2016 Shirley B. Radding Award Recipient

Sally Peters

Her service to the national ACS includes over 20 years as a counselor. During that time, she served on several committees including Meetings & Expositions, Local Section Activities and Community Outreach. Through her efforts, the Meetings & Expositions committee decided to take the national meeting to Indianapolis, IN, in 2013. She was chair of our section in 2001 and has chaired the committee that oversees the Chemistry Olympiad for more than 15 years and headed the hospitality group. Following in Shirley Radding's footsteps, she has welcomed new members to the section and monthly provided cookies for our hungry officers for over 20 years!

2016 Shirley B. Radding Award recipient, Sally Peters has been an ACS member for over 35 years and an active Santa Clara Valley section member for 25 of those years, thanks to Shirley Radding who encouraged her to become involved. Her undergraduate chemistry degree is from Geneva College in Beaver Falls, PA, and her MLS is from San Jose State University. Some of her early professional positions were as a research assistant in the Stanford University Chemistry Department, growing tobacco for mosaic virus work, and later in the Swain Chemistry library. Beginning in 1983, she worked in the Information Center at the Xerox Palo Alto Research Center doing literature and patent searching, retiring after 28 years.

Chair’s Message

Jane Frommer and Ean Warren

continued on next page

SCVACS Annual Wine Tasting, Family Picnic and Awards Ceremony

Date: Saturday, July 9, 2016
4:00 p.m. Wine Tasting
5:30 p.m. Barbeque Dinner
7:00 p.m. Awards

Deadline for Reservations: Wednesday, July 6, 2016

Location: Stanford University
Mudd Chemistry Building
https://goo.gl/maps/gTsaM

Registration online at:
http://scvacs.org/?page_id=40#picnic

Adults: $20.00
Student: $10.00
Children under age 12: $5.00
The 2016 National Inventors Hall of Fame
By Howard Peters – patent attorney – retired

In 1973, the U.S. Patent and Trademark Office www.uspto.gov joined with other interested groups to create the National Inventors Hall of Fame (NIHF) www.invent.org. This was done to recognize the people whose invention and ingenuity had a major impact on the growth and history of the United States. The only inventor inducted in 1973 was Thomas A. Edison. The next year, the following inventors were inducted: Eli Whitney for the 18th century cotton gin, Alexander Graham Bell for the 1876 telephone and John Bardeen, Walter Brattain, and William Shockley for the transistor in the 20th century.

Living and deceased inventors have been inducted annually every year since. At least one issued U.S. patent is required for consideration. In the intervening years, the NIHF moved from the U.S. Patent Office to Inventure Place in Akron, Ohio, for several years. The NIHF has since moved back to the Washington DC area and can be viewed and searched at www.invent.org and at the new U.S. Patent and Trademark Office complex in Alexandria, VA. The deadline for nominations is each June 30 and anyone or any organization can nominate an inventor for consideration. The announcement of the annual selection of the living and deceased inventors to be inducted is made in February and can then be found on the web at www.invent.org with a photograph, biography and number of the U.S. Patent. (The actual U.S. patent can be searched by number and viewed at www.uspto.gov and also found on another patent site (old IBM) including the drawings at www.pat2pdf.org. Do not use any commas.) The NIHF induction ceremony in early May is a black-tie affair usually held at the National Portrait Gallery in Washington DC.

The list of the 2016 NIHF inductees follow below.

BTW -- Dr. William Sparks was one of two chemists inducted into the NIHF both for the invention of butyl rubber. He was also the President of the American Chemical Society in 1966. His wife Meredith had also obtained a Ph.D. in Chemistry at U. Illinois and later a law degree to practice patent law. Meredith Sparks was a pioneer as a female patent attorney and later became president of the National Association of Women Lawyers (1981-82). She was an early supporter of ACS’s Division of Chemistry and the Law.

INVENTOR          TITLE                           PATENT NO.
JD Albert          Electronic Ink                   5,961,804
Roger Angel        Lightweight Mirrors for Astronomical Telescopes 4,606,960
Roger Bacon        High-Performance Carbon Fibers       2,957,756
Bantval Jayant Baliga Insulated Gate Bipolar Transistor (IGBT) 4,969,028; 5,998,833
Per-Ingvar Brånemark Modern Dental Implant          4,988,299
Barrett Comiskey   Electronic Ink                   5,961,804
Joseph Jacobson    Electronic Ink                   6,124,851
Sheldon Kaplan     EpiPen® Auto-Injector              4,031,893
Victor Lawrence    Signal Processing in Telecommunications 4,034,197; 4,213,187
Radia Perlman      Robust Network Routing and Bridging 5,086,428; 7,339,900
John Silliker      Microbiological Food Safety and Testing 2,876,108
William Sparks     Butyl Rubber                      2,356,128
Harriet Strong     Water Storage and Flood Control   0374,378
Ivan Sutherland    Display Windowing by Clipping     3,639,736
Welton Taylor      Microbiological Food Safety and Testing 4,010,078
Robert Thomas      Butyl Rubber                      2,356,128
Demographic Survey of the Santa Clara Valley ACS Membership

Nicole Bouley Ford

Source: American Chemical Society annual membership survey

As of June, 2016, the total number of members in the Santa Clara Valley section is 2,673. The distribution by member types is shown below:

The majority of members (70%) are regular members with the remaining roughly split between student categories (14.5%) and retired/emeritus members (13.5%). The “other” category includes 29 society affiliates and 1 local section member.

A distribution by years-of-service is shown above. A significant population has only been a member for one year (21%) to a few years.

Our call to members: The remainder of the member statistics is plagued with incomplete data, indicated by N/A in the graphics below. Please fill out your demographics survey at www.acs.org/demographics. You can also reach ACS Member Services at 1-800-333-9511 (before 5pm EST) to check and/or update your selections. This will result in more accurate member statistics in the future. Below, we indicate reported results with the caveat of the large number of “N/A” or “No Response” responses.

Of the few respondents to the education question (37%), the population heavily leans towards chemists with higher education. The highest degree received: Doctorate (662) > Master (162) > Bachelor (135) > Associate (5)/High School (32).

The majority of members are male. The gender composition of the ACS as a whole is similar with about a 3:1 reported ratio of males-to-females in 2010.

The most popular job titles are chemist/scientist (25.4%), research & development management (13.1%), professor/instructor/administrato-
The Commercialization of Radiation Chemistry

By Ean Warren with credit to ACS Chemical Landmarks

ACS established the National Historic Chemical Landmark (NHCL) program in 1992 to recognize seminal achievements in chemistry. The mission of the NHCL program is to enhance public appreciation for the contributions of the chemical sciences to modern life in the United States and to encourage a sense of pride in their practitioners for chemistry’s rich history. Through this program, ACS grants Landmark status to significant locations in the history of the chemical sciences such as the invention of Bakelite, the world’s first synthetic plastic; the discovery and development of penicillin; and the work of historical figures such as Joseph Priestley, George Washington Carver and Rachel Carson.

The Santa Clara Valley local section has its own NHCL site in Redwood City. The site commemorates the commercialization of radiation chemistry by Raychem Corporation. Founded in 1957, Raychem Corporation was the first company to successfully apply the new science of radiation chemistry to commercial use. This accomplishment led to the creation of tough new materials and high-performance products such as irradiated polyethylene insulated wire and heat-shrinkable tubing through the crosslinking of polymeric materials. The success of this enterprise established radiation chemistry as a practical, safe, cost-effective use of ionizing radiation and helped make the United States the world leader in the development of commercial radiation technology and equipment.

In 1950, the United States Government embarked on a search for peacetime applications for atomic energy. The most promising application was the nuclear power reactor, seen as an abundant source of clean energy. To extend the value of reactors to the commercial sector, the government funded research on uses for the radioactive by-products of reactor operations.

As part of that research, the reactor Development Division of the Atomic Energy Commission sponsored a study at the newly created Stanford Research Institute (SRI) in Menlo Park, California. The purpose of the study, supervised by 25-year-old chemical engineer Paul Cook, was to determine the potential industrial uses of waste fission products — alpha emitters, beta emitters, and gamma ray producers.

The study concluded that there were limited industrial uses for waste fission products. However, as a result of these studies and subsequent experiments conducted by Cook at SRI and elsewhere, he became convinced that radiation could be used to develop new materials for industrial applications.

An analysis of the literature from 1984 to 2014, found that among the most frequently used synthetic reactions, none was discovered within the last twenty years, and only two in the 1980’s and 1990’s. What were those two reactions?

Last Month’s Quiz

What class of molecules is not found in genuine Parmigiano-Reggiano cheese but IS found in knock-offs bearing that label, making it a detectable marker for Parmigiano-Reggiano cheese authenticity?

Real Parmigiano-Reggiano cheese does not contain cyclopropane fatty acids, found in the milk of cows fed fermented fodder. Caligiani recently showed that cyclopropane fatty acids were absent in all of the cheeses whose Production Specification Rules expressly forbid the use of silages (Parmigiano Reggiano, Fontina, Comté, and Gruyère).

New Bipartisan Congressional Chemistry Caucus
By Heidi Vollmer-Snarr

Do you ever wish that the U.S. government better represented your scientific views and interests? A new bipartisan Congressional Chemistry Caucus endorsed by the ACS and other chemistry organizations was launched on April 27, 2016. The Chemistry Caucus will provide a direct pipeline from ACS scientists to Congress and ultimately to the Senate to answer scientific questions about pressing scientific issues relating to chemistry.

This is a critical time for us ACS members to contact the members of Congress in our districts to persuade them to join the caucus. We have developed specific talking points about the Chemistry Caucus and how it is relevant to members of Congress from specific districts. We provide you this information on a dedicated page of our Santa Clara Valley ACS website, and encourage you to reach out as scientific professionals to your lawmakers.

Watch the ACS video to prepare to interact with your representatives in Congress. This is an opportunity to make a difference!

Replacing the World’s Most Destructive Industry

“Replacing the World’s Most Destructive Industry” - the goal of Redwood City start-up Impossible Foods – was a stellar learning opportunity for members and friends of the SCVACS on a sunny spring evening at May’s monthly section dinner meeting. A standing-room-only group of chemists and friends listened to founder Pat Brown frame the many global problems created by raising animals for human food. Environmental stewardship took center stage in the presentation, viewable on-line as an “ACS Presentation on Demand”

https://presentations.acs.org/common/media-player.aspx?Fall2015/MPPG/MPPG1a/N102454

In addressing alternatives to the cattle industry, global solutions for world hunger, loss of biodiversity, and water resources were raised. Closer to home and on our dinner plates, Impossible Foods goes about deconstructing the meat-eating experience, and reconstructing it from plant-based proteins. The reconstruction is complex, including aromas and colors on pyrolysis, thermoeelastic properties on chewing, and, of course, flavor. Impossible Food products can be found on restaurant menus of a few selected chefs in the SF Bay area while we wait for their appearance on supermarket shelves.

Check out here what others have to say about Impossible Foods:
http://impossiblefoods.com/press

Welcome to the Santa Clara Valley Section of ACS

Each month, the section receives a spreadsheet from national ACS with the names of members new to our section. The members are either new to ACS, have transferred in from other areas, or are the newest members -- students. To welcome you to the section and get to know you, the Executive Committee offers new members a free dinner! To encourage you to attend a monthly section seminar meeting, we would like you to be our guest. When you register, make certain to mention that you are a new member and you and a spouse (or friend) will be our guests. The seminar meetings are at a local spot, somewhat convenient to the section. If you are unable to attend in the evening, perhaps you would join us for an outreach event, like judging a science fair, participating in the Chemistry Olympiad, or a National Chemistry Week event in October. Then, there is our annual wine tasting and awards picnic in July. The local section is a volunteer organization. Please attend an event, volunteer to help, and get to know your local fellow chemists. Welcome!

New Members for May

Prof. Annelise E. Barron
Dr. Paul Beroza
Dr. Thomas Henry Cauley III
Michael Chen
Dr. Bruce Clapham
Dr. Donna Ann Dulo
Samantha J. Friedman
Nick García
Alisa Gaule
Holly Hajare
Dr. Charlotte Larson
John Christopher Lin
Steven McKerrall
Kritika Mohan
Niharika Neerudu Sreeramulu
Dr. Nick A. Paras
Naomi Rajapaksa
Devleena Samanta
Myeong-Lok Scol
Danielle Westerman
Erin Wood
Weichen Xing

edge concerned with the chemical effects of radiation on different materials. Cook and the employees of the company that became Raychem Corporation proved the commercial value of treating and altering the chemical structure of polymeric products in their final form, giving them special properties and characteristics that could not be easily created using any other method.

By successfully commercializing radiation chemistry, Cook achieved three things. First, as primarily as a result of the demand for particle accelerators from Raychem and others, the United States took the clear lead in the development of commercial radiation technology and equipment. Second, he developed products that greatly improved the performance of electronics components, electrical insulation, and the world’s industrial and telecommunications infrastructure. Third, he created a new industry that today provides jobs to thousands of people all over the world and generates revenues of more than $10 billion annually.

The NHCL site at Raychem Corp (now TE Connectivity) at 501 Oakside Avenue, Redwood City, was dedicated on April 9, 1997 and still has the original historical marker. Learn more about the history of the radiation chemistry, this site, and other chemistry achievements at ACS’s website (https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/radiationchemistry.html).

A complete list of designated achievements is available on the Directory of National Historic Chemical Landmarks.
**FUTURE EVENTS**

<table>
<thead>
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<th>Date</th>
<th>Event Details</th>
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| Jul 9 | SCVACS Annual Wine Tasting, Family Picnic and Awards Ceremony  
Stanford University  
Mudd Chemistry Department  
[https://goo.gl/maps/gTsaM](https://goo.gl/maps/gTsaM) |
| Jul 14 | Got Planets?  
Dr. Olenka Hubickyj  
SRI Café Scientifique  
Menlo Park, CA  
[http://www.cafescipa.org](http://www.cafescipa.org) |
| Jul 16 | Hayward Fault Walking Tour  
Fremont, CA  
[http://msoletron.org/haywardfault/hayward.html](http://msoletron.org/haywardfault/hayward.html) |

**SANTA CLARA VALLEY SECTION**

**2016 Section Officers**

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Phone</th>
<th>Email</th>
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| Aug 21-25  | 252nd ACS National Meeting  
Philadelphia, PA  
[http://www.acs.org/content/acs/en/meetings/td.html](http://www.acs.org/content/acs/en/meetings/td.html) |
| Aug 31     | Behind the Bark: Saving Seals and Sea Lions in California  
Pacifica Library  
| Sep 18     | Fall Free Day at the Exploratorium  
San Francisco, CA  
[www.exploratorium.edu/visit/calendar/fall-free-day-2016](http://www.exploratorium.edu/visit/calendar/fall-free-day-2016) |

**Councillors**

<table>
<thead>
<tr>
<th>Years</th>
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**Newsletter**

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**ChemPloyment Abstracts**

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