

Silicon Valley Chemist

Santa Clara Valley Section

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NOVEMBER 2009 NEWSLETTER TOPICS

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January 21, 2010

Mosher Award Meeting Death by Chocolate and Chemistry Outreach

Abstract

Chocolate has been a part of our New World culture for thousands of years.

This presentation includes:

1. Some high points of the ancient history of chocolate and its production from the Mayan, Olmec and Aztec cultures up to the present.
2. Aspects of the processing of the cocoa pod, bean and pulp fermenting, drying, roasting, conching, tempering, blending and finishing.



3. Some chemistry, biochemistry and biology of chocolate and its active ingredients including theobroma cocoa (literally from the Greek: Food of the Gods).
4. Some health aspects (flavonoids, polyphenols and other antioxidants) showing that this exotic processed food is good for you.
5. For those who stay to the "bitter" end there will be a free drawing for a ten-pound bar of dark "bittersweet" chocolate.

For more information see

www.howard-peters.com (home page, and some old slides in PowerPoint on the second page under the "Presentations" bar) and www.scvacs.org/newsletter/news0806hi.pdf (p.2-3).

The ACS kindly recorded the chocolate lecture at the national ACS meeting in Washington DC in August 2009. Most of it (voice over and slides) are now on the ACS website at www.acs.org. See national meeting presentations at the national meetings - Aug 17 or go to www.softconference.com/acschem/sessionDetail.asp?SID3D177565
Biography

Howard Peters earned a B.S. in chemistry in 1962 at Geneva College in Beaver Falls, Pennsylvania and a Ph.D. in organic chemistry at Stanford University in 1967. He next did chemical research at Dow Chemical and at SRI International. He is the author or co-author of many technical and legal publications and presentations and holds several patents, mostly in high explosives on Department of Defense or Atomic Energy Commission matters.

In 1978 Howard received a Juris Doctor
continued on next page

Chair's Message

It's November, which means elections. I hope you find the time to vote both in the National ACS election and for your Santa Clara Valley Section officers. This is our second year of doing the elections electronically using a service called Vote-Now. You should have received an email (or postcard) with your personal voting information. You can find the ballot information by visiting the SCV website (http://www.scvacs.org/Local_Folder/Ballot.html). Information about the candidates themselves is available on the ballot itself, available at Vote-Now. Last year, the number of people who voted increased dramatically, from about 35 to over 300. This is an excellent improvement, but when you factor in the fact that we have over 3500 members in our Section, there is room for much more. So, please vote.

Last February, our dinner meeting speaker was Anshul Samar, the young inventor of the chemistry game, Elementeo. We



had a great time learning about his game and then holding an Elementeo tournament. Everyone was very impressed by Anshul's confidence, personality and entrepreneurship. Apparently, we aren't the only ones. Anshul has been awarded a \$25,000 Davidson

Fellows Scholarship. Davidson Fellows scholarships recognize young people under the age of 18 for completing a significant piece of work that has the potential to make a positive contribution to society in one of the following areas: science, technology, mathematics, music, literature, philosophy, or any other graduate-level work considered outside the box. Anshul won in the outside the box category. Davidson Fellows are honored every year in Washington, D.C. with Congressional meetings and a special reception. Anshul organized a speech program at his former elementary school with a dozen students. He

continued on next page

Mosher Award, continued from front page

degree from Santa Clara University. He practiced patent law in the Silicon Valley for 30 years, and his clients included many high-technology companies, as well as most campuses of University of California, Stanford University, and Brigham Young University. During this time he wrote and obtained over 300 patents.

He is a 47-year member of the ACS and has served as an elected member of the ACS Council for 31 years; he has served on all national ACS elected committees and was an elected member of the ACS Board of Directors for 2005-7.

Howard is the author of "Understanding Chemical Patents," published in 1991 by the national ACS. He has received ACS awards for his diversity and inclusion efforts, and for his public outreach explaining science issues to general audiences. He received the ACS Henry Hill Award in 2007 for advancing chemistry as a profession. In 2006 he was elected a Fellow of the Royal Society of Chemistry (London). For the past nine years he has been an invited judge for chemistry for the INTEL International Science and Engineering Fair (ISEF - the world's largest high school science fair).

Sally Peters is also a chemistry graduate of Geneva College (1964). She did virus research at Stanford under Dr. Hubert Loring, the chemist who first crystallized the polio virus as later used by Dr. Jonas Salk, and she then worked briefly in the Swain Chemistry Library at Stanford. In 1983 she earned a Masters Degree in Library and Information Science at San Jose State University. She has been an information specialist at PARC in Palo Alto for over 25 years.

Sally served as the Chair of the Santa Clara Valley Section in 2001 and has served as a Councilor for the Section for 15 years. Sally received the Geneva College Outstanding Alumni Service Award in 1997 and the SCV Section's Ottenberg Service Award in 2001. She has organized the high school-level ACS-United Nations Chemistry Olympiad competition in the Santa Clara Valley since 2001.

Howard and Sally have been talking and writing about "Chocolate, Food of the Gods" as public outreach for chemistry in various venues around the US for over 5 years. They have been invited scientist-author lecturers on Cunard's Queen Mary 2 and the Princess Cruise lines. Their business card reads "Have Chocolate - Will Travel."

Chair's Message, continued from front page

helped strengthen these students' confidence and abilities in both public speaking and acting. During the next few years, Anshul wants to get children around the world excited about entrepreneurship and hopes to create an "Alchemist Grant" to give others an opportunity to start businesses. We've invited Anshul to come to the next dinner meeting on November 19, so you will have a chance to congratulate him in person.

The November dinner meeting will be a very special occasion, and not only because Anshul will be there. We will be presenting the first-ever Community College Teacher-Scholar award. This is a new award championed by Alternate Councilor Harry Ungar, and established by your Executive Committee. We believe that it is the only award in the country that recognizes the amazing service of community college chemistry professors. Dr. Tom Lane, President of ACS, will be in attendance to make the presentation of the award. It should be a very interesting evening. I hope to see you there.



Chemical Technology Programs Earn ACS Approval

The ACS Chemical Technology Program Approval Service (CTPAS) has granted ACS approval to the Laboratory Science Technology program at the National Technical Institute for the Deaf (NTID), Rochester Institute of Technology, and the Chemical Technology program at Ivy Tech Community College.

The Laboratory Science Technology Program at NTID is the 15th chemistry-based technology program to be approved by ACS and the first approved program designed for deaf and hard-of-hearing students. It is also the first approved program to work with industry and community partners nationwide, rather than with local partners.

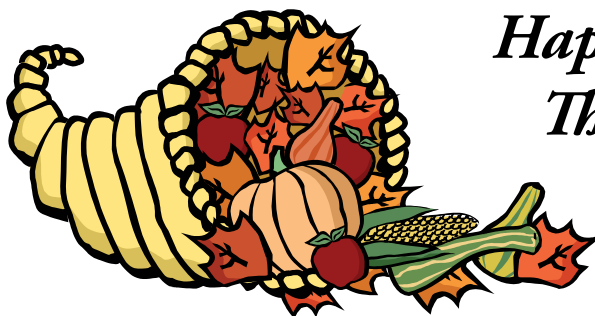
The Chemical Technology program at Ivy Tech Community college is the 16th chemistry-based technology program to be approved by ACS. Just over 10% of the chemistry-based technology programs in the U.S. have earned ACS approval.

Because chemistry-based technology students must learn a great deal of theory and technique in a relatively short period of time, programs work closely with industry and community partners to tailor the curriculum appropriately. Many technology programs also work with academic partners to give students more educational options. Such partnerships are rapidly becoming the new model for relationships among industry, academia, and the community.

CTPAS was established in 1990 to

nurture, review, and grant ACS approval to associate-level chemistry-based technology programs. CTPAS evaluates programs based on such criteria as partnerships and alignment with industry/community, program assessment, and facilities and resources.

For more information on ACS approval or to see a list of approved programs, visit "Chemical Technology Program Approval" at www.acs.org/education, call 202-872-6108, or email ChemTechLinks@acs.org.



*Happy
Thanksgiving*

Reminder: November Dinner Meeting

Dr. Jeanette Medina Wins Teacher-Scholar Award ACS President Tom Lane to Present Award

Professor Jeanette Medina, an exemplary faculty member from the Chemistry Department at Cañada College has won the first Teacher-Scholar Award for Community College Chemistry Faculty. Jeanette will speak briefly about some of the activities that helped bring her this award. She has taught chemistry for 13 years and despite being in the relatively early stages of her career at the time, has been awarded three NSF grants that benefit students at her college as well as local elementary teachers. She is involved in numerous outreach activities which encourage or spark an interest in science in general or chemistry in particular. She developed an honors level chemistry class for her college's new honors program. Jeanette will receive a plaque and \$500, with another \$500 going to her department at Cañada College.

Tom Lane, the president of the American Chemical Society, will be with us to present the award. We are expecting him to talk about the importance of community college education not only to the academic world, but also to chemical industry, and why he himself so strongly supports community colleges.

The ACS gives awards at local, regional and national levels, for excellent teaching at high school, college and university levels. The Santa Clara Valley Section's award is the first



in the nation to recognize the contributions of community college chemistry teachers to science education.

The award was established by the Section early in 2009. Each year it will honor an outstanding faculty member from one of the 13 community colleges in the Section's territory,

which includes five counties around San Jose. This year's award will be presented at a dinner meeting on November 19 at the Biltmore Hotel In Santa Clara.

We hope that this initiative will generate publicity and catalyze the creation of similar awards in other ACS local sections, at regional levels, and ultimately at the national level. The publicity surrounding these awards is expected to increase the visibility, respect and appreciation accorded to community college science education, both by other chemists and the general public.

For supporting information about the award and how it works, please contact Harry Ungar of the Cabrillo College Chemistry Department (e-mail haungar@cruzio.com). We will provide all the materials needed to make it easy to set up an award.

The initiative for the award and the first \$500 in seed money came from the NSF-funded ChemEd Bridges Project. ChemEd

Bridges provides professional development opportunities to expand the horizons and enrich the careers of community college chemistry faculty, encouraging more of them to become teacher-scholars. The Santa Clara Valley Section has allocated \$1100.

Dinner Meeting

Date: THURSDAY, November 19

Time: 6:00 Social Hour
7:00 Dinner
8:00 Presentation

Location: Biltmore Hotel & Suites
2151 Laurelwood Blvd.
Santa Clara, CA 95054

Speakers: Dr. Tom Lane
President of the American
Chemical Society and Dr.
Jeanette Medina, the first
recipient of the SCV ACS
Community College Teacher-
Scholar Award

Cost: \$27.00 with a choice of:
Apricot Chicken
Cheese Ravioli

Reservations: www.scvacs.org or
Shirley Radding 408-246-2564
408-296-8625 Fax

Reservations should be made by November 16th stating your name, address, company affiliation, number of people in party, and menu selection.

If you are unable to honor your reservation and do not cancel by Tuesday, November 17th, you will be invoiced following the dinner meeting

Career Workshops at Regional Meeting

Get unique insight into the job market from ACS Career Consultants. Our career workshops are designed to help chemical professionals and students at all levels understand the current workplace and take advantage of employment opportunities. You'll learn valuable job search skills and get practical career development advice.

Attend These Free Workshops to Accelerate Your Career:

- Planning Your Job Search
- Preparing a Resume
- Effective Interviewing

Visit the following link to see the schedule of workshops for each meeting: www.acs.org/regionalmeetings.

ACS Career Consultants will be available to provide 30 minute individual resume reviews and career assistance. You must bring a copy of your resume. Sign-up will be available in the workshop room. If you are not able to make an appointment onsite, please visit our Career Advice page at www.acs.org/careers to select a consultant.

Finding the Training You Need Shouldn't Be Hard

The ACS Office of Professional Education has dramatically revamped its website and registration system so you can find the courses you're looking for in no time. Bookmark this link today: www.proed.acs.org. You can now search our short courses, webcast courses and ProSpectives Conferences by topic area, date, or location and even browse our full instructor list.

We are continuously investing in new course development, so if you don't see what you're looking for, just drop us a line at short-courses@acs.org and we'll do our best to serve your technical training needs.

This Month in Chemical History

Harold Goldwhite, California State University, Los Angeles

Some of my most prized acquisitions of material related to history of chemistry – perhaps because they cost very little – have been obtained at thrift shops and flea markets. In early 2008 I was browsing at a thrift shop in Eugene, Oregon when I came across one of these treasures and snapped it up for a quarter. It is titled “Nuclear Milestones”: speeches by Glenn T. Seaborg, Chairman U.S. Atomic Energy Commission 1961-1971. This particular compilation was presented to participants of the 1990 “Instrumentation” Institute for Chemical Education held at the Lawrence Hall of Science and the Department of Chemistry, University of California at Berkeley. My copy (perhaps all the copies?) is autographed by Seaborg. In this column and the next I will be looking at some of the interesting contents of this paperbound volume. It is generously illustrated with many photographs of historical interest; the frontispiece shows some of those present at the Atomic Pioneer Award Ceremony in February 1970. The awardees at this unique ceremony were Vannevar Bush, James B. Conant, and General Leslie Groves – certainly among the most important of the U.S. pioneers in support of nuclear research – and the presentation was made in the presence of Seaborg and President Richard M. Nixon, both of whom are in the photograph.

The first section of the book, “307 Gilman Hall ...Some Reminiscences” is a talk given in February 1966 at the dedication of this modest room at UC Berkeley as a National Historic Landmark (long before the ACS began its Historical Chemical Landmark program). The date of this dedication was the 25th. anniversary of the discovery of plutonium not only in Room 307 but in adjacent laboratory spaces. As Seaborg said “a less significant or historical looking room hardly existed on the campus The little cubbyhole with its low slanting ceiling directly under Gilman Hall’s roof, where we kept our electroscope and various samples, is still an appendage to the room.”

Seaborg’s story of the discovery of plutonium is attractively personal, and he dates it back to 1936 when he gave a graduate student seminar reporting on the now-famous work of Fermi and Segre in Rome and Hahn and Strassman in Berlin on the radioactivities observed when uranium was bombarded with

neutrons. The accepted explanation at the time was the production of new transuranium isotopes. It was not until 1939 that the explanation of the new activities in terms of fission was put forward by Meitner and Frisch. Seaborg became fascinated by this new research and appreciated in 1939 that in fact no transuranium isotopes had yet been identified. Other workers at Berkeley were not so sure! McMillan and Abelson observed that some of the radioactivities behaved anomalously, in particular a beta-decay with a half-life of about 2.3 days. In further work they confirmed that they did indeed have in hand an isotope of element 93 and by Spring 1940 they had isolated and discovered the first isotope of a transuranium element, which came to be called neptunium. This followed a tradition of naming some heavy elements after planets, like uranium after Uranus. McMillan began to look for other transuranium elements, and began experiments on bombarding uranium with deuterons in the Berkeley cyclotron, but he was called away to work on radar at M.I.T. and agreed that his close colleague Seaborg should continue the search.

Seaborg and Wahl in December 1940 bombarded a target of uranium oxide on a copper plate with fast moving deuterons. They detected a plutonium isotope plus another material that was, significantly, an alpha emitter. They deduced that they had

produced an isotope of element 94 with a mass number of 238 and a half-life of under 100 years; it was consequently strongly radioactive. In late January 1941 they sent a note, with authors McMillan, Wahl, Kennedy, and Seaborg, which was later published in “Physical Review”. By late February Wahl and Seaborg had produced chemical evidence, via oxidation studies, that element 94 was chemically different from 92 or 93. These experiments were described in a manuscript sent in March 1941 that confirmed that a new transuranium element had been discovered. By March 1942, after a year in which the new element was called variously just element 94 or even “copper”, for security reasons, it was decided to name the new element after the then-planet Pluto. After lengthy discussions trying to decide between “plutium” and “plutonium” the latter, more euphonious, name was chosen along with the symbol Pu. By this time the Seaborg group had also isolated the more stable and fissile isotope of plutonium of mass 239 and half-life 24,000 years.

In a report to the “Uranium Committee” in March 1942, by which time the US was at war, Abelson wrote: “It is probable that the cost of isotope separation will be great. The decision to spend perhaps a million dollars on a separation plant may well hinge on the results of these experiments”. As Seaborg observes: “We had no idea that our work would play a major role in a program that would eventually cost more than two billion dollars within a few years.”

Try out an ACS Webcast! It’s Easy and Economical

Few companies are immune from the economic hardships in the headlines and many budgets have been trimmed. But it is still crucial to your career to engage in continuing education to expand your skills and stay abreast of new topics. So save your time and money and take a look at the courses available online through ACS. ACS offers a wide variety of webcast short courses and our summer/fall schedule is open for registration now.

ACS Webcast Short Courses provide the same quality training that ACS has long been known for, but, because the courses are presented over the Internet, they offer added convenience and flexibility.

- Economical: Most ACS Webcasts cost less than \$100 an hour, which is far less than most technical training.
- Easy: Our technology is easy to use and works with all typical computer systems so virtually anyone can easily take a webcast from the comfort of their home, office, or lab.
- Convenient: Class attendance is NOT required. If you miss a class, simply use your on-demand access to the session recording so you can catch up on your own time.
- Informative: All class materials are available for download and you can email the instructor anytime.

There are expanded course offerings in analytical, organic, pharmacology, engineering, instrumentation, and other areas. For the full list of Webcast Short Courses and more information on available discounts, visit www.proed.acs.org/

CHEMPLOYMENT ABSTRACTS NOVEMBER 2009

CHEMPLOYMENT ABSTRACT 3944

Position Title: Research Associate - Medicinal Chemistry

Job Description: This is an exciting opportunity for a Synthetic Chemist to participate in our innovative program in drug discovery. The individual will be responsible for the design and synthesis of novel drug-like compounds. The position requires an individual that is highly motivated and excited to work in a collaborative environment.

QUALIFICATIONS DESIRED:

Education: This position requires a Bachelor's or Master's degree in Organic Chemistry

Experience: This position requires 2-8 years of experience in synthetic or medicinal chemistry. Demonstrated expertise in multi-step synthesis, compound purification and structural characterization is preferred.

LOCATION, SALARY, EMPLOYER DESCRIPTION:

Job Location: South San Francisco, CA

Salary: DOE

Employer Genentech is among the world's leading biotech companies, with multiple therapies on the market for cancer and other serious medical conditions.

Application Instructions: Genentech is dedicated to fostering an environment that is inclusive and encourages diversity of thought, style, skills and perspective. To learn more about our current opportunities, please visit: <http://careers.gene.com> and reference Req. # 1000029032. Please use "Web - ACS" when a source is requested. Genentech is an Equal Opportunity Employer.

CHEMPLOYMENT ABSTRACT 3945

Position Title: NIH-funded Postdoctoral Research Associate in Medicinal Chemistry (2 positions)

Job Description: Great opportunity to participate in an NIH-funded multi-disciplinary Research Project focusing on the discovery of novel small-molecule therapeutics for new targets for central nervous system diseases. Position requires an individual who is motivated and eager to learn in an integrated collaboration between discovery chemistry and biology teams.

QUALIFICATIONS DESIRED:

Education: PhD in Synthetic Medicinal Chemistry or Organic Chemistry

Experience: 0-2 years post doctorate, experience with multi-step organic synthesis, purification and characterization techniques. Knowledge of medicinal chemistry, structure-activity relationships preferred but not required; good written communication skills and ability to work independently.

LOCATION, SALARY, EMPLOYER DESCRIPTION:

Job Location: Sunnyvale, California

Salary: DOE

Employer Astraera Therapeutics is dedicated to the discovery of novel medications for unmet clinical needs. Astraera offers a stimulating, collaborative working environment and opportunities for career growth in drug discovery research and development.

Application Instructions: Please submit a CV detailing educational experience and description of types of research projects and chemistry experience to Dr. Nurulain Zaveri at info@astraeatherapeutics.com

Photos from the October 15th Dinner Meeting with Dr. Elizabeth Furukawa

by Lois Durham



Bruce Raby, Elizabeth Furukawa, Mark Kent



Elena Zavala, Marianne Wallis (SJSU Students)



Floyd and Nancy Hobbs



Jeanette Medina, Ean Warren



Bruce Raby



Elizabeth Furukawa



Natalie McClure

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ChemPloyment Abstracts

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FUTURE MEETINGS

- Nov 18** AWIS
Patrice Reid, Career Consultant
<http://www.pa-awis.org>
- Nov 18** BioScience Forum Meeting
Dr. Hans Reiser, VP Gilead
<http://www.biosf.org/programs.htm>
- Nov 19** Dr. Tom Lane, President, ACS and
Dr. Jeanette Medina, the first
recipient of SVC ACS Community
Colleges Teacher-Scholar Awardee
Biltmore Hotel, Santa Clara, CA
- Jan 21** Mosher Award Meeting
Howard and Sally Peters
Death by Chocolate and Chemistry
Outreach
Biltmore Hotel, Santa Clara, CA