



Newsletter for Senior Chemists

NOVEMBER 2019



Changing Seasons - Science Education and Journeys

Arlene A. Garrison-Senior Chemists Committee Chair

As I write this article for the November issue of the Newsletter for Senior Chemists, summer is holding on and we are anxious for fall with the cool, crisp air. As you are reading the final Newsletter for this year, fall is beginning to shift to winter in some regions, and summer-like temperatures remain in the locations where many of you have chosen to live. Changing seasons remind us of the changes in our lives, and this edition of the newsletter provides great information to support senior chemists in the transition to a more flexible lifestyle of retirement.

Check out opportunities to continue your education through science history tours, or how to pay it forward and use your experience to teach adults to read. There's also an informative article on adjunct teaching, a role many senior chemists enjoy. Science journeys are a focus of other articles and our writers share some great ideas in their stories. As the International Year of the Periodic Table comes to an end, the editors have included a fascinating article about Plutonium.



I also want to reflect on the SCC events in San Diego, including an exciting opportunity to network with younger chemists, a very interesting senior chemists' breakfast, the Chemluminary Celebration of award-winning senior chemist local sections, and a memorable symposium to honor Gerry Meyer's 80 years of membership in ACS and his 100th birthday. [READ MORE](#)

A Celebration for Gerry Meyer - 80 Years with ACS, 100 Years of Life

The Senior Chemists Committee, the ACS Divisions on Small Chemical Businesses, Business Development & Management, Chemical Education, Energy & Fuels, and the History of Chemistry



During the ACS Fall National Meeting in San Diego, a number of members and ACS leaders came together to honor Gerry Meyer, a member of the Senior Chemists Committee, for his service to the Society and his life of 100 years. The celebration began with a special award of excellence presented to him at the Senior Chemists Breakfast, and followed with the symposium "Gerry Meyer-The First 100 Years" and a reception thereafter. Several of his colleagues were speakers for the program that highlighted wonderful stories about Meyer's career as a scientist, his commitment and contributions to the chemistry enterprise, and his love for running and riding his bike. Join us in saying, "Congratulations and HAPPY 100th BIRTHDAY GERRY!"

Let CO₂ Levels Do the Talking!

Thomas R. Beattie-Senior Chemists Committee Consultant and member of the San Diego Section

Ralph Keeling, Professor of Geochemistry at the Scripps Institution of Oceanography, spoke at the ACS Senior Chemists Breakfast on the topic, "Let CO₂ Levels Do the Talking!" The event took place at the ACS Fall National Meeting in San Diego, CA on Tuesday, August 27. One of his research projects continues with the monitoring of atmospheric CO₂ over Mauna Loa, Hawaii initiated in 1958 by his father, Charles Keeling. These measurements have resulted in the "Keeling Curve", which first brought the world's attention to the continually increasing levels of CO₂. The talk discussed the



merits of framing the discussion of climate change around the changes in CO₂ concentrations to inform our understanding of widespread changes in the functioning of land and ocean ecosystems.

SCHOOL IS IN - LET'S PAY IT FORWARD

Adjunct Teaching for Senior Chemists

Susan Fahrenholtz and Lynn Hartshorn- Members of the Senior Chemists Committee

Colleges and universities often look for adjuncts: qualified chemists, perhaps retired, who are searching for part-time work and would be able to help out by teaching sections of chemistry courses, or teaching laboratory sections. If you are interested in adjunct teaching at a local college or university, one of the best ways to find out about opportunities is by talking to a faculty member or an adjunct at the college.

Adjunct teaching does not pay enough to make a full time living, but it is a way to apply your knowledge, meet with professional colleagues, and help with the education of students. Susan Fahrenholtz was an adjunct teacher for an evening course while she worked full time at a corporation, and after retirement she worked in the day time as an adjunct. After many years of being an adjunct teacher, she has come up with the following list of suggestions for new adjuncts. [READ MORE](#)

Science Education on the Road: Science History Tours

Mary Virginia Orna-ChemSource, Inc., New Rochelle, NY

In the late 1990s, my study tours for students to the United Kingdom (UK) and other European countries gained support from faculty and other ACS colleagues around the United States. Word of mouth is a powerful communicator. Soon, I had a mailing list of almost 100 potential and past participants who were eager to get out on the road with a themed and structured program that provided intellectual stimulation – and not all of these were chemists or even scientists! Following an ACS symposium on this topic, the volume "Science History: A Traveler's Guide, ACS Symposium Series 1179," appeared in 2014.



The study tours described therein had as one of their goals learning science through travel to sites where the science actually happened, a privilege available only since the latter part of the past century. Other goals were to demonstrate how such travel can interface with the professional goals of chemists in academe, industry, and other areas, and how such travel can indirectly enrich those who are homebound and unable to travel.

But the volume is living history and the study tours have continued for just about three decades. Groups have visited many sites in the UK and other places of scientific interest in continental Europe such as the Curies' Paris, Mendeleev's Saint Petersburg, Edward Teller's Budapest, Kathleen Lonsdale's Dublin, Enrico Fermi's Rome, Alessandro Volta's Como, and Jaroslav Heyrovsky's Prague. Larry Krannich, a friend and tour veteran, provided several good reasons to consider coming with us once again. [READ MORE](#)

Teaching Adults to Read

Eldon Sund-A 60-Year Member of ACS and a member of the Wichita Falls-Duncan Section

When I retired more than 20 years ago, I believed that I should find an interesting volunteer position. I noticed an article in our local newspaper stating that there would be a training session for new tutors for our local [Adult Literacy Council \(ALC\)](#). I signed up, and have been an avid adult literacy tutor ever since. Approximately, one fifth the adults in the United States are illiterate.

Most of the students I have encountered come from a totally different background than I had ever encountered before, and come from an income level that I did not know existed. I now have a better understanding of what the term poverty means. Almost invariably, the student comes from a broken family. Most of my students are products of the Wichita Falls ISD (Independent School District) Special Education program. In my opinion, this means that they were essentially baby sat from the time they entered the program until they graduated from high school.

Unfortunately, when this happens, students are unable to read – which is why some of them end up with me. For the most part, my students are very bright and, if they had had the opportunities of a middle class family, I believe they would have been college graduates, and in some cases, honor graduates.

What are the student motivations for coming to the ALC and asking, "Can you teach me to read?" There are many. I mentioned that almost all of my students come from broken families. What I've noticed frequently is that if one member of a family can't read, it is the man or husband in the house. If there is a divorce, he then has to handle his money to buy all of the things he needs and pay all the bills that his wife used to pay. If he can't read, it can become quite difficult and sometimes he seeks help through ALC. Sometimes the company he works for discovers that he can't read and he is told that he must learn to read or he will be asked to leave the company. I know of one man who was quite skilled in his work and his company wished to promote him, but could not because he could not read. He was told this and he came to us to learn how to read. After he became successful with reading, he was promoted to a six-figure salary. [READ MORE](#)



AMAZING SCIENCE JOURNEYS

People with Unique Abilities: Rafael San Miguel, Retire Chemist and Member of the Chemists with Disabilities Committee

Submitted by Amy Norton-Member of the Chemists with Disabilities Committee

Due to a wrong dose of antibiotics, Rafa lost his hearing when he was only a few days old. At St. Joseph's Institute for the Deaf in St. Louis, he learned to speak the same way Helen Keller did by feeling vibrations on someone else's throat. After being the first deaf graduate from the all-hearing Chaminade College Prep School in St. Louis, he put himself through Texas A&M with academic scholarships and without the use of an interpreter and earned his Master's degree from Clemson University in Food and Animal Science. Rafa's earliest taste memories include eating raw sugar cane as part of his Cuban/Caribbean heritage. When an individual loses a major sense it leaves way for other senses to develop more acutely (due to neuroplasticity and taste synesthesia), and in Rafa's case it's led to the competitive advantage he has developed in sensory evaluation and in his highly acute tasting ability as a natural sweetener expert.

Rafa began his career as a scientist at NASA working on the Space Shuttle program, developing food and nutritional protocols for the shuttle astronauts. He spent 26 years as a senior flavor chemist and sweetener scientist at The Minute Maid Company and The Coca-Cola Company. Ironically, his work developing food for astronauts involved a project to send the first can of Coca-Cola into outer space. Rafa has co-authored six papers and holds more than a dozen patents. He was one of three scientists to invent the sweetener now sold as Truvia and was the original, sole inventor of a frozen delivery of Coca-Cola's Freestyle technology machines.



A meeting with the U.S. Labor Department in 2008 encouraged Rafa to share his knowledge of math and science with kids by developing a series of science experiments that were fun, interactive, and educational. He has volunteered at schools both locally, including Drew Charter School in Atlanta's East Lake community, and in cities where he travels by connecting with underserved schools through the volunteer network Points of Light. The White House recognized Rafa as a "Champion of Change" in May 2012 for leading education and employment efforts in the fields of science, technology, engineering, and math (STEM) for people with disabilities. [READ MORE](#)

50 Years Ago-The University of Wisconsin in Madison

Allen A. Denio-Former member of the Senior Chemists Committee and the Delaware Section

In August 1969, I moved from the University of Wisconsin-Eau Claire (UWEC) to the University of Wisconsin – Madison (UW Madison) for my first Visiting Professorship. My wife and I and three young children lived in a small two-bedroom university apartment. I taught General Chemistry during the Fall Semester in parallel with Professor Don Gaines to more than 300 students. An army of teaching assistants taught quiz sections and laboratories. This was

quite a change from having 84 lecture students who filled three lab sections as well as a multitude of other responsibilities. At UWEC faculty cleaned their blackboards after class. In Madison, staff members cleaned the boards! Lecture demonstrations in Eau Claire meant checking out chemicals and equipment ahead of time along with a lab cart to transport them to a lecture hall. After class, one had to clean up and return all materials to the stockroom. In Madison, staff members were ready to assemble a variety of lecture demonstrations and clean up afterward. It was like I had died and gone to heaven!

Life got exciting when a Dow Chemical Company recruiter came to interview students. The Vietnam War was raging and TV broadcasts showed the use of napalm made by Dow! Suddenly the chemistry building was surrounded by [angry protesters](#). The Wisconsin National Guard was called up to protect the building. There were frequent bomb scares in the Chemistry Department, often in the form of backpacks or strange packages left in hallways or stairwells. Professor Gaines served as Chair of the Safety Committee and as a one man Hazmat Team. This was in the days before Kevlar vests! One day, my class was the target of an attempt by protesters to get students to take to the streets for a march. After a few minutes my students shouted them down and chased them out of the building. [READ MORE](#)



Land of Fire and Ice

Robert Yokley-Senior Chemists Committee Associate

We traveled to Iceland in February 2019. There are many reasons to visit including glacier trekking, volcanos (30 still active), waterfalls, beautiful beaches, geysers, geothermal hot springs, etc. Our excursions included trips to the Blue Lagoon, Golden Circle, South Shore, and Reykjavik. We saw two billboards: "Iceland is Niceland" and "Welcome to Iceland – Warmer than New York City". In this brief article, I will focus on the Aurora Borealis (Northern Lights) which influenced our decision to visit Iceland. The information herein also applies to the Southern Lights (Aurora Australis).



Auroras occur when the solar wind (charged particles such as electrons, protons, and He nuclei) excite an atom or molecule in Earth's upper atmosphere (usually >100 Km) followed by subsequent relaxation via emission of a photon. Collisional deactivation is dominant at altitudes <100 Km. Fortunately, the vast majority of the solar wind particles are deflected by the Earth's magnetosphere. This exists because convection currents of molten iron in the Earth's outer core (caused by heat escape) create an

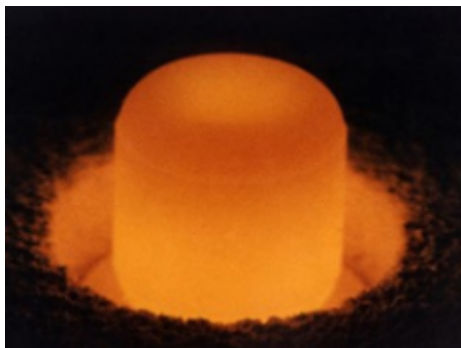
electric current and subsequently a magnetic field. This field extends from Earth's interior into space for tens of thousands of kilometers. However, this field is much weaker at the poles which allows much greater interaction between the solar wind and atmospheric atoms and molecules. Thus, the auroras are primarily observed between 60 and 75 degrees latitude, north or south. [READ MORE](#)

Images: Phyllis Yokley at Mýrdalsjökull glacier and the Aurora Borealis.

CELEBRATING THE INTERNATIONAL YEAR OF THE PERIODIC TABLE

PART I - Plutonium-238, A Preferred Fuel for Space Exploration

James Chao - Member of the Senior Chemists Committee



Most chemists are aware that Plutonium is used in nuclear weapons and that it is a dangerous, toxic, radioactive element. Because of its chief role in the US nuclear weapons arsenal, the isotope Plutonium-239 is isolated, purified, and stockpiled in storage vaults in places such as Los Alamos National Laboratory, the New Mexico site of the Manhattan atomic bomb project of World War II.

However, the subject of this article, the radioisotope of Plutonium-238 (one less neutron) is not used for bomb making, but instead can be used for peaceful purposes such as a fuel for space exploration, where the distance to the sun makes solar power futile.

This isotope has a half-life of 87.7 years, and decays naturally by releasing an alpha particle and giving off heat. Its radioactivity is insufficient to cause a nuclear chain reaction, so it is referred to as "non-fissile". The natural decay generates power and also heat useful for keeping equipment warm in cold outer space, and matches the time scale for exploring the outer reaches of the solar system. This allows space vehicles such as probes to operate and send electronic communications back to Earth. [READ MORE](#)

Image: A plutonium-238 fuel pellet, glowing with the heat it produces. Credit: U.S. Department of Energy

SENIOR CHEMISTS' HIGHLIGHTS AT REGIONALS

Senior Chemists Highlights from 2019 Regional Meetings

Submitted by Senior Chemists Committee Regional Meeting Representatives

During the ACS 2019 Leadership Institute held in Atlanta, GA, SCC Consultant Tom Beattie made a special presentation to the Society's regional meeting organizers to share ideas for hosting more events for senior chemists at regional meetings and encouraging more engagement. This year, the Senior Chemists Committee confirmed representatives to attend 2019 regional meetings and assist with event planning. The following is a report on some of the highlights from senior chemists events.

Great Lakes Regional Meeting - GLRM Chemistry Connections

Senior Chemists Luncheon with Undergraduates, May 3 SCC Representative - Herbert Golinkin

The Senior Chemists luncheon at the Great Lakes Regional Meeting was comprised of senior chemists and students of the chemical sciences who came together to talk about career topics that are not included in normal curricula. Thirteen senior chemists and 27 students attended. This included chemical professionals, undergraduates, graduates, and post doctorates who registered for the regional meeting. Total registraton overall for GLRM 2019 was more than 600.

Central Regional Meeting - CERM Molecules to Materials

Senior Chemists and Younger Chemists Experience Exchange, June 5 SCC Representative - Kelly Moran

This networking event with senior chemists and younger chemists was organized by Gretchen Kohl (a member of the Midland Section Leadership Team's Silver Circle) and the ACS Senior Chemists Committee. This was an extraordinary event that was well-attended by ACS leaders (e.g., past presidents, Councilors, and Board members) and a number of senior chemists and younger professionals. The panelists for the event were: Thomas Lane-past ACS President; Wayne Jones-ACS Director at Large; Lee Latimer-ACS Director at Large; Linsey Seitz-Assistant Professor at Northwestern University; and Stacey Saba-event moderator, Younger Chemists Committee member, and Midland Section member. There was informal networking with a box lunch. Panelists shared their thoughts on the value of the ACS Leadership Institute and other professional development opportunities.

Northeast Regional Meeting - NERM Chemistry - the Central Science of the Northeast

Senior Chemists and Younger Chemists Mentoring/Networking Breakfast, June 25 SCC Representative - Roger Bartholomew

There were 25 attendees for this buffet breakfast event, which included Board members Dorothy Phillips and Kathleen Schulz, members of the Rochester section and students from Niagara University. The event was organized by Lisa Coutts (member of the NERM committee) and Roger Bartholomew (Senior Chemists Committee). At the event, senior chemists introduced themselves and shared information about their careers and students talked about their chemistry career interests. The dialogue was well-received and students took every opportunity to sit down and have one-on-one conversations with the chemistry professionals.

Northwest Regional Meeting - NORM

From Nano to Global

Senior Chemists Breakfast & Undergraduate Mentoring, June 18

SCC Representative - Warren Ford

The ACS President, President-Elect, and three Board members attended the NORM Senior Chemists Breakfast in Portland, OR. During the event, certificates were presented to two senior chemists for their 60 years of membership. The main feature of the program was a talk on "Retailers, Regulation, and Restricted Substances - the 3 R's of Chemical-Containing Products in Commerce" by Dave Einolf of Endeavor EHS, LLC (an environmental, health and safety consultancy with a focus on the management of hazardous materials in the retail environment). A talk was also presented to undergraduates on how to get career advice from experienced chemists. Thereafter, a speed mentoring session took place with close to 45 attendees. Both the breakfast and the mentoring session was a huge success. NORM 2019 overall, drew an increased number of attendees this year due to its long-range planning, the organizing committee, collaborations, and advertisement.

Southeast Regional Meeting - SERMACS

Chemistry on the Coast

Senior Chemists Breakfast, October 22

SCC Representative - James Chao

The ACS 2019 Southeast Regional Meeting featured a Senior Chemist Breakfast Event with Dr. Nelson Lawson as the keynote speaker. In his topic "A Second Career-From Employee to Consultant," Nelson shared his experiences as an expert in the chemistry of pine tree products over a lengthy career of more than 35 years to becoming an international consultant giving advice on innovative product development and problem solutions for natural products. While there were a few questions about the industry in general involving recent trends in pine tree wood versus sap products, the greatest discussion seemed to be with seniors wanting to know much more about going into business as a consultant, fees to be charged, intellectual property concerns, and maintaining a good rapport with current and prospective customers.

Southwest & Rocky Mountain Meeting - SWRM/RMRM

Chemistry in Transition

Senior Chemists Lunch, November 15

SCC Representative - E. Gerald Meyer

There were fewer than 800 attendees for the meeting and the symposia was well attended. The Senior Chemists Lunch had close to 20 attendees, including three Board members. Meyer spoke about the Senior Chemists Committee activities and opportunities for more engagement within local sections. A special letter and presentation about these opportunities was sent on behalf of the Senior Chemists Committee chair to section leaders this fall.

A SPECIAL TIME OF THANKS AND GIVING

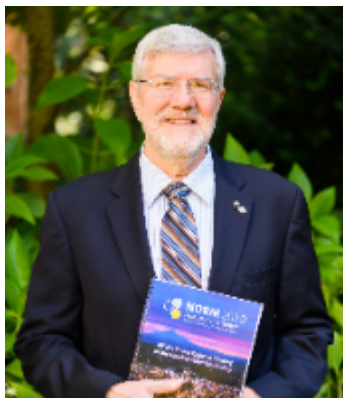
A Father and Son Share 118 Years of ACS Membership and a Legacy of

"Giving Back" to the Next Generation through Project SEED

Submitted by Susan Ainsworth-Communications Manager, ACS Development

For most 50-year ACS members, their membership anniversary pin signifies their longstanding commitment to the Society and their profession. But for Carl C. Wamser, it bears even greater significance. That's because receiving the pin is an honor he shares with his father, 64-year ACS member Christian A. Wamser, who passed away in 2011 at the age of 98. Today, Carl cherishes his pin and his father's pin as symbols of their shared heritage in chemistry.

"My father was my chemistry inspiration from the earliest age," he says. By the time Carl was born, the elder Wamser had earned a bachelor's degree in chemical engineering from Cooper Union Institute of Technology in New York City and had launched what would be a long industrial career at Allied Chemical.



"He loved showing chemistry 'tricks' to family and neighbors," Carl recalls. And he maintained a lab in a spare bedroom in their home, where he conducted research that led him to publish a paper in the Journal of the American Chemical Society in 1948. "I watched him enjoy what he did so much," Carl says. "It just seemed natural to become a chemist."

Indeed, Carl earned a bachelor's degree in chemistry from Brown University in 1966 and a Ph.D. in chemistry from Caltech in 1970. After finishing a Harvard postdoc, Carl began an academic career focused on solar energy at California State University, Fullerton. In 1983, he moved to Portland State University (PSU), where he retired in 2012.

Although father and son pursued different areas of their chosen field, they shared a passion for the intersection of music and chemistry. In 1996, they jointly published a

Journal of Chemical Education article about chemist-composer Lejaren Hiller.

They also both believed in the importance of helping young students explore the field of chemistry. "I supported ACS Project SEED students in my lab during many summers," says Carl. "It was a rewarding experience for me, the students, and the rest of my research group," he adds. "And I know that my father supported Project SEED financially."

"You never know when a student you help might go on to establish a successful career and then pay it forward," he says, noting how his former high school mentee Richard Phillips has established summer chemistry research scholarships at PSU. "My father and I both believed that every generation has a sacred responsibility to help the next generation in as many ways as possible."

For learn more about Project SEED and to donate, visit www.acs.org/SEED.

Images: Wamser, NORM 2019 Awards Chair, sports his 50-year ACS pin and his late father's 50-year pin. Credit: Michael Arellano/michaelcaryphotos.com.



Getting the Most Out of Twitter



Learn how to optimize your experience with one the world's most popular social media platforms – Twitter. Whether you're a seasoned user or new to the twittersphere, consider these tips to enhance your experience. [READ MORE](#)

WE WOULD LIKE TO HEAR FROM YOU!

Have you noticed a new feature in this Newsletter issue, the "Read More" link? We hope you have. We are doing this so you can read through as many articles as you'd like quicker. By selecting the "Read More" feature, you can receive more information on articles of your choice and any resources that are shared. Please let us know what you think about this new feature. It is always a pleasure to hear from our readers. Thanks!



We hope you have enjoyed reading this Newsletter. We welcome your comments and suggestions. As always, we need articles from our readers! The Newsletter would not be possible without the help of our readers. We publish a wide variety of articles: examples include chemistry, senior activities and retirement, trips to unusual destinations and interesting museums, the history of science, volunteer activities, etc. If you have an idea but are not sure if it would be a suitable article, send an email with your suggestion to: SeniorChemists@acs.org.

The maximum length is 500 words, but shorter articles are welcome. Please submit your articles and ideas to the email address above, in the form of a Doc or DocX. Photos and images are very welcome, please submit them in JPEG or PDF formats.

Thanks and as said before, we look forward to hearing from you. **Lynn Hartshorn, SCC Newsletter Editor**

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