plus graduate students **Herman C. Custard, Jr.**, **Philip Hwang** and **Clive Moon**.

contributed by Dr. Tom Strom

INTERVIEW WITH MICHAEL TRULSON

A DOUBLE WINNER!

THE HIGHLANDS SCHOOL'S MICHAEL TRULSON

Profile by E. Thomas Strom

The November 2011, meeting of the Dallas-Fort Worth ACS Section was to honor our latest winner of the Werner Schulz Award, Dr. Michael Trulson of The Highlands School. Michael also had received the ACS Southwest Regional Award for High School Chemistry Teaching this year, making him a double winner. Michael's topic was to be "A Paradigm Shift for Overcoming Limits to Progress in Education."



Michael was born in Fayetteville, TN, but his family moved to Britt, IA, when he was four years old. When he was in high school, he met his wife Violet, to whom he has been

married for 46 years. He attended the University of Iowa, obtaining a B.A. degree in general science, but he never had intended to be a teacher at that time. His goal was to become a research scientist. During his senior year, he became interested in psychology, taking several courses in that discipline. His particular interest was in the biology and

neurochemistry of behavior. He went on to graduate school at the University of Iowa, receiving his M.A. and Ph.D. degrees in what was then called physiological psychology, now called biological psychology. He went on to Princeton to do a post-doc in neurochemistry. As part of his duties, he would have to teach a course every semester. He had never taught before, so he watched what some of the other teachers did. Viewing their classes, he saw their students becoming sleepy and occasionally walking out of class. He thought there must be a better way of teaching, so he went to the library to get ideas. He found this particular quote on the topic: "No matter how much knowledge you have, you can't teach it to anyone unless they are ready to learn." He realized that he had to put himself in the student's shoes to be an effective teacher. Unlike the other teachers, who would ask the students questions and then put them down if they gave wrong answers, Michael sought to have a comfortable, open atmosphere in his classes. His students' grades started to improve, and Michael began to develop an interest in education, trying to develop better and better ways for students to learn.

Michael spent six years at Princeton, received several research grants, and

published a number of papers, including two in *Science* magazine. He received several job offers. He started out in neuroscience at UT-Dallas, and then he took a position as a pharmacology professor in the medical school at Marshall University in West Virginia. He found that the medical school had a highly structured teaching framework that did not allow for interaction with the students. Consequently, after two years, he took a position at the Texas A&M medical school in College Station to teach anatomy, but even there the teaching was highly structured.

During his four years in College Station, Michael's career took an unexpected turn. He had been interested in the martial arts all his life, so he started a martial arts school in College Station. The school grew very rapidly and did well. Then Michael received an offer to return to Dallas. He reasoned that his martial arts schools would do even better in a larger market. He started several martial arts schools in the Metroplex, while continuing to teach part-time at UT-Dallas and North Lake Community College. The 80's and the 90's saw explosive growth in the martial arts. It would be fair to characterize Michael's career in the 1985-1997 time span as mostly in the martial arts business with

teaching on the side. Presently Michael still has one school going in the Metroplex.

However, all this time Michael had been pondering the educational system. Education seemed to be based on the industrial revolution, *i.e.*, a factory, with no inputs from recent advances in the science of psychology. Everybody was so impressed with the efficiency of the factory that education was run like a factory.

Then things changed in 1997. Father Jack Deeves at Ursuline Academy, head of their science department, asked Michael to teach there. Michael was dubious, because all of his teaching experience had been at the college level, but Father Deeves talked him into trying it part-time for a year. He found he loved it! He realized that he could make a real difference, because the high school students' values, belief systems, and learning habits were still being formed, unlike the situation with college students and medical students. He taught three years part-time and then moved to full-time teaching in 2000. In 2006 he went back to running his business full-time, while still teaching part-time in colleges. In 2007 The Highlands School had an opening for a science teacher, and a former Ursuline student recommended him to

the Highlands School Board. Michael found the idea of teaching at The Highlands School very interesting. Ursuline is an all-girls school. The Highlands School has both boys and girls, but the classes are single gender. This would give Michael a chance to teach both sexes and to explore their differences in learning, so Michael took the position.

Michael's experience has taught him that you have to teach boys and girls very differently, although some ideologues try to minimize the differences. Some of the differences he has learned are that boys are left-brained; girls use both sides. You have to go faster with boys; girls learn more slowly but sometimes better. Girls can multi-task; most boys can't. Girls are relationship-oriented and don't get over hurt feelings readily. Boys get over hurt feelings fast. Basically it boils down to the fact that the brain chemistry is different for boys and girls. If he were dictator, Michael would make all schools single gender in the classroom.

Michael's nomination and supporting letters came from his students. They

paint the picture of a demanding teacher, who makes classes interesting and is readily available to answer students' questions. His students always participate in science fairs to enforce their understanding of the scientific method. Most of his AP students make a 5 (the highest score) in their AP exams. Small wonder that after winning the Schulz Award, Michael was also chosen for the ACS Southwest Regional Award.

Michael's wife Vi is a nurse. Their oldest daughter is a psychiatrist. Their son is a teacher of world history and social studies at Allen High School and works with Michael in their martial arts business. Their youngest daughter is a professional photographer. The family has a ranch in Northeast Texas, and Michael also has a hobby of collecting classic cars. His newest and proudest possession is a '54 Chevy convertible.

The Schulz Award was named after Dr. Werner Schulz, who died far too young. It is to be given to people who bring something extra to the teaching of chemistry. There is no question that Michael Trulson fits that mold.

22 Ti 47.867	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.845	27 Co 58.933	28 Ni 58.693	29 Cu 63.546	30 Zn 65.38	31 Ga 69.723	32 Ge 72.64	33 As 74.922	34 Se 78.96	35 Br 79.904
40 Zr 91.224	41 Nb 92.906	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 101.07	46 Pd 106.36	47 Ag 107.87	48 Cd 112.411	49 In 114.818	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90
72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.207	76 Os 190.23	77 Ir 192.222	78 Pt 195.084	79 Au 196.967	80 Hg 200.59	81 Tl 204.38	82 Pb 207.2	83 Bi 208.98	84 Po (209)	85 At (210)
104 Rf (261)	105 Db (262)	106 Sg (266)	107 Bh (264)	108 Hs (277)	109 Mt (268)	110 Ds (281)	111 Rg (289)	112 Cn (285)	113 Nh (284)	114 Uuq (289)	115 Fl (289)	116 Lv (293)	117 Ts (294)
<div> <div>ANA-LAB</div> <div>CORP.®</div> </div> <div>THE COMPLETE SERVICE LAB</div>													
57 La 138.91	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04

ANA-LAB CORPORATION
 2600 Dudley Road • P. O. Box 9000
 Kilgore, Texas 75663-9000
 903-984-0551 • Fax: 903-984-5914
 www.ana-lab.com • Email: corp@ana-lab.com

Ana-Lab Corporation is an employee-owned organization which provides superior, innovative and cost effective solutions for clients through exceptional science, processes and people. With a staff of experienced, professional and talented chemists and technicians supported by sophisticated laboratory testing equipment, Ana-Lab is the preferred environmental testing laboratory serving clients nationwide.

Regional Service Centers

Amarillo, TX
 806-679-8459 • Fax 806-679-8459
 Email: panhandlesales@ana-lab.com

Dallas, TX
 972-620-8900 • Fax 972-620-8900
 Email: northtex@ana-lab.com

Austin, TX
 512-821-0045 • Fax 512-821-0045
 Email: centex@ana-lab.com

Brownsville, TX
 956-238-0208 • Fax 956-238-0208
 Email: rgytexas@ana-lab.com

Houston, TX
 281-333-9414 • Fax 281-333-9414
 Email: gulfcoast@ana-lab.com

Norman, OK
 405-590-2533 • Fax 405-590-2533
 Email: oklahoma@ana-lab.com

Shreveport, LA
 318-470-0066 • Fax 318-470-0066
 Email: arkla@ana-lab.com



WWW.ANA-LAB.COM

AROUND-THE-AREA

DFW

DFW Section member and patent attorney **Genie Hansen** (Hemingway & Hansen, LLP in Dallas) is leading a committee of the State Bar of Texas Intellectual Property Section to bring information to the public about intellectual property. Hansen, who has a BS and MS in biochemistry from Texas A&M and handles chemical, pharmaceutical and bio patents, is active in the DFW Section. The DFW Section has joined with the Texas Association of Young Lawyers to produce a booklet which will be available later in the spring at no cost. In addition, the committee has put together a pilot program for high school students about intellectual property and has been invited to present to Eastern Hills High School in the Fort Worth Independent School District in February and May. The eventual goal is to have local IP attorneys provide this education in various cities throughout the state.

Other programs in development may focus more specifically on the science and technology of invention. For more information on the school program, please visit http://www.fwisd.org/News/Pages/2012-02-01_LawyersParticipateinEHHS LunchandLearn.aspx

***DON'T FORGET: YOU CAN STILL
SUBMIT NOMINATIONS
FOR SECTION AWARDS.***



Nominations are due by April 15 Doherty and Schulz Awards: Check out the previous Retort Issue for details.

UT-ARLINGTON

The January meeting of the UTA student affiliate group was highlighted by their presentation of a check for \$10,000 to Dean of Science **Dr. Pamela Jansma**. Affiliate officers **Chris Parikh** and **Catrina Campbell** handed Dean Jansma a large, perhaps 3' by 4', version of the check. The student affiliates have been working to fund the scholarship for future chemistry/biochemistry students. This handsome sum will be matched by university funds to go a long way toward funding this future scholarship.

Special Seminars: The Feb. 24 speaker at UTA chemistry will be **Dr. Paul M. Bradley** of the US Geological Survey South Carolina Water Science Center. His topic will be "Overview of Recent USGS Research on Fate, Transport, and Biological Impacts of Hg and

Contaminants of Emerging Concern (CEC) in the Environment.”

A special seminar was given on Jan. 20 by **Dr. Chris Welch** of Merck R & D. His talk dealt with the development of drugs using chemical platform technologies.

Dr. Kevin Schug gave an invited seminar for the Delaware Valley Mass Spectrometry Discussion Group on Jan. 9 titled “Fundamental and Applied Research using Liquid Chromatography, Flow Injection Analysis, and Mass Spectrometry.” Dr. Schug, along with **Dr. Daniel Armstrong**, is organizing the 24th International Symposium on Chiral Discrimination this summer in Fort Worth. Readers are invited to visit the website www.chirality2012.com, submit an abstract, and join Kevin and Dan for the premier conference in the world on chirality-related research.

ARKANSAS

Julie Stenken has been appointed to the Biomaterials and Biointerfaces (BMB) study section at the NIH. Her four year term runs July 1, 2012 through June 30, 2016.

Paul Adams was invited to serve on the Macromolecular Structure and Function B (MFSB) study section at NIH.

“Treatment for Chemotherapy-induced Alopecia in Mice using Parathyroid Hormone Agonists and Antagonists Linked to a Collagen Binding Domain ” authored by R. Katikaneni, T. Ponnappakkam, H. Suda, S. Miyata, J. Sakon, O. Matsushita, and R.C. Gensure, will be published in In. J. Cancer, 2011 Nov. 30. doi: 10.1002/ijc.27379.

“Phosphatidylserine externalization and membrane blebbing are involved in the non-classical export of FGF1,” authored by A. Kirov, H. Al-Hashimi, P. Solomon, T. Tran, C. Mazur, P.E. Thorpe, P.J. Sims, F. Tarantini, T.K.S. Kumar and I. Prudovsky will be published in the J. Cell. Biochem., doi: 10/1002/jcb.23425.

“Cloning of WAP domain proteins,” Book chapter in Molecular Cloning-Selected Applications in Medicine & Biology, Ed. G.B. Brown, pp 59-72, published by In Tech, NY, USA & Rijeka, Croatia. Authored by S. Jayanthi, B. Kachel, J. Greer, I. Prudovsky and T.K.S. Kumar.

BAYLOR

Check out the Baylor Chemistry Department News at <http://www.baylor.edu/chemistry/>

Research News at U. Arkansas

UNT

The 22nd International Conference on Chemical Education and 11th European Conference on Research in Chemical Education will be held in Rome, Italy, July 15-20. Diana Mason, Kris Sherman and UNT grad students Robyn Ford, Tim Stephens, and Anna George will be attending. Check out the web site if you are interested:

<http://www.iccecrice2012.org/>

TWU

The Department of Biology and the Department of Chemistry and Biochemistry at Texas Woman's University are pleased to announce the inaugural "Ann Stuart and Ray R. Poliakoff Annual TWU Celebration of Science." This year's event features three prominent women scientists: Dr. Shanna Kelly of University of Toronto, Dr. Kim Orth of UT Southwestern and Dr. Linda Birnbaum of the IEHS. The event will take place on March 1, 2012, in the Ann Stuart Science Complex on the TWU campus, starting at 1:30. For more information, please contact Dr. Richard Sheardy, Professor and Chair, Department of Chemistry and Biochemistry at TWU (rsheardy@twu.edu).

Your Name Here!

Ads in the Southwest Retort

Advertise your company or organization

Promote a meeting, event or conference

Post your skills or available job

Congratulate a colleague

Full color: business card size to full page, one time insertion or repeating

Reasonably priced

Contact
retort@acsdfw.org

Mercury releases into the atmosphere from ancient to modern times

American Chemical Society release

In pursuit of riches and energy over the last 5,000 years, humans have released into the environment 385,000 tons of mercury, the source of numerous health concerns, according to a new study that challenges the idea that releases of the metal are on the decline. The report appears in the ACS journal *Environmental Science & Technology*.

David Streets and colleagues explain that humans put mercury into the atmosphere by burning fossil fuels and through mining and industrial processes. Mercury is present in coal and the ores used to extract gold and silver. Much information exists about recent releases of mercury, but there is little information on releases in the past. To find out how much impact people have had over the centuries, the scientists reconstructed human additions of mercury to the atmosphere using historical data and computer models.



Their research shows that mercury emissions peaked during the North American gold and silver rushes in the late 1800s, but after a decline in the middle of the 20th century, are quickly rising again thanks mostly to a surge in coal use. They report that Asia has overtaken Europe and America as the largest contributor of mercury.

Recent data suggest that mercury concentrations in the atmosphere are declining, and this is not consistent with their conclusion of increasing emissions. Changing atmospheric conditions may be partly responsible, but more work is also needed to understand the fate of large amounts of mercury in discarded products like batteries and thermometers. The researchers predict mercury released from mining and fuel may take as many as 2,000 years to exit the environment and be reincorporated into rocks and minerals in the Earth.

All-Time Releases of Mercury to the Atmosphere from Human Activities
Environmental Science and Technology



Biofuel cell generates electricity when implanted in False Death's Head Cockroach



American Chemical Society

Daniel Scherson and colleagues have developed and implanted into a living insect — the False Death's Head Cockroach — a miniature fuel cell that converts naturally occurring sugar in the insect and oxygen from the air into electricity [*An Implantable Biofuel Cell for a Live Insect* (JACS)].

They term it an advance toward a source of electricity that could, in principle, be collected, stored and used to power sensors, cameras, microphones and a variety of other microdevices attached to the insects. They explain that scientists are developing ways to generate electricity from chemicals inside living things or from their movements to power implanted sensors or other miniature devices.

Such devices could provide researchers or physicians with important information about processes going on inside insects, animals or even people without the need for batteries. They also could someday power artificial organs, nanorobots or wearable

personal electronics. But before such “sci-fi”-sounding advances can be realized, practical biofuel cells are necessary. That’s why Scherson and colleagues developed an implantable biofuel cell for use in a live cockroach. The biofuel cell uses trehalose in the cockroaches’ bodies and oxygen from the air to generate electricity. It did not kill the insects or impair functioning of their internal organs.



They also implanted the device into a Shiitake mushroom, and it worked. Neither fuel cell — in the roach or the mushroom — produced a large amount of energy, so the team says that any microdevice that requires high power could operate only intermittently. The electricity generated by the biofuel cell “in principle, could be collected and stored and subsequently used to power a variety of microdevices,” say the researchers.



FIVE QUESTIONS FOR.....

We hope you enjoy this new SW Retort Section, "Five Questions For...", in which local section members will answer 5 questions designed to give us a glimpse into their experiences and careers in the sciences. To volunteer to be interviewed, e-mail to retort@acsdfw.org.

Five Questions For...

Dr. Jeffry Kelber,

Regents Professor of Chemistry,
University of North Texas

ACS Activity: Served as Alternate
Councilor of the DFW Local Section

1. How old were you when you realized you wanted to be a scientist?

I cannot remember a single particular event. I developed a strong interest in paleontology and archaeology in grade school. This gradually morphed into an interest in physics and chemistry. By the time I completed my junior year in high school, I was certain that I wanted a career in the physical sciences.

2. What event first triggered your interest in science?

My parents were both highly educated and interested in science. My father, who is a nuclear physicist, was quite detailed and blunt about the joys and irritations of being a working scientist. They encouraged me to read, study on my own, and to ask questions. This interest was greatly

reinforced in high school (Wheaton Central, Wheaton, IL), where I had excellent teachers in the sciences and mathematics. One in particular strongly encouraged me—Ms. Alice Boone, my chemistry teacher. She had a reputation as a strict disciplinarian, and she did not tolerate nonsense or sloppy thinking. She did, however, encourage hard work, independent inquiry, and the notion that what really mattered were the right answers to tough questions. I would have to say that with all my teachers, and particularly Ms. Boone, there was not the emphasis on rote learning, memorization, and teaching to the test that one finds currently in many high schools. Anyway, by the time I got to CalTech, I was already "hooked" and inspirational Professors like Harry Gray and Richard Feynman just sort of cemented the existing state of affairs.

3. What is your favorite project?

Probably what my students and I are doing now, in collaboration with Prof. Peter Dowben's group at the University of Nebraska-Lincoln. We have done some rather interesting

work on the direct growth of graphene on dielectric substrates, including Co_3O_4 , which gives graphene some exciting magnetic properties for spintronic applications. The ability to grow graphene directly on insulators is a key step towards industrial development of graphene electronic and spintronic devices, and I think we have (with financial support and encouragement of the Semiconductor Research Corporation), Dr. Vish Prasad, the VP/Research at UNT, and others in the UNT administration) been able to change people's thinking- just a little bit.

4. What do you see as the largest barrier to students' pursuit of a career in chemistry, if any?

The current trend in high schools of 'teaching to the test' encourages memorization and thwarts intellectual exploration and risk-taking. This sort of thing poisons innovation and curiosity, and discourages promising individuals. Students reach freshman chemistry in college and are shocked that memorization is not the route towards understanding, let alone a good grade. There are other obstacles: lack of government financial support for graduate students and undergraduates, the soaring cost of

tuition, etc., but no amount of financial aid can help a student who has been trained not to think.

5. Who is your Science Hero? and why?

I have three science heroes, actually. One: Benjamin Franklin, who founded what became the American Physical Society and who was perhaps the first American Scientist to have an international impact.

Two: Lise Meitner, who, in spite of being a woman and of Jewish birth, rose to become a group leader at the Kaiser Wilhelm Institute, and made absolutely fundamental contributions to our understanding of nuclear fission. (Her not being awarded the Nobel Prize in physics, with Otto Hahn, says a lot more about the people who awarded the prize than it does about Dr. Meitner).

Three: Richard Feynman, who changed the ways all the rest of us think about physics but who also taught us at CalTech to be the most severe and uncompromising judges of our own work.

Thank you, Dr. Kelber, for your insightful remarks!



PRINT AND POST !



February 2012
DFW ACS MEETING

Charlene Williams

**The Process and Chemistry
of Printing US Currency**

Thursday, February 23rd at Texas Wesleyan University starting at 6 pm.
6-6:30 Registration and Social Hour
6:30-7:30 Meal
7:30:-8:30 Presentation

Dinner \$12.00 each: Menu – Northern Italian Buffet (fettuccini alfredo, Chicken Milano, green bean, carrot, Caesar salad, dessert)

- Payment by cash or check will be accepted at the meeting. Please note that you are financially responsible for reservations made but not used.
- It is not necessary to attend the dinner in order to attend the lecture

RSVP to either of the following by 2/16/2012

Jennifer - jfrerstad@txwes.edu, 817-531-4893

Newt – nhilliard@txwes.edu, 817-531-4896

Lou's Place on the Texas Wesleyan campus, 1112 Wesleyan Street, Fort Worth, TX

Directions

From Dallas: Take I30 West to Exit 16C (Beach Street); turn left on Beach Street; in 1 mile turn left on Rosedale Street; in ½ mile turn left on Wesleyan St.

From Fort Worth: Take I30 East to Exit 16C (Beach Street); turn left on Beach Street; in 1 mile turn left on Rosedale Street; in ½ mile turn left on Wesleyan Street.

Parking: Parking is behind the building in Lot 17.

March 2012
DFW ACS Meeting
presents
INAUGURAL INDUSTRY AND SMALL BUSINESS
MEETING

Saturday, March 24th, 2012

John G. Mahler Building's Great Hall, Dallas Baptist University

Contact: aaronf@dbu.edu

8:30 – 9:20 a.m. **Coffee and registration**

9:20 – 9:30 a.m. **Welcome** Aaron Fletcher, DFW Section Chair

9:30 – 9:55 a.m. **CorsiTech Presents**

Formulating Products and Technology Specific to Industry Needs

9:55 – 10:20 a.m. **Abbott Presents**

Science and Innovation to Improve Health Care

10:20 – 10:45 a.m. **Terracon Presents**

In situ Chemical Oxidation of Soil and Groundwater Contamination

10:45 – 11:10 a.m. **GAF Presents** TBA

11:10 – 11:35 a.m. **ChK Presents**

Biogenetic Silica and Nanophase Mn Oxide

11:35 – 12:55 p.m. **Lunch Breakout Session**

An Expo of Industry and Small Business Leaders

1:00 – 1:25 p.m. **TriQuint Semiconductor Presents** TBA

1:25 – 1:50 p.m. **Mettler-Toledo Inc. Presents**

Polymers to Biomass - Developments in Thermal Analysis

1:50 – 2:15 p.m. **Ana-Lab Presents** TBA

2:05 – 2:30 p.m. **Omn Scientific Presents** TBA

Lunch Breakout Session During our lunch, today's speakers and many others will be hosting a table with information about their businesses and an opportunity to talk one-on-one about their products, services, and employment possibilities.

Current Table Hosts:

Abbott	CorsiTech	TriQuint Semiconductor	Ana-Lab
Mettler-Toledo	BioBasic USA	Chk	Omn Scientific
Ricca Chemical	Arkon	SciConsult	Terracon GAF

APRIL 2012
The Dallas Fort-Worth Section
of
The American Chemical Society
presents the
45TH ANNUAL MEETING-IN-MINIATURE

University of Dallas
Saturday, April 21,
2012



Gorman Lecture Center
Format: 10-15 min. talks
Categories: Undergraduate Students and
Graduate Students

Abstract Deadline: Thursday, April 5
Standard ACS format: send to **hendrick@udallas.edu**

Judges & Session Chairs needed: Please Volunteer!

For more information, contact: Bill Hendrickson at
hendrick@udallas.edu

Each presentation should be carefully planned for effective delivery in 15 minutes. This will be followed by an ~5 minute question, answer, and discussion period with your audience. Here is a set of guidelines (Ten Simple Rules for Making Good Oral Presentations) to keep in mind as you are preparing your presentation:
<http://www.ploscompbiol.org/article/info:doi/10.1371/journal.pcbi.0030077>

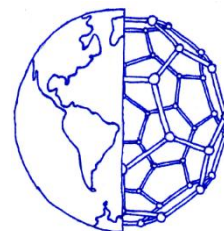


PRINT AND POST!



ACT₂ BIENNIAL CONFERENCE

Chemistry Makes the World Go Round



When: June 24-28, 2012

Where: The University of Baylor Mary Hardin in Belton, TX
(173 miles from Houston, 140 miles from Dallas, 61 miles from Austin, 140 miles from San Antonio)

Cost: \$250 (early bird pricing until May 25th) includes registration, all meals from Sunday night through breakfast Thursday, and lodging from Sunday night until Thursday (or \$125 for registration and all meals except breakfast-no lodging) **
Presenters save \$50 off the above prices!!!

Why should I go:

1. Get all of your Professional Development hours for the year!
2. The lowest cost chemistry conference you will find anywhere!
3. The University of Mary Hardin Baylor is a small beautiful campus with **FREE PARKING!**
4. Many workshops covering all levels of chemistry, from your lowest academic students to your brightest AP students!
5. It will be 5 days of Chemistry Fun!
6. Gets tons of ideas to implement in your classroom!
7. Door Prizes: everyone will win something!
8. Come see old friends and meet lots of new friends for networking!
9. World-renowned presenters Robert Becker and Ken Lyle!
10. Demos in the Dark: all the demos you can't do inside because they are too big or dangerous (you won't want to miss this)!

For more info and to register:

<https://sites.google.com/site/act2tx>

Click link at bottom of webpage to register and/or present



PRINT AND POST!

WANTED

YOU!

At the **24th International Symposium on Chiral Discrimination**



Ft. Worth, TX
June 10th – 13th, 2012

(at the Hilton in
downtown)

www.chirality2012.com

Chiral Separations, Spectroscopy, Synthesis, and More

Plenary Lecture by Prof. E.J. Corey, Harvard University
1990 Nobel Laureate in Chemistry
on Enantioselective Chemical Synthesis

Plenary Lecture by Prof. Ron Breslow, Columbia University
National Academy of Science Member
on Origin of Chirality in Life

International Chirality Medal Award Presentation and Address
Also... Presentations and Discussion on the Route to Commercialization of
Chiral Drug Compounds, Full Scientific & Social Program, Student & Young
Investigator Sessions, Short Courses, Vendor Exhibitions, Job Fair, Poster
Symposium & Awards, Book Signing

Conference Organizers: Prof. Daniel W. Armstrong and Prof. Kevin A. Schug

Submit Abstracts
by March 15

Register Now by April 15
info@chirality2012.com

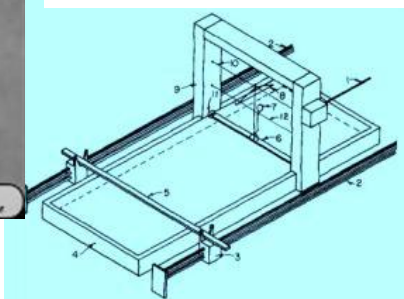
From the editor:

Last month, Mary Anderson, in the Five Questions column, mentioned that her favorite historical scientist was Maude Menton, of Michaelis-Menton equation fame. With a dissertation filled with Michaelis-Menton plots, I am ashamed to admit that I did not know Menton was a woman. But one of my scientific heroes is Agnes Pockels (1862-1935).

As a child, Agnes wanted to study physics but was prevented from doing so by her gender. She first observed the influence of impurities on the surface tension of water, legend has it, while doing dishes. To measure the tension, she developed the Pockels trough, precursor to the Langmuir scale, and published the first stearine acid. Her scientific books were purchased for her by her brother, as she could not use the medical school bookstore.

In 1891, with the help of Lord Rayleigh, she managed to publish her first paper, *Surface Tension*, in the prestigious journal **Nature**. In 1931 she received, together with Henri Devaux, the Laura Leonard award from the Colloid Society. In the following year (1932), the Technische Hochschule Braunschweig (Technical University at Brunswick) granted her an honorary PhD degree.

Dr. Pockels' portrait hangs on my office wall; she reminds me to keep trying when I get discouraged--and to always, *always* be curious about the way things work.



A handwritten signature in cursive script that reads 'Connie'.

Remember, the **RETORT** is on issuu.com. One good thing about issuu.com is that you can *subscribe* to your publication; if you put in your email (right next to the **RETORT** on the site), you will automatically get the **RETORT** when we post it. (*In order to subscribe, download, or print, you need to register with issuu.com; it's free and you can opt out of extraneous emails.*) The Retort is still and always will be available on the DFW section's website acsdw.org. On that site, under *SW Retort*, you can access a pdf (just click on the *name of the month*), a flip-page PC version, and a flip-page MAC version, all of which are downloadable and printable.