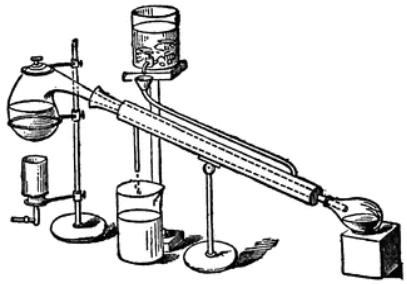
SOUTHWEST RETORT



SIXTY-SEVENTH YEAR **MAY 2015**

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. 67(9) MAY 2015

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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.

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Facebook: DFWACS

Twitter: acsdfw

EMPLOYMENT CLEARING HOUSE

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.

JENKEM TECHNOLOGY

The PEG and PEGylation Technology People

Job Title: Sales/Marketing Assistant

Name of Company: JenKem Technology USA Inc.

Nature of Business: Polyethylene Glycol (PEG) Polymers for Pharmaceutical and Biotech Applications

Job ID: JKUSA-20140801

Job Type: Full-time

Salary Range: Base salary $25,000.00 to $35,000.00; plus Sales Commission

Location: United States - Texas – Plano

Additional notes: Must be legally authorized to work in the United States. Local candidates preferred, no relocation benefits are provided for the position.

Job Functions: Sales and marketing for PEGylation products and services: provides quotations and information on product availability, and provides answers to technical questions to customers, by phone or email; processes orders, shipping, and payments; develops and maintains customer relationships; identifies and develops new customers and new markets for PEGylation products and services; and performs other tasks as assigned by the manager.

Job Requirements: Bachelor's degree or higher (Chemistry/Biology/Biochemistry or similar background REQUIRED); Excellent interpersonal and communication skills; Excellent reading, speaking, and writing skills in business English; Good arithmetic skills and attention to details required; Proficiency in the use of Microsoft Word, Excel, PowerPoint, and Outlook required; English/Chinese bilingual preferred; Ability to work independently required.

To Apply:
Interested candidates should submit a cover letter including salary expectations, and an updated resume at email: hr@jenkemusa.com. Please do not call, we will contact only select candidates.

hr@jenkemusa.com.

SERVICES

FIFTY YEARS AGO IN THE SOUTHWEST RETORT

The ACS Southeast-Southwest Regional Meeting will be held Dec. 2-4 in Memphis. Letters of Intent should be submitted by July 1 with a 120 word abstract due on Aug. 15.

Two faculty members from LSU presented papers at the ACS National Meeting held in Detroit in April. Dr. William Pryor gave a talk on "Mechanisms of Several Free Radical Reactions" and also chaired a day-long symposium of invited papers on "Free Radical Chemistry." Dr. Joel Selbin gave a paper on "The Chemistry of Uranium IV." LSU will once again offer an NSF Summer Institute and Research Participation Program for college teachers that may be used to begin a Ph.D. program.

This summer, Texas Woman's University will again host a Secondary Science Training Program for High School Junior Girls who are interested in chemistry. The program is under the direction of Dr. Robert W. Higgins, who will be assisted by Dr. Anne A. Terry and Dr. William L. Mecay. Dr. Everett C. Hurdis will attend an NSF summer institute on "Radioisotope Technology" held at the Philadelphia College of Pharmacy and Science. Two Arlington State College (now UT-Arlington) graduates have fellowships to graduate school in chemistry. Robert Bussey will attend UC-Riverside, and Michael Brady will attend the University of Kansas. Four Arlington State College faculty members received service pins: Mr. H. D. Pope and Dr. Harold Burman for 20 years and Dr. Margaret Willoughby and Mr. Thomas Hanning for ten years. Dr. Ralph Shriner from SMU attended meetings of the editors of Organic Syntheses, Inc. and of its Board of Directors at the recent Detroit ACS national meeting. At TI Raymond C. Sangster, Director of the Semiconductor Exploration Laboratory, has been selected to be the 1965 Vice Chairman and the 1966 Chairman of the Gordon Research Conference on "Chemistry and Metallurgy of Semiconductors."

In San Antonio, Dr. John Burke represented Trinity University at the recent Chemistry Department Chair's Conference held Mar. 19-20 at the University of Houston. Dr. Walter Stockmayer of Dartmouth gave a Welch lecture at Trinity's Chapman Graduate Center on Mar. 8 on "Instrumental Approaches to the Chemistry and Physics of High Polymers."

From the South Plains ACS Section, Dr. Henry Shine and Dr. M. F. Stubbs of Texas Tech were panel members at discussions of undergraduate chemistry curricula held at UT-Austin Mar. 22. Dr. Shine gave a seminar on "Mechanism of the Benzidine Rearrangement" at Eastern New Mexico University on April 30. Dr. W. W. Wendtland gave a plenary lecture on "Some Miscellaneous Thermal Techniques" to the First International Symposium on Thermal Analysis, held in London, April 13-14.

At Baylor, three faculty members received renewals of NIH grants. They were Drs. T. J. Bond, John S. Belew, and A. G. Pinkus.

Contributed by

E. Thomas Strom

...And Another Thing…

by Denise L. Merkle, PhD

What Kind of Snake Is This?

Summertime! We're heading into that blissful season that to my Mid-Atlantic-focused self means the beach, and only the beach. Where would I be without hot sand, salt water, waves and undertows? Undertows? Jellyfish? Sunburns? Maybe the mountains would be a safer, if less appealing, destination. How nice to experience gorgeous vistas, leafy greenery, snow melt lakes and ankle-twisting boulders? Boulders? Confusing trails? Ticks? Hmmm. What's wrong with this picture? Obviously, we all acknowledge that nothing's all good or all bad, just as we know that appropriate preparation circumvents a spectrum of vacation sabotaging trauma. We read the entire procedure before starting the experiment, right? We don't use the Mass Spec without quite a bit of training, nor would scientists in their right minds let anyone loose in the lab unless the equipment were either so old nothing else could really happen to it, or there was some expectation that the newbie was competent. Which brings the topic, believe it or not, to snakes. How, you might wonder, did the lovely mental image of basking on a beautiful beach receiving frosty beverages from attentive servers devolve into a discussion of feared and horrible reptiles? What thought processes could be in use here? Hmmm.

Well, actually, pondering preparation, training and vacation led me to snakes, reptiles that seem horrible and are very often feared, but shouldn't be. Respected? Yes. Feared? No. Education is key when dealing with all potential hazards; knowledge of snakes' physical characteristics, habits and habitats is important not only for comfort and safety when swimming, hiking, camping, picnicking, gardening and even sitting down to rest, but also because understanding other systems, living or not, is key for happiness in life. Should one kiss cottonmouths? No—they are unlikely to appreciate or welcome the affection. Should one kill them? Almost certainly not. And here is where expertise rears its head. To learn a lot about snakes, check out the Facebook page, 'What Kind of Snake is This?' Herpers post pictures, comments, clarifications, and corrections, all to help the terrified and unaware lose their fear of snakes and gain an appreciation of their crucial role in the proper function of the natural world. Followers receive accurate answers to their frequently posted pictures asking 'What kind of snake is this?' and those boggled by questions of 'What Do I Do With This Snake?' can request help from an expert who will relocate the slithery visitor. So—take your trail map, roll around in a vat of sunblock, swim parallel to the shore, wear your life jacket and spritz the bug spray - but also check out 'What Kind of Snake Is This?. Will it keep you from screaming like a fool if a black snake drops out of the garage shed onto your head? Possibly not. Will it give you the information you need to allow fellow creatures to live their lives without meeting a hoe? Yes, yes it will. And now, please—somebody hand me a beach towel!

From the ACS Press Room

Transforming all donated blood into a universal type

Toward Efficient Enzymes for the Generation of Universal Blood through Structure-Guided Directed Evolution
Journal of the American Chemical Society

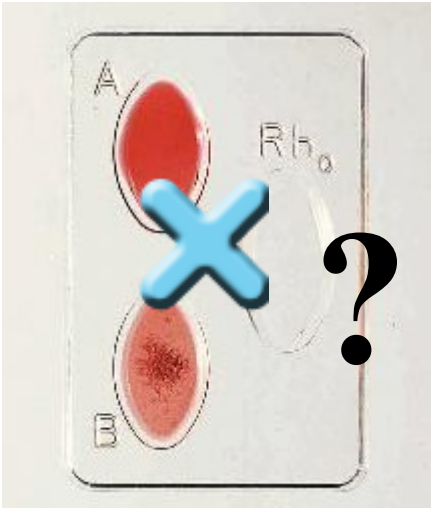
Every day, thousands of people need donated blood. But only blood without A- or B-type antigens, such as type O, can be

given to all of those in need, and it's usually in short supply. Now scientists are making strides toward fixing the situation. In ACS' *Journal of the American Chemical Society*, they report an efficient way to transform A and B blood into a neutral type that can be given to any patient.

Stephen G. Withers and colleagues note that currently, blood transfusions require that the blood type of the donor match that of the recipient. If they aren't the same, a patient can suffer serious side effects, and could even die. The exception is the universal-donor blood type O, which can be given to anyone because it doesn't have the A or B antigens that could provoke an immune reaction. For years, scientists have been searching for a way to convert types A and B into type O. They found that some enzymes from bacteria can clip the sugars off red blood cells that give blood its "type." But the enzymes are not very efficient. Withers' team wanted to see if they could boost the enzymes' activity.

The researchers tweaked one of those enzymes and improved its ability to remove type-determining sugars by 170-fold, rendering it antigen-neutral and more likely to be accepted by patients regardless of their blood type. In addition to blood transfusions, the researchers say their advance could potentially allow organ and tissue transplants from donors that would otherwise be mismatched.

The authors acknowledge support from the Canadian Blood Services, the Canadian Institutes of Health Research, Health Canada and the Michael Smith Foundation for Health Research.



ACS DFW Local Section

Dear Colleagues,

This May marks the end of yet another successful semester in the DFW area. We have had many thoughtful lectures, events, and social gatherings that have brought together a large number of chemists from many different fields in our area. It has been my absolute pleasure to serve you all this semester and I look forward to an amazing Fall semester beginning this coming August after our Summer break!

I send each and every one of you my best wishes for a prosperous and relaxing Summer break! As always, I am here to field any questions that you may have about the local section. Please keep in touch as you need and I look forward to seeing you all at our Fall events.

As always, if you have any questions, please feel free to email me (shana.marie.santos@gmail.com).

All my best,
Shana Marie Santos

NMR INSTRUMENT TIME NEEDED

The University of North Texas Health Science Center in Fort Worth is looking to purchase instrument time on mid-to-higher field NMR spectrometers (300-600 MHz) in the Dallas-Fort Worth area. With the new UNT System College of Pharmacy coming online and the recent arrival of faculty in pharmaceutical sciences and medicinal chemistry, we have a sudden need for NMR capabilities. In addition, we are developing new diagnostics based on low-field benchtop NMR relaxometry and spectroscopy, and are seeking to validate those approaches at higher field. If your institution has excess NMR capacity and is looking for customers, please contact David P. Cistola, M.D., Ph.D., Vice President for Research & Innovation, UNT Health Science Center, Fort Worth. Email at david.cistola@unthsc.edu or call 817-735-2055.

DFW SECTION OF THE ACS

A COUNCILOR REPORTS

Reported by E. Thomas Strom

As one of the three ACS councilors from the Dallas-Fort Worth area, I gave a report a while back in this magazine with the title "A Councilor Reports." Since there are three councilors from Dallas-Fort Worth (soon to be four; D-FW will get a fourth Councilor for 2016), I certainly don't claim that my fellow councilors Linda Schultz and Mary Anderson would have the same impressions as I. Hence, I used the "a" then, and I use it now. In this report I am going to focus on just two things: 1. what goes into the selection of candidates for ACS President, and 2. the possibility that ACS National Meeting registration fees will undergo a steady increase over the next few years.

At the spring national meeting of the ACS, the Council choses two candidates for ACS President-Elect from a group of four. The four have been chosen by the Nominations and Elections Committee. This committee in turn has selected the four from suggestions made to them, and they probably also have solicited some candidates. The quality of the four candidates presented is always quite high. I never read the biographies of the candidates and wonder how this weak candidate was chosen. They are uniformly impressive. Of course, the pattern has always been that candidates from academia alternate with candidates from industry and government, so that the sometimes differing interests of those groups will receive their due consideration.

Given this group of four, how does one chose which two candidates to vote for? Often, with great difficulty. The Councilor's packet contains biographical information plus a statement for each. The statements basically describe the policies each one hopes to carry out. Seldom is a policy statement so convincing and unique that you immediately decide to vote for that candidate. Another factor to consider is that the ACS President represents our organization to the public at large. Therefore, you want an ACS President to be very articulate and capable of speaking to the general public in simple language that receives a sympathetic hearing. A Councilor has two opportunities to evaluate the candidates' speaking ability. They appear as a group for a Town Hall Meeting late afternoon on the Sunday of the meeting. Each one also gives a brief presentation at the Wednesday meeting of the Council. For me, those speaking appearances are often the deciding factor in my vote. There is also something to be said for Councilors having longevity in office, because then

you may have had occasion to do committee work in the past with one of the candidates. Personal knowledge is the best way to make a choice, but not many of us will have that personal knowledge. With all these limitations, however, the Council and the membership at large still seem to have selected very well. I have interviewed one dozen ACS presidents, and there was not a loser in the bunch.

At the most recent Council meeting, the Council by a two-to-one vote asked the Board of Directors to delay the implementation of an additional fee to meeting registration until the Board presents a rationale to the Council. One additional cost would be a first-time charge for the meeting program, but there also is a move to raise the meeting registration by an amount greater than the CPI-W index change. The problem is that the technical program for ACS national meetings runs at a loss, and the losses are reaching such a level that the exposition profits are in danger of not covering them. Well, couldn't we just up the charges to the exposition exhibitors? The parable of not killing the goose that lays the golden eggs comes to mind. The reason that the technical program costs escalate stems from the increased participation by students at national meetings This is a good thing, to be sure, but the overhead for the students is just as high as for regular members, while student registration fees are much less. Also, to the exhibitors, students mean additional traffic, but they don't mean additional customers. With the increased trends toward online shopping and virtual expositions, a physical presence at an exposition means less to an exhibitor.

These matters will undoubtedly be dealt with at Council at this August's Boston ACS National Meeting. I believe the charges for meeting programs will happen, because it is in keeping with our green chemistry emphasis. There are lot of printed programs that go to waste at a national meeting. If you can access material online that would otherwise be in a program, why not save the paper? So far as upping the meeting registration fee over and above the CPI-W index, I do want to see the rationale. I certainly am sympathetic to the need for the national meeting to at least break even. We shall see. Stay tuned.

38th International Symposium on Capillary Chromatography & 12th GCxGC Symposium

May 16 - 21, 2015 Ft. Worth, Texas

www.rivaintexas.com

ISCC is the premier meeting for pressure and electrodriven microcolumn separations and related techniques. GC x GC brings together world leaders in the application of comprehensive multidimensional gas chromatography. The combination of these meetings provides a rich forum for fundamentals and applications of widely used analytical techniques. Information about student travel grants and a complete list of awards are available on the website. These conferences, held bi-annually in Riva del Garda, Italy, move to Ft. Worth, Texas for 2015. Plenary lecturers include George Whitesides from Harvard University and Sandy Dasgupta from The University of Texas at Arlington. Some general themes include:

- Petroleum, Energy, and Resource Development
- Pharmaceutical, Forensic, and Process Analysis
- Ionic Liquids in Chemical Analysis
- Contaminants in Food and the Environment
- Biomarker Discovery and Protein Analysis
- Novel Stationary Phase Chemistry
- Atmospheric and Air Analysis
- Software and Data Analysis
- Integrated Sample Preparation
- Lab-On-A-Chip and Microfluidics
- Fundamentals and Theory
- Novel Detection Techniques
- Multidimensional Separations
- Miniaturized and Portable Systems

Abstract submission and registration now welcome!

Invited Presenters Include:

Jared Anderson
Sandy Dasgupta
John Dimandja
Frank Dorman
Tadeusz Gorecki
James Harynuk
Emily Hilder
Steven Jacobson
Robert Kennedy
Milton Lee
Phillip Marriott
Harold McNair
Luigi Mondello
Milos Novotny
Michael Ramsey
Eric Reiner
Kevin Schug
John Seeley
Nick Snow
Frantisek Svec
Rob Synovec
Ralf Zimmerman

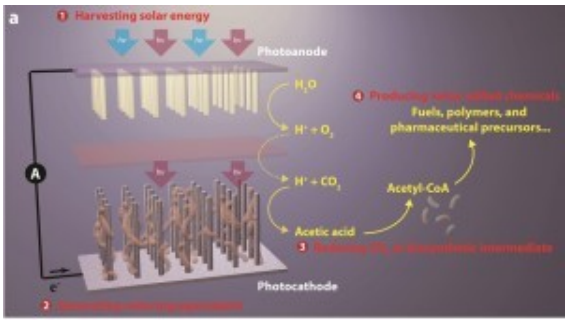
Symposium Chair
Daniel W. Armstrong
www.isccgcxgc2015.com

From the ACS Press Room

Artificial photosynthesis could help make fuels, plastics and medicine

Nanowire–Bacteria Hybrids for Unassisted Solar Carbon Dioxide Fixation to Value-Added Chemicals
Nano Letters

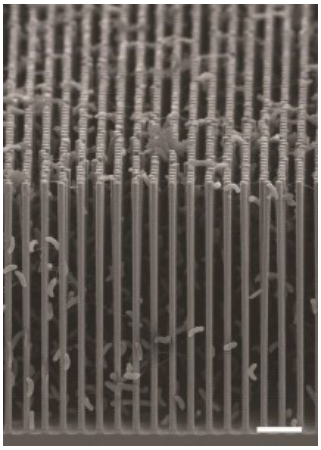
The global industrial sector accounts for more than half of the total energy used every year. Now scientists are inventing a new artificial photosynthetic system that could one day reduce industry's dependence on fossil fuel-derived energy by powering part of the sector with solar energy and bacteria. In the ACS journal *Nano Letters*, they describe a novel system that converts light and carbon dioxide into building blocks for plastics, pharmaceuticals and fuels — all without electricity.



Peidong Yang, Michelle C. Y. Chang, Christopher J. Chang and colleagues note that plants use photosynthesis to convert sunlight, water and carbon dioxide to make their own fuel in the form of carbohydrates. Globally, this natural process harvests 130 Terawatts of solar energy. If scientists could figure out how to harness just a fraction of that amount to make fuels and power industrial processes, they could dramatically cut our reliance on fossil fuels. So, Yang's, Michelle Chang's and Christopher Chang's teams wanted to contribute to these efforts.

The groups developed a stand-alone, nanowire array that captures light and with the help of bacteria, converts carbon dioxide into acetate. The bacteria directly interact with light-absorbing materials, which the researchers say is the first example of "microbial photoelectrosynthesis." Another kind of bacteria then transforms the acetate into chemical precursors that can be used to make a wide range of everyday products from antibiotics to paints.

The authors acknowledge funding from the U.S. Department of Energy, the Lawrence Berkeley National Laboratory, Howard Hughes Medical Institute, the National Science Foundation and the National Institutes of Health.



Cross-section SEM image of the nanowire/ bacterial array used in artificial photosynthesis.

American Chemical Society
Dallas-Fort Worth Section
48th Annual Meeting in Miniature

There were 70+ presentations at the annual M-in-M; here are the winners.

GRADUATE WINNERS

First Place

Do D. Nguyen	The University of Texas at Dallas	Session I
Mohammad Shawkat Hossain	The University of Texas at Arlington	Session II
Imalka Munaweera	The University of Texas at Dallas	Session III
Evelyn H. Wang	The University of Texas at Arlington	Session IV
Brian Stamos	The University of Texas at Arlington	Session V
Mercy Oyugi	The University of Texas at Arlington	Session VI

Second Place

Sahila Perananthan	The University of Texas at Dallas	Session I
Lawton A. Seal II	The University of Texas at Arlington	Session II
Naleen B. Jayaratna	The University of Texas at Arlington	Session III
Ruchika Bhawal	The University of Texas at Arlington	Session IV
Darshan C. Patel	The University of Texas at Arlington	Session V

UNDERGRADUATE WINNERS

Charles I. Shaughnessy	University of Dallas	First Place
Khoa X. Dang	The University of Texas at Dallas	Second Place
Bradley Moreno	The University of Texas at Dallas	Third Place

Around the Area

UT Arlington

Dr. **Purnendu (Sandy) Dasgupta** has been selected as an honorary member of the Japan Society for Analytical Chemistry. Dr. **Carl Lovely** has received a three year, $240,000 Welch grant to continue to study "Total Synthesis of Spirocyclic Marine-Sponge Derived Alkaloids." Dr. **Krishnan Rajeshwar** and Dr. **Norma Tacconi** from Chemistry and Dr. **Brian Dennis** from the College of Engineering have received a $513,356 NASA grant to study "Improved Methods to Study Oxygen Recovery and Reuse Aboard Human Spacecraft." Dr. **E. Thomas Strom** attended the Society of Petroleum Engineers International Oil Field Chemistry Symposium in Houston in April, where he co-chaired the session on "New Technology."

Biochemistry senior **John Gurak** has been award a prestigious NSF Graduate Research Fellowship. A number of UTA undergraduates have received scholarships. The two $1250 Daniel W. and Linda Armstrong Scholarships went to **Jennifer Delapena** and **Frances Dijeh**. The two winners of the Chemistry and Biochemistry Society Excellence Awards of $1500 were **Misty Martin** and **Mary Kathryn Ritchey**. The two Sharon and Donald L. Jernigan Chemistry Scholarships ($1500 each) went to **Joseph Balaban** and **Kathy Bernard.**

The three $1250 John T. Murchison Scholarships were given to **Ashley Lutz, Paul Mai,** and **Adeeb Shalabi**. There are ten Miller Brewing Company Scholarships worth $1000 each. Those went to the following: **Joshua Aubert, Mariah Cherry, Brett Cleary, Kyle Cox, Juan Galvan, Shazil Hayat, Hien Lam, Gilbert Mfitumukiza, Evette Odhiambo** and **Tram Vo.**

Additionally, many undergraduates received awards. The ACS Award for Outstanding Chem/Biochem Major was given to **Allison Conway**. The Outstanding Freshman Chem/Biochem Major was **Armin Oloumi**. The Robert F. Francis Award for Outstanding Sophomore went to **Yu-Sheng "Sam" Sung**. The R. L. Hoyle Award for Outstanding Junior was given to **Garrett Sherrill**. The John T. Murchison Award for Outstanding Senior went to **Nawal Rahman**. The Undergraduate Award in Analytical Chemistry was given to Yeeun **(Kelly) Lim**, while the Undergraduate Research Award went to **Brian Laposa**. The Undergraduate Teaching Award winner was **Bruno Arce**, and the Outstanding Chemistry Clinic Tutor Award winner was **Abuid Portillo**. The Chemistry and Biochemistry Society Outstanding Member was **Jessica Lilley**.

Also, a number of graduate students won awards. The Graduate Teaching Award went to **Apparao Bokka** and **Dananjaya Appulage**. The President Spaniolo Graduate Research Award is presented to Aruno-

day Bhan. The Charles K. Baker Fellowship Award is given in honor of its namesake to students who exhibit exceptional character in interactions with other students and faculty, as graduate student Charles K. Baker did in the 1980s. This year's five winners are **Enrique Barragan, Mohammad S. Hossain, Mercy Oyugi, Michael Wey,** and **John Nimmo**.

Dr. **Robin Macaluso** will be giving an invited talk at the 2015 North American Solid State Chemistry Conference (NASSCC) to be held at Florida State. Her student, **Andriana Paola Sotelomuz,** will be participating in the "Modern Methods in Rietveld Refinement for Structural Analysis" workshop preceding the conference. This conference alternates with the Gordon Research Conference on Solid State Chemistry and places a stronger emphasis on presentations by students, postdocs, and junior faculty.

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Continued from page 19

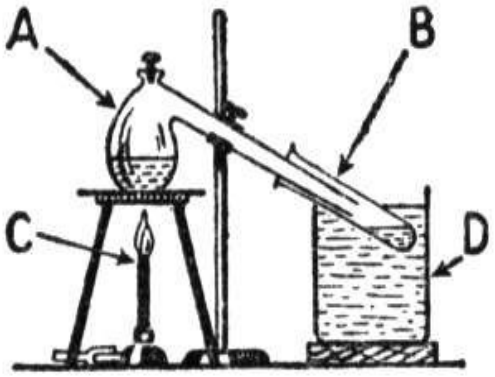
5) The ubiquitous 5th Question must be: Who is your Science Hero? And why?

I've had many 'real live' role models and teachers, but the hero must be DeForest Kelley's character, "Dr. Leonard 'Bones' McCoy" in Star Trek. Why? He was the doctor on the USS Enterprise, and I was an impressionable 4- or 5-year old.

Thank you, Dr. Koch, for participating in 5 Questions!

Send your seminar schedules for the semester or the year to the RETORT.

retort@acsdfw.org



A, retort; B, receiver; C, flame to heat retort; D, water to keep receiver cool.

Attention! American Chemical Society (ACS) Members

Subject: Invitation to EAG's Analytical Techniques Seminar

June 4th in Dallas, TX

Evans Analytical Group (EAG) is the world leading, fully integrated independent laboratory, is pleased to extend an invitation to you to our upcoming course on Analytical Techniques for the Semiconductor Industry. We will cover the fundamentals of surface analysis including techniques such as XPS, Auger and SIMS, showing real world examples from the semiconductor industry. Attendees will learn how surface analysis helps solve problems and accelerates research and development.

Please share this invitation with your colleagues. We have limited seats available, please register soon at www.eag.com/mc/working-smarter.html. Please include in the registration notes Promo Code ACS to receive a 25% discount to the registration fee.

EAG's Working Smarter Seminar

Date: Thursday, June 4th, 2015
Time: 8:30 am - 5:30 pm
check-in is from 8:00 am - 8:30 am

Location:
DoubleTree Hilton

FIVE QUESTIONS FOR…

5Q for the 2014-2015 school year aka Retort Season concludes with **Mark Koch**, MD, FAAFP, Family Medicine Attending Physician at JPS Hospital in Fort Worth and Assistant Professor in the department of Family and Community Medicine at UT Southwestern in Dallas. Dr. Koch's research focus is colorectal cancer screening in the underserved.

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

I honestly think I was born this way. Always, from the time I first played with friends, I was always the doctor or scientist. I really cannot imagine doing something else.

2. ***What aspects of your career do you most enjoy?***

Teaching and giving my patients a smile. For the past 15yr, I have taught inpatient and outpatient medicine and some invasive procedures to our doctors in training - the Family Medicine Residents at JPS. These minds are so bright; it is a thrill to watch them soak-up the knowledge and art of medicine. They go from rightfully scared new graduates with an MD or DO degree to real doctors who are ready to practice anywhere. I do not always get to give good news, but when my patients smile and stick out their arms for a hug, it makes for a really good day.

3. ***Which academic courses best prepared you for your career? Are there any you regret taking? If so, which ones?***

The first 5 to 8 years were still academically dominated by learning medicine, so for that formative time the science courses were the most useful. Now I use chemistry skills and the periodic table as a weapon to torture residents who think they know it all. I wish that I could have waited until I was 35-40 to take philosophy; it would have been much more useful and better received. I have no regrets in courses, but I wish I was a better student in languages.

4. ***If you had only one item of advice for nascent medical professionals, what would it be?***

Soak it all up. really. There are very few crumbs of knowledge that are truly useless. Observe the world closely. When you see something that you do not understand intricately, learn it. Keep learning every day for the rest of you life, and do it on purpose. Having knowledge about obscure stuff is great. Having deep knowledge of common everyday things will make you appreciated and respected.

Continued on page 16

From the ACS Press Room

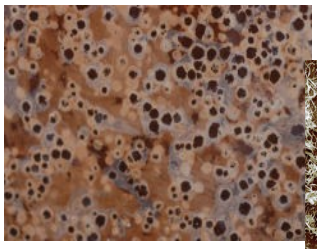
A step toward avoiding the dread "chocolate bloom"

Tracking Structural Changes in Lipid -Based Multicomponent Food Materials due to Oil Migration by Microfocus Small-Angle X-ray Scattering
ACS Applied Materials & Interfaces

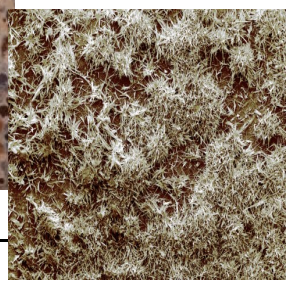
Chocolate is one of the world's most popular foods, but when a whitish coating called a bloom appears on the confection's surface, it can make consumers think twice about eating it. The coating is made up of fats and is edible, but it changes the chocolate's appearance and texture — and not for the better. Now scientists report in the journal *ACS Applied Materials & Interfaces* new information that could help chocolatiers prevent blooms from forming.

Svenja K. Reinke and colleagues explain that baked goods and confectionery products, including chocolate, contain a mix of components that don't always stay in place. Fat blooms, for instance, occur when lipids from within a chocolate product wander to the surface. They've long been a scourge of chocolatiers, but no one fully understood what caused them. Reinke's team wanted to find out what factors were contributing to their formation.

The researchers investigated the microscopic structural changes that occur when chocolate blooms. They found that the lipids that are responsible move through pores and cracks in the chocolate. Along the way, they soften and dissolve solid cocoa butter into a liquid form. The researchers say reducing the number of pores and the liquid cocoa butter content of chocolate could help minimize blooms.



Severe fat bloom



Sugar bloom

Note: Wikipedia has a nice article about chocolate bloom:

en.wikipedia.org/wiki/chocolate_bloom

From the editor

Congratulations to the winners in the 48th annual Meeting in Miniature, and thanks to UTA for hosting the event. This activity is a huge contribution to students in the area, giving them a chance to get their feet wet, giving a professional presentation before going on to a regional or national meeting.

I cannot decide which of the three news articles this month is the most interesting...de-typing blood? Artificial photosynthesis? Or chocolate bloom?! Although tempted to go with chocolate bloom, I think I have to say that artificial photosynthesis gets my vote. I clearly remember from grade school (1950s) a science film about photosynthesis. The film was narrated by a sonorous voice and illustrated by a little cartoon character resembling a green jelly-bean, presumably a molecule of chlorophyll, which flitted from point to point as the voice talked. The film told us all about the cycle of photosynthesis: the sun's energy and carbon dioxide going in, and carbohydrates and oxygen coming out, and how it all takes place in the chloroplast. "How does that happen? We really don't know," said the voice. The little green chlorophyll then popped its head up from the chloroplast and said "And I'm not going to tell you! You can doggone well find out for yourself!" And we have.

Have a good summer—back in September for the 68th year of the Southwest RETORT!