

JENNIFER CRUZE IS 2010 SCHULZ AWARD WINNERp. 5

Southwest

RETORT

October
2010

TABLE OF CONTENTS

| | |
|--|----|
| Fifty Years Ago | 2 |
| Cruze Wins 2010 Schulz Award | 5 |
| Chem Gems & Joules | 6 |
| UTSA's Thyagarajan Honored..... | 6 |
| Around-the-Area..... | 8 |
| Heart o' Texas | 8 |
| East Texas..... | 8 |
| South Plains Section..... | 8 |
| D-FW | 9 |
| November Metroplex Seminar Schedule..... | 11 |
| The Chemist's Bookshelf | 12 |
| D-FW Section November Meeting Notice | 15 |
| D-FW Councilor's Report | 16 |

INDEX OF ADVERTISERS

| | |
|--|----|
| American Polymer Standards Corp | 3 |
| ANA-LAB | 4 |
| Huffman Laboratories | 3 |
| Minuteman Press | 3 |
| Shakashiri – Candidate ACS President | 10 |
| Sponsor Members | 1 |
| University of North Texas | 7 |
| Texas A&M University-Commerce | 3 |

!!Be among the first to know
what's happening in D-FW!!

**Point your browser to
the D-FW Section
Website for**

- **Announcements**
- **Current Events**
- **Meetings**

<http://www.acsdfw.org>

Sponsor Members

**Alcon
Laboratories
Halliburton
OxyChem
Texas Eastman**

77TH YEARS AGO IN THE SOUTHWEST RETORT

On October 7 the ACS Headquarters Bldg. in Washington, D.C. will be dedicated in a special ceremony. The 1960 ACS Southwest Regional Mtg. will be held in Oklahoma City Dec. 1-3. This will be the first regional meeting held in Oklahoma City since 1949. The fall meeting of The Electrochemical Society will be held in Houston Oct. 10-12 with headquarters at the Shamrock Hilton Hotel.

In the Dallas-Fort Worth area, **Dr. W. B. Smith** will be a Robert A. Welch Visiting Professor at TCU for the 1960-61 academic year. Dr. Smith is a Professor of Organic Chemistry at Ohio University. **Dr. W. O. Milligan** was awarded an honorary D.Sc. at TCU's August commencement exercise. Dr. Milligan is Professor of Chemistry at Rice Institute. At Tarleton College in Stephenville, Instructor **Richard D. Poe** participated in a 12-week summer research program at Texas A&M. Assistant Professor **Joy Terry** taught at Texas Tech the first six weeks of the summer and spent the last six weeks working on her doctorate at Columbia University.

At Arlington State College, **Robert Francis** vacationed in Mexico following the first summer session. **Carl Scharf** attended two-week NSF Conferences first at Butler University and then at Purdue.

Harold G. Burman vacationed in California. At North Texas State College **Dr. R. B. Escue** taught at Michigan State the last half of the summer. **Dr. Price Truitt** and his family vacationed in Wyoming. **Dr. C. W. Schimelpfenig** is receiving a Welch grant for research on cage-like molecules. At TWU **Dr. Robert W. Higgins** was Director of the Summer Science Training Program in chemistry and biology for 60 senior high school girls. At SMU **John Banewicz** has been promoted to Associate Professor.

At Baylor **Drs. John S. Belew** and **A. G. Pinkus** have received three year NIH grants. **Dr. James L. McAtee** has received a one year grant from API.

For the second straight year the University of Arkansas Section has won the ACS Public Relations Award. The award was presented to the Section Chair, **Dr. Robert E. Krub**, by ACS President **Dr. Albert L. Elder** at the April meeting of the section. **Dr. Edward S. Amis** gave an invited paper in Copenhagen at the IAEA Conference. **Dr. Arthur Fry** gave an invited paper at the Gordon Research Conference on Chemistry and Physics of Isotopes. **Dr. A. W. Cordes** attended a two-week, NSF-sponsored Conference at Tufts University on "Recent Advances in Chemical Bonding."



Southwest Retort

*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.

Vol. 63 October, 2010 No. 2

Editorial and Business Offices:

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

Managing Editor: Mary Teasdale, PO Box 461051, Garland, TX 75046; 972-276-9376; owlcritic75@yahoo.com

Business Manager: Kirby Drake, 9715 Dartridge, Dallas, Texas, 75238-1827; 214-553-9810; kbdrake2000@yahoo.com

Southwest Retort (USPS 507880) 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. Subscription rates are \$3.24 per year. Periodical postage paid at Dallas, Texas. **POSTMASTER:** Send address changes to American Chemical Society, Southwest Retort, Box 3337, Columbus, Ohio 43210.

Elemental Analysis

CHNOS Ash
ICP · AA · ICP/MS
TOC · TOX · BTU
Problem Solving

HUFFMAN
LABORATORIES, INC.
Quality Analytical Services Since 1936

Phone: (303) 278-4455
FAX: (303) 278-7012
chemistry@huffmanlabs.com
www.huffmanlabs.com



**MP Minuteman
Press.**
The First & Last Step In Printing.

- Full Color & BW Printing
- Business Cards
- Letterhead
- Envelopes
- Flyers
- Carbonless Forms
- Booklets
- Postcards



972.313.3428

mmpirv@flash.net

www.irving.minutemanpress.com

**Minuteman Press of Irving
proudly supports and
prints the Southwest Retort**

Texas A&M University-Commerce
**Quality
Chemistry**

The advantages of a small college
at a major national university

www.tamu-commerce.edu

* GPC/SEC Analysis * GPC/SEC Polymer Standards
* GPC/SEC Columns * Waters™ 150C Parts

Request your free catalog online

www.ampolymer.com

American Polymer Standards Corporation

8680 Tyler Blvd., Mentor, OH 44060

Phone: 440-255-2211 Fax: 440-255-8391

| | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|
| 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 106.42 | 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 204.383 | 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 (282) | 112 Cn (285) | 113 Nh (286) | 114 Uuq (289) | | | |

ANA-LAB
CORP.®

THE COMPLETE SERVICE LAB

| | | | | | | | | | | | | | |
|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 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 |
|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|

Quality Analytical & Environmental Services Since 1965

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

806-355-3556 • Fax 806-355-3773

Email: panhandle@ana-lab.com

Dallas, TX

972-620-8900 • Fax 972-620-8902

Email: northtexas@ana-lab.com

Austin, TX

512-821-0045 • Fax 512-821-0237

Email: centex@ana-lab.com

Brownsville, TX

956-831-6437 • Fax 956-831-6438

Email: rgvtex@ana-lab.com

Houston, TX

281-333-9414 • Fax 281-333-9614

Email: gulfcoast@ana-lab.com

Norman, OK

405-292-6630 • Fax 405-292-3676

Email: oklahoma@ana-lab.com

Shreveport, LA

318-219-9300 • Fax 318-219-8300

Email: arkla@ana-lab.com

Madison, AL

256-461-0500 • Fax 256-461-0502

Email: alabama@ana-lab.com



02008

SCHULZ AWARD WINNER JENNIFER CRUZE

Profile by E. Thomas Strom

The winner of this year's \$1000 Werner Schulz Award is Ms. Jennifer Cruze of Carroll High School in the Carroll ISD. She will receive her honorarium and plaque on Nov. 15 at the D-FW Section's November meeting at Trophy Club (details available elsewhere in this issue). Her picture will hang in the Gallery of Schulz Award winners in the Science Building at Tarleton State University.

Before coming to the Carroll ISD in 2008, Jennifer taught in the Hurst-Euless-Bedford ISD from 1999-2007. In the 2002-2003 school year she was selected as the Teacher of the Year at L. D. Bell High School. Since 2006 she has also been a Lecturer at UT-Arlington, working with Assistant Science Dean Dr. Greg Hale and Assistant Chemistry Professor Kevin Schug. In this summer school effort she team

teaches with the UTA faculty a science education course for current and future teachers seeking a Master's degree in Interdisciplinary Science. In her UTA teaching, she provides the student-teachers the tools that they can use in their own classrooms---hands on activities designed to effectively communicate the curriculum and reach a diverse student population in a fun and engaging manner. She is certified in Sheltered Instruction Operation Protocols (SIOP) and is heavily involved in curriculum design for high school sciences in the State of Texas.

If anyone could be said to be a born teacher, Jennifer Cruze fits the bill. She was interested in science and teaching from an early age. Her family would vacation in national parks. She grew up in Colleyville with horses. She was always attracted to smart adults and would



stay under the table when her parents played cards with friends. As a result, she learned to play poker and gin rummy by age five. She was also very artistic. Consequently, her 1993 BA degree in biology from TCU was accompanied by a minor in studio art.

Jennifer and her husband Dennis, a Technical Engineering Manager for Motivating Graphics, live in Saginaw. They have three children, Maxwell, age 16, Nathan, age 13, and Miranda, age 9. One important hobby

is looking for good art at antique stores.

When Bob Roe donated the funds to honor his dead friend Werner Schulz, he asked that the award honor teachers like his friend Werner, who bring something extra to the teaching of chemistry. Jennifer Cruze brings a lot extra to chemistry teaching. I hope that many of our section members will come on Nov. 15 to hear what this master teacher has to say.

CHEM GEMS & JOULES

A share-a-thon is being set up for high school chemistry teachers in the D-FW Metroplex. The four times an academic year meetings have and will take place on Sept. 18, Oct. 30, Jan. 22, and Mar. 5. For more information, contact Claudia Wallace at wallace@cfbisd.edu.

UT-SAN ANTONIO'S THYAGARAJAN HONORED

The University of Texas-San Antonio honored occasional *Southwest Retort* correspondent **Budaluri S. Thyagarajan** on Oct. 20 with a portrait to be on permanent display in the College of Science. Professor Thyagarajan led the Division of Earth and Physical Sciences at UT-San Antonio during its early days, and he has continued that support through endowed scholarship funds. Professor Thyagarajan has been a big promoter and supporter of ACS Project Seed. He brought Project Seed to San Antonio in 1974. His friend E. Robert Fanick notes that Dr. Thyagarajan for fourteen years

supported eight to ten students each summer with no local section support and marginal support from the national ACS. These students were all Hispanic and were selected from the poor-est families and poorest school districts in San Antonio. Because of his initial involvement, Project Seed is alive and thriving in San Antonio.

Long-time *Retort* readers will remember Dr. Thyagarajan for his stimulating Letters to the Editor and for his interesting poetry on chemical topics. *The Southwest Retort* congratulates Dr. Thyagarajan on this signal honor.

UNIVERSITY OF NORTH★TEXAS™

DEPARTMENT OF CHEMISTRY

PHD & MS DEGREES

Specializations In:

- Analytical
- Chemistry Education
- Computational
- Industrial (MS only)
- Inorganic
- Materials
- Organic
- Physical



- UNT is a dynamic research institution with more than 36,000 students.
- \$25 million invested by UNT for research clusters.

- Attractive RA scholarships (no TA responsibilities) available.
- Very competitive TA and RA stipends.
- Tuition waivers.
- Health insurance package.
- State-of-the-art research facilities.
- 22 faculty members and ~100 graduate students
- On-line degrees available.



Chemistry Student Services Office, Department of Chemistry,
University of North Texas, 1155 Union Circle, #305070, Denton, TX 76203
or call (940) 565-3554 or (888) UNT-GRAD

E-mail: chem@unt.edu or log on: www.chem.unt.edu

Around-the-Area

Heart o' Texas.

Baylor University. The speaker for next spring's Gooch-Stephens Lectures will be **Professor Peter Schultz** from the Scripps Research Institute. These lectures will be held Thursday and Friday Mar. 17-18, 2011.

East Texas

Newsletter Editor **Mike Sheets** had his hard drive crash recently. While he has reconstructed most of his data base, those who had received the section newsletter previously and are not now receiving it should consider contacting Mike to get back on the list. His e-mail address is mike.sheets@texarkanacollege.edu.

Several ACS student affiliate chapters in East Texas have received ACS honors recently. The Texarkana College Chemistry Club has received an Outstanding rating along with designation as a Green Chemistry Chapter. The Chemistry Club of UT-Tyler received an Honorable Mention rating. The East Texas Baptist University Chemistry Club received a Certificate of Achievement.

The Chemistry Building at Stephn F. Austin State University has recently been renovated. The speaker at the Nov. 3 section meeting will be **Robert Bates**. The time for nominating officers is near. Members with suggestions for officers should give their suggestions to Section Chair **Justin Briggie**.

South Plains Section.

Texas Tech University. **Dr. Dimitri Pappas** has received a three year, \$522,329 grant from NIH to study "Rapid Single Molecule Detection System for Intracellular Protease Activity." A paper published by Pappas and **Michelle Martinez** was one of the top ten most-read articles from the online version of *Analytical Methods* for Aug., 2010.

Professor Bill Poirier gave an invited presentation on "Bohmian Mechanics Without Pilot Waves" at the Collaborative Computational Project Workshop on Quantum Trajectories held in Bangor, Wales July 12-14. He was an invited participant in an NSF Exploratory Workshop on Electronic and Vibrational Structure and Dynamics held in Arlington, VA Aug. 8-10. He was also an invited participant at the International Workshop on Quantum Atomic and Molecular Tunneling in Solids and other Condensed Phases held in Darmstadt, Germany Sept. 5-9. While there, he presented a talk on "Quantum Dynamics of Hydrogen Interacting Exohedrally with Single-Walled Carbon Nanotubes."

Welch Professor Bill Hase gave an invited lecture at MOLEC 2010, the XVIII European Conference on Dynamics of Molecular Systems held in Curia/Andia, Portugal, Sept. 5-10. He has also accepted an invitation to join a panel dealing with the NSF Center for Chemical Innovation at

the University of Chicago. **Dr. Jorge A. Morales** presented an invited lecture on “The Electron Nuclear Dynamics Theory and Related Models: From Ion-Molecule Collisions to Classical Charge-Equilibration Models” at the University Nacional de Mar del Plata, Argentina, Aug. 18. The work of **Professor Jon Thompson** and colleagues has been highlighted in an invited article in the 9-10/2010 issue of *G.I.T. Laboratory Journal Europe*.

Dallas-Fort Worth

Fifty and Sixty Year ACS Members Honored. The D-FW September meeting honored our 50 and 60 year ACS members, some of whom were in attendance. The fifty year members were **Dr. Edward Biehl, Dr. John Dehn, Dr. David Klassen, Dr. Robert Landolt, Mr. Joel Lipscomb, Dr. Leon Milewich, Mr. Louis Polito, Dr. Ronald Quinatana, and Dr. E. Thomas Strom**. Sixty year members were **Mr. A. Buthod, Dr. Alex Nickon, Dr. Sidney Parker, and Dr. James Roth**. Those honorees attending the meeting to receive their ACS certificates from local section Chair **Dr. Denise Merkle** were Biehl, Landolt, Parker, Quinatana, and Strom.

Tarleton State University. The Tarleton State Student Affiliate Chapter received notification that they have been selected as an Outstanding Chapter for the 2009-2010 year and also as a Green Chapter. The affiliate president is **Eric Poindexter**. The chapter advisors are **Drs. Peter Bell and**

Rueben Walter.

University of Texas at Dallas.

UTD NanoExplorer **Amy Chyao**, a sophomore at Williams High School in Plano, won the \$75,000 Gordon E. Moore award at the Intel International Science and Engineering Fair for research she performed under the mentorship of UTD chemistry professor **Kenneth J. Balkus, Jr.**

Texas Christian University.

Professor Manfred Reinecke recently joined the Editorial Advisory Board of *The Natural Products Journal*. He also serves on the Editorial Board of *Natural Products Communications*. **Professor Tracy Hanna** gave a seminar on “Building Bifunctionality into the Calixarene Lower Rim” at Texas Tech in October.

UTA. A new assistant professor of biochemistry is **Dr. Kayunta (Kay) Johnson-Winters**. Kay was born in Bastrop, LA, but she was raised in Wisconsin. She received her undergraduate degree from Alverno College, a small liberal arts college for women in Milwaukee. Her Ph.D. came from the University of Wisconsin at Milwaukee with **Graham Moran** as mentor. She did a post-doc at the University of Arizona with **John Enemark**.

Kay is undertaking a research program on F-420 cofactor dependent enzymes. She and her husband Simmie Winters, a banker, live in Mansfield. They have a seven year old son, Kailand. Her main spare-time activity is church work. She is a volunteer evangelist for her Pentecostal congregation. *The Southwest*

Retort warmly welcomes Kay to our area.

Dr. Kevin Schug has joined the Editorial Board for the journal *LCGC*. **Dr. Martin Pomerantz** gave a talk coauthored by **Nashat Turkman** on "Intra- and Intermolecular Interactions in Bi- and Terthiophenes: Structural Implications" at the 33rd Reaction Mechanisms Conference in Amhurst, MA, June 23-26. He also gave talks at the University of Cincinnati on Aug. 19 and at Tarrant County College-Southeast Campus on Oct. 15. **Dr. Krishnan (Raj) Rajeshwar** presented seminars on his research at TCU on Sept. 1 and at Johns Hopkins University on Sept. 28. He was also the colloquium speaker in the Physics Department at UT-Arlington on Sept. 22. **Dr. Zoltan Schelly** presented invited talks on "Cluster Precursors of Uncapped Quantum Dots via Electroporation of Synthetic Liposomes" at the Conference on Colloidal and Molecular Electro-Optics (ELOPTO-2010)" in Mainz, Germany, at the Max Planck Institute of Colloids and Interfaces in Potsdam-Golm, Germany, and at the Technical University Budapest, Hungary. At the ELOPTO-2010 Conference, he was elected Chair of the International Advisory Board for that Conference.

Chemistry Chair **Dr. Sandy Dasgupta** has left this position to return to full-time research and teaching. The new Chair as of Sept. 1 is **Dr. Rasika Dias**, last year's winner of the ACS Southwest Regional Award.

BASSAM Z. Shakhshiri

for ACS President-Elect

I seek your vote and your help so together we can strengthen what ACS does best for its members and for society.

I will serve ACS as an open and uniting leader. ***I will work with you to:***

- Sustain ACS as the world's leading scientific organization
- Strengthen the total chemistry enterprise: academic, industrial and governmental
- Increase public and private support for research and education
- Promote green chemistry and sustainable development
- Focus on employment and workforce needs
- Enhance the quality and supply of teachers
- Improve scientific communications within and among various cultures
- Foster international cooperation and collaboration in research and education



VOTE
Sept. 24
through
Nov. 12,
2010

www.bzs4acs.org

NOVEMBER METROPLEX SEMINAR SCHEDULE

Seminars are occasionally postponed or cancelled. Check department websites or call the department before attending.

UT-Arlington. Oct. 29, Peter Kroll, UT-Arlington, "Endeavors in Computational Chemistry of Materials." **Nov. 5**, Fred Regnier, Purdue, "Oxidative Induced Protein Oxidation as a Disease Signature." **Nov. 12**, Tadhg Begley, Texas A&M, "Thiamin: From Beriberi to Biotechnology." **Nov. 19**, Undergraduate Poster Session Organized by the Chemistry & Biochemistry Society. **Dec. 3**, Samir Iqbal, UT-Arlington Electrical Engineering, "Nano-Devices for Smart Sensing." Seminars are normally at 2:30 p.m. in Room 114, Baker Chemical Research Bldg.

UT-Dallas. Oct. 29, Jung-Mo Ahn, UTD, "Mimicking Alpha-Helices for Biomedical Research." **Nov. 5**, Steven O. Nielsen, UTD, TBA. **Nov. 12**, Karen Wooley, Texas A&M, "Well-Defined, Biologically-Inspired Nanoscopic Objects Derived from Synthetic Polymer Building Blocks." **Nov. 19**, Kris Matyjaszewski, Carnegie Mellon, "Macromolecular Engineering for Functional Nanostructured Materials." Seminars are normally at 2 p.m. in 2.303 Science Learning Center.

UNT. Oct. 29, Dewey Holten, Washington University, "Directional-

ity of Electron Transfer in the Photosynthetic Reaction Center." **Nov. 5**, Patrick Farmer, Baylor, "HNO as an O₂ Analogue: The Coordination Chemistry of Nitrosyl Hydride with O₂ Binding Metalloproteins." **Nov. 12**, Bob Crabtree, Yale, "Selective Oxidations by Organometallic and Coordination Catalysts: CH activation and Water Oxidation." **Nov. 19**, Mike Duncan, University of Georgia, "Infrared Spectroscopy of Mass-Selected Ions and Clusters: Inorganic and Organic Chemistry in the Gas Phase." Seminars are normally at 3:30 p.m. in Room 106, Chemistry Bldg.

SMU. Oct. 29, Mark McDonald, Drug Enforcement Administration, TBA. **Nov. 18**, 5 p.m. (*Note change of day and time.*), Krsysztof Matyjaszewski, Carnegie Mellon, TBA. Seminars are normally at 3 p.m. in Room 352, Fondren Science Bldg.

TCU. Nov. 9 (*Note change of day*), Purnendu (Sandy) Dasgupta, UT-Arlington, "Ionic Semiconductors and Charge Detection in Solution." **Nov. 11**, Robert Crabtree, Yale, "Selective Oxidations by Organometallic and Coordination Catalysts: CH Activation and Water Oxidation." **Nov. 18**, Paul Zinke, Alcon, TBA. Seminars are normally at 11 a.m. in Lecture Hall 3, Sid Richardson Science Bldg.

UT-Southwestern Biochemistry. Oct. 28, Pieter Dorrestein, UC-San Diego, "Novel Mass Spectrometry Approaches for Microbial Natural Products." **Nov. 11**, Katrina Forest, University of Wisconsin-

Madison, "Structural Studies of Bacterial Pilins and Photoreception." **Nov. 18**, James W. Dennis, Mt. Sinai Hospital, "Systems Approach to Understanding Metabolic Flux Regulation of Glycosylation and Disease." **Dec. 2**, Eric C. Lai, Memorial Sloan-Kettering Cancer Center, "Small RNA Pathways in *Drosophila* and Mammals." Seminars are normally at 12 noon in Biochemistry Lecture Hall L4.176.

UT-Southwestern Biological Chemistry. **Nov. 16**, Lanny Liebes-

kind, Emory University, "Seeking Novel Reactivity and Selectivity in Modern Organic Synthesis. Bio-Inspired Desulfitative Catalysis for Organic Synthesis." **Nov. 30**. James Morken, Boston College, "New Strategies in Catalytic Stereoselective Synthesis." **Dec. 7**, Tadhg Begley, Texas A&M. "Thiamin Biosynthesis: Still Yielding Fascinating Biological Chemistry." Seminars are normally at noon in Biochemistry L4.162.

The Chemist's Bookshelf

by Danny L. Dunn

Molecules of Murder: Criminal Molecules and Classic Cases

by John Emsley, The Royal Society of Chemistry, 2008, 252 pages, \$24.95 (ISBN 978-0-85404-965-3)

John Emsley was a chemistry lecturer and researcher at London University for 20 years. He is currently a Science Writer in Residence in the Chemistry Department at the University of Cambridge. *Molecules of Murder* discusses 10 poisons (5 natural and 5 synthetic) which have been used to commit murder. Emsley dedicates the book to the analytical forensic chemists whose crime solving skills provide such a valuable service to society. While murder using poison was very common in the 1800's and early 1900's, he points out that in 1989 there were about 19,000 murders in the USA and only 30 of them were caused by poison. Today

it is almost impossible for a poisoner to escape detection.

The murder cases that Emsley discusses are of course fascinating. Many of the cases are quite famous. For example, the murder of dissident Georgi Markov using a pellet containing Ricin concealed in a rolled-up umbrella (1978), or the murder of a former KGB officer, Alexander Litvinenko, by putting Polonium into his drink (2006). However, even more interesting than the murder cases is Emsley's detailed discussions of each poison describing how it's made, its effect on the body, medicinal uses, and numerous entertaining stories. If you have ever heard of a poisoning case with one of

these 10 molecules, Emsley has probably included it.

In the chapter on cyanide, in which the Tylenol murders (1982) are discussed in detail, Emsley points out that hydrogen cyanide is a liquid below 26° C. In an American Cyanamid manufacturing plant in New Orleans, liquid hydrogen cyanide is used to make acrylonitrile. In this plant a maintenance worker disconnected a pipe and was surprised to find that it was still full of liquid hydrogen cyanide. He was drenched in it from head-to-foot. His coworkers rushed him to the medical room where amyl nitrate was administered directly into his nostrils. The doctor in charge noted that the patient at first appeared to be dead. However, he suddenly recovered and was found to be normal, even showing up for work the next day.

Both inhaled and orally administered chloroform have been used for murder. However, in the early 1800's it was used as an anesthetic. Needless to say, early operations without an anesthetic were not much fun. The first man-made anesthetic which allowed doctors to operate without pain was diethyl ether (1842). In 1847 chloroform started being used as an anesthetic to ease the pain of child birth. However, there were found to be occasional unexplained deaths when chloroform was used. Queen Victoria had already had nine children before deciding to have numbers 10 and 11 under the influence of chloroform. She wrote

in her diary, "Dr. Snow gave that blessed chloroform and the effect was soothing, quieting, and delightful beyond measure". Suddenly, it became very fashionable for women to have chloroform administered during childbirth. Unfortunately, the occasional unexpected deaths continued. The death rate for using chloroform was 1 in 2,500. The death rate for using diethyl ether was 1 in 23,000. Chloroform use as an anesthetic gradually became less popular and was subsequently replaced with safer compounds.

Hyoscine (Scopolamine) is an old poison. One of its sources is a yellow plum-like fruit produced by the mandrake plant. In some societies the mandrake wards off evil and in some societies it is used by witches to make contact with the spirit world. The mandrake plant has a curiously shaped root which looks like a tiny human creature. The plant is supposed to give a deadly shriek when pulled out of the ground and anyone hearing this shriek will go mad. This probably sounds familiar if you have read or seen J.K. Rowling's *Harry Potter and the Chamber of Secrets* in which shrieking mandrakes are part of the story. Shakespeare also included a shrieking mandrake quote in *Romeo and Juliet*.

We are very familiar with the fact that carbon monoxide in automobile exhaust is poisonous. In fact, according to Emsley carbon monoxide kills more people than any other poison. In 1888, a leading

chemical manufacturer found that their nickel valves were being corroded by an impurity in the carbon dioxide used in one of their processes. It was subsequently found that a carbon monoxide impurity was reacting with the nickel to form nickel carbonyl gas. This was very unexpected at the time because metal compounds were thought not to be able to form gases. Nickel carbonyl forms at 50° C and decomposes back into nickel and carbon monoxide at 180° C. These reactions were eventually developed into the Mond process for making highly purified nickel which was needed to meet the growing demand for stainless steel. However, it was not immediately realized that nickel carbonyl was five times more deadly than carbon monoxide itself and many workers died due to accidental leakages.

A bonus is Emsley's well written foreword "Milestones in the Forensic Analysis of Poisons". Back in the 1600's and 1700's, there were not many ways to prove that a suspicious compound was a poison except by feeding it to an animal or noting that its physical characteristics were

similar to a known compound. In 1790, a crude forensic test for arsenic was developed. This test underwent several revisions to improve its sensitivity and in 1832 the Marsh test was developed in which arsenic was deposited as a silver mirror. Metallic poisons are easier to detect as they can be precipitated as insoluble compounds, filtered off, and characterized. Organic poisons are more difficult to detect and generally have to be extracted from body tissues using an organic solvent before characterization. Today we have chromatography, mass spectrometry, and neutron activation analysis to help detect poisons. Metal poisons can be detected in bodies long buried or even after being cremated. I was surprised to learn that one of the body fluids routinely analyzed for traces of poison in a possible murder case is the vitreous humour of the eye.

I readily recommend *Molecules of Murder* to anyone that wants to learn some new facts about some familiar molecules. It is well worth your time to read this one.

Continued from Page 16: One discussion item that was very important to me was a proposal to move Council meetings from Wednesdays to Tuesdays. As Chair-Elect of a small division (HIST), I felt that this move would place a burden on all small divisions. We front load programming, and I thought a move to Tuesday would give our programming additional competition. Supposedly e-mail polls showed that a plurality of councilors were in favor of such a move, presumably as a cost-saving measure. There was a lot of vigorous discussion on the issue, and there was more opposition (my position) to a move than I thought there would be, considering the e-mail polls results. Finally an electronic straw poll was carried out. Those in favor of a switch to Tuesdays were 128; those opposed, 225; and those undecided, 56. I hope the results of

NOVEMBER DFW ACS MEETING

Monday, November 15, 2010

Trophy Club Country Club

500 Trophy Club Drive, Trophy Club, Texas 76262

Honoring the 2010 WERNER SCHULTZ AWARD Recipient

Mrs. JENNIFER L. CRUZE

Carroll High School, Carroll ISD

"Teaching and The Law of Thresholds"

About the Talk: Mrs Cruze will discuss *Teaching and The Law of Thresholds*, a law she fashioned to entertain while providing a unique perspective on science education, classroom experiences, and promoting diversity in science.

About the Speaker: Mrs Cruze graduated TCU with a BA Degree in Biology, received her Composite Science and Special Education teaching certifications from UNT, and recently obtained an MA in Interdisciplinary Science from UTA. Currently she is a Chemistry, and IPC teacher at Carroll High School in Southlake. She serves as Lecturer with Dr. Kevin Schug and Dr. Greg Hale in Science Education courses at UTA and as the Co-Chair of DISCUS (an NSF grant program promoting diversity in science) in the UTA Grant Outreach program. Her extensive experience also includes involvement in curriculum writing and state-level committee service.

Times: Social Hour, 6:30-7:00 PM, Cash Bar; Dinner, 7:00-8:00 PM; Lecture, 8:00-9:00 PM. It is **not** necessary to attend the dinner in order to attend the lecture.

Reservations/Dinner: Contact Patty Wisian-Neilson at pwisian@smu.edu or 214-768-2483 by 5:00 PM on Thursday, November 11, 2010. Dinner price is \$20. Specify your choice of **chicken** (with White Cheddar Cheese, Garlic and Sun-Dried Tomatoes) or **beef** (Sliced New York Strip) when making your reservation. Dinner will include potato, seasonal vegetable and tea/coffee. Members are financially responsible for reservations made but not used. Venue made possible by Dr. S. Carson of Strategic Placements.

Directions: <http://www.trophyclub-dallas.com>; 817.837.1900. From 35W: Exit onto 114 East: Take the Trophy Club Exit, make a Left to cross under the highway and go North. In ~0.7 miles, make a Right into the driveway of the Club. **From 121/183:** Take 121 North: Take the 114/William D. Tate Ave exit (Get into Left lane ASAP after exiting) and follow the signs to turn Left onto 114 W. Take the Trophy Club Drive exit and make a Right to go North. In ~0.7 miles, make a Right into the driveway of the Club. **To take 377:** Go East on 114. Exit Trophy Club Drive and Go North ~0.7mi to the Club. **To take 26:** Go West on 114. Exit Trophy Club Drive and Go North ~0.7mi to the Club. From Dallas & 114 West: Take the Trophy Club Dr. Exit and make a Right to go North. In ~0.7 miles, make a Right into the driveway of the Club.

COUNCILOR'S REPORT: BOSTON ACS MEETING

by E. Thomas Strom

The report of any councilor is by definition a very personal view. My fellow D-FW councilors, Angela Wilson and Linda Schultz, might emphasize different things; and councilors for *The Retort's* member sections---East Texas, Heart o' Texas, Wichita Falls-Duncan, South Plains, and University of Arkansas---would probably emphasize still different items. With that caveat, let me report what I think are the significant matters.

The members of many important ACS committees are chosen by vote of the Council. Those selected for the Committee on Committees for 2011 were Janet L. Bryant, H. N. Cheng, Amber S. Hinkle, V. Michael Mautino, and Yorke E. Rhodes. Those chosen for the Council Policy Committee were John E. Adams, Alan M. Ehrlich, Mary Virginia Orna, and Dorothy J. Phillips. Those elected to the Committee on Nominations and Elections were Jeannette E. Brown, Martha L. Casey, D. Richard Cobb, Lissa Dulany, and D-FW's own Angela K. Wilson. Angela has been selected as secretary of this significant committee.

The 2010 ACS membership numbers are on track to meet year-end goals. The Student Members community has continued to grow since creation of this new member category. Student Members numbered 12,815 as of July 31.

Continued on Page 14