



Newsletter for Senior Chemists

July 2021

Chili Peppers, Amazing Senior Chemists' Stories, Retirement Post COVID-19 and SCC Events



News From the Senior Chemists Committee Chair by Arlene Garrison

Welcome to an outstanding issue of the Senior Chemists Newsletter! Enjoy stories about the impact of COVID-19 on retirement and angel investing, reports on recent SCC events, the second in the series on playing cricket, and other interesting topics. If you received this issue via a forwarded email and would like to subscribe to the newsletter, send a request to seniorchemists@acs.org. Prior issues can be found at [Senior Chemists Newsletter Archive - American Chemical Society \(acs.org\)](#).

My colleagues on the 2021 ACS Senior Chemists Committee (SCC) continue to move ahead on goals established in its Strategic Plan. In concert with the ACS Strategic Plan update, the group also added a new initiative for 2021.

The SCC Mini-Grant program in 2020 provided grants to several local sections that supported virtual events. The Indiana section held a Senior Chemists Mentorship Program, the Kentucky Lake section hosted an "Interviews with Senior Chemists" activity, and the Georgia section held a "Junior-Senior Chemists Recognition" program. The SCC website at [ACS Senior Chemists - American Chemical Society](#) has a list of ideas for virtual events.

The SCC had a number of successful events at the ACS 2021 Spring Virtual National Meeting, The Coffee Social Hour Virtual Event on "How to Embrace the New Norm and What That May Look Like" was held on Tuesday, March 30 with more than 300 attendees. SCC and the Younger Chemists Committee (YCC) co-hosted a "Networking with Chemistry Professionals & Students" virtual event on Sunday, March 21. SCC also co-sponsored several symposia, including a "Planning for Retirement" symposium sponsored by the ACS Division on Professional Relations.

A Co-Mentorship Program was initiated in April by the SCC and the YCC. Members of the SCC and YCC will share information on ACS volunteer experiences and changes in communication tools.

For 2021, the SCC has developed two initiatives to address systemic racism. As reported in prior issues of the SCC Newsletter, the Senior Chemist Committee hosted a webinar in July 2020, "Senior Chemists Action Agenda to Address Systemic Racism". SCC carefully considered the excellent suggestions presented in the webinar and in subsequent conversations. The SCC established two working groups to lead projects focused on improving the pipeline of underrepresented chemists. The initiatives are designed to allow seniors to have a big impact through numerous small contributions of time or money. The first activity is a fundraising campaign for the ACS Scholars Program Endowment and the second project focuses on chemistry presentations for middle schools in underrepresented communities. The new initiatives are aligned with ACS's Core Values and the new goal on diversity, equity, inclusion, and respect.

"[Senior Chemists in Action](#)" was the title of the SCC Comment featured in the May 27 issue of Chemical & Engineering News. The article, authored by Robert Yokley, highlighted SCC's activities, including Local Section events supported by SCC and its mission to build bridges between young and experienced chemists – advancing the field with vital training and financial support.



Senior Chemists Committee Campaign for ACS Scholars Program by Warren Ford, SCC Member


Right after the tragic death of George Floyd, the Senior Chemists Committee met to discuss how we might respond. As mentioned in the previous article, a webinar "Senior Chemists Action Agenda to Address Systemic Racism" at <https://register.gotowebinar.com/recording/5402310053734352646> was held in July 2020 with more than 300 virtual attendees. The webinar panelists described from their own experiences the extent of systemic racism in American society and particularly in chemistry workplaces. Following the webinar, the SCC decided that one way we could help is to raise funds for the ACS Scholars Program.

The [ACS Scholars Program](#) was established in 1994 to increase the diversity of the chemistry profession by awarding college scholarships to chemistry majors from underrepresented minority groups. The program is rooted in the Society's core belief that the inclusion of diverse people, experiences, and ideas leads to superior solutions to the world's challenges and advances chemistry as a global, multidisciplinary science. Since inception, the program has awarded more than \$1.2 million to more than 3,000 students of whom 45% pursued or are pursuing advanced degrees. In addition to providing renewable scholarships, the program pairs these aspiring chemists with dedicated mentors who provide advice and coaching and help them build a valuable network of professional contacts.

The SCC campaign for ACS Scholars started in December 2020 by appealing to present and past members and associates of SCC. Contributions have been received from 32 of the group of 49 ACS members who participated. The campaign is now appealing to all senior chemist ACS members. Support the SCC campaign against systemic racism by [donating](#) to the ACS Scholars Program when you receive the announcements that are being released in a number of ACS online newsletters. For information on how to contribute via an individual retirement account (IRA) or estate plan, please visit www.acs.org/legacy or contact Mary Bet Dobson at m_dobson@acs.org.

SCC Working Group on ACS Scholars Campaign: Lol Barton, Warren Ford, Arlene Garrison, Adriane Ludwick, Anne O'Brien, and Isiah Warner

Senior Chemists Committee Gears Up for 2021 Fall Events



THE
POST-COVID
CHEMISTRY ECONOMY
& DEIR PROGRAM UPDATES

ACS Committee
Senior Chemists

The Senior Chemists Committee will again host the SCC Coffee Social Hour Virtual Event on Tuesday, August 31 from 1:00-2:00 p.m. EDT in partnership with the Office of Philanthropy and ACS Webinars. The theme is "The Post-COVID Chemistry Economy & DEIR Program Updates." William Carroll, Jr., Founder of Carroll Applied Science, LLC and Adjunct Professor of Chemistry at Indiana University will present the keynote. Rajendrani Mukhopadhyay, Vice President of the ACS Office of Diversity, Equity, Inclusion, and Respect (DEIR); and Isiah Warner, Professor at Louisiana State University will also present on ACS DEIR efforts and SCC DEIR initiatives. We cordially invite you to attend.

SCC Co-Sponsors ACS National Meeting Fall Programming

The Committee is co-sponsoring a "Planning for Retirement" symposium on Monday, August 23 from 10:30 a.m.-12:30 p.m. EDT and from 2:00-4:00 p.m. EDT hosted by the Division on Professional Relations and also co-sponsored by the Small Chemical Businesses Division. This symposium will include seven "in-person" presentations with updates from experiences shared during the spring national meeting and some new experiences as well. Other SCC co-sponsorships are listed below and are scheduled for the Eastern Time Zone: "Symposium in Memory of George W. Ruger" on Sunday August 22 from 10:30 a.m.-12:30 p.m.;

"Chemical Business Best Practices Flash Presentations" on Monday August 23 from 7:00-9:00 p.m.; and "Chemical Angel Network" on Tuesday August 24 from 4:30-6:30 p.m.



Networking with Chemistry Professionals & Undergraduates Ice Cream Virtual Event - Come Join Us!

The Senior Chemists Committee is partnering with the Younger Chemists Committee, the Undergraduates Program Advisory Board, and the ACS Business Development and Management Division to host this fall's "Networking with Chemistry Professionals & Undergraduates Ice Cream Virtual Event" on Sunday, September 12 from 2:00-3:30 p.m. EDT. Panelists for the event are Kelley Cafilin, Lead Analytical Chemist in the Explosives Research Branch at the United States Army Combat Capabilities Development Command Armaments Center; Tejas Shah, Research Investigator at Corteva Agriscience; Barry Streusand, Owner of Applied Analytical, Inc. and former Professor at Texas State University; and Dominique Williams, Professor of Biochemistry at the University of Richmond. Professionals in industry, academia, government, small businesses, and non-profit are welcome to join us for this engaging event. Share your expertise and experiences with undergraduates, graduates, and younger professionals. For more information, please send an email to seniorchemists@acs.org.

Great Fun with Food and Travel!

Chiles: The Chemistry of Capsaicin - Part 1 of 4: Origin, History, and Discovery of Capsaicin by Robert A. Yokley, SCC Member

Robert Yokley did his undergraduate work at Middle Tennessee State University, Murfreesboro, TN (chemistry) and his graduate work at the University of Tennessee, Knoxville, TN (chemistry). He spent most of his career at Syngenta (formerly Ciba-Geigy) in Greensboro, NC and is now retired. He and his wife enjoy driving their vintage Triumph TR-6 sports car in tours and rallies, travel, and hiking.

In American English. "chili" is often used to describe a spicy pepper. In British English, it is "chilli" and in

...in Spanish it is "chile". However, die-hard spicy pepper fans use the word chili to describe only the meat dish while "chile" refers to the pepper. In fact, the use of the word "pepper" is erroneous because Christopher Columbus originally thought chiles were a member of the *Piper nigrum* family (black pepper). Thus, I will use "chile" for what is better known in the USA as chili pepper. Chiles originated primarily in Bolivia, Ecuador, and Brazil, but cultural deposits more than 9,000 years old are found in Central America and Mexico. They are one of the first cultivated crops in the Americas along with beans, maize, and cucurbits (a plant of the gourd family).

Diego Alvarez Chanca, a physician aboard Columbus' second voyage to the West Indies, wrote about their medicinal qualities in 1494. In the early 1500s, Portuguese sailors took chiles to China, India, and Southeast Asia. They also journeyed from India to Hungary where paprika became the national spice. In Western Europe, chiles were grown primarily as ornamental plants due to their diversity in size, shape, and color. In most other parts of the world, chiles were adopted to transform and enhance the local cuisine. Indian curry, Thai peanut sauce, Chinese hot and sour soup, Hungarian goulash, pepperoni, Cajun jambalaya, etc. would be impossible without chiles.

In 1816, P.A. Bucholtz extracted the pungent compound in chiles from pods with organic solvents. L.T. Thresh reported in *Pharmacy Journal* (1876) that the main chemical component could be extracted in a crystalline state and he named this compound capsaicin. Hungarian Endre Hogyes extracted capsaicin in 1878 and called it capsicol. He discovered that it stimulated the mucous membranes of the mouth and stomach and increased the secretion of gastric juices. Capsaicin's molecular structure was described in 1919 by Nelson and Dawson (*J. Am. Chem. Soc.*, 1923, 45, 2179-2181) and was first synthesized in the laboratory by E. Spath and F.S. Darling (1930). Japanese chemists, S. Kosuge and Y. Inagaki (1964), reported that the pungency was attributable to a complex of six naturally occurring, related compounds called capsaicinoids. In 1993, the structure of capsaicin was finally elucidated as 8-methyl-6-nonenoyl vanillylamide (Cordell and Araujo).

In Part 2, the focus will be molecular structure, "heat" sensation, and the Scoville scale. See images of different chile peppers and cuisine below.



The Grand Canyon Revisited by Ray Anderson, Former SCC Member





Ray Anderson obtained his BS (Chemistry) at the University of Kansas and his PhD (Organic Chemistry) at the University of Wisconsin. He worked for Gulf Oil Corporation, the National Institution for Petroleum Research, and the Idaho National Lab. He was a member of SCC and the former associate editor of this Newsletter. Image from Ray Anderson at Ooh Aah Point.

Previously, I wrote about rafting the Colorado River through the Grand Canyon, leaving one item on my Grand Canyon bucket list—hiking from the south rim to the bottom and back up. This venture turned into an endurance test...

At age 70ish, I thought I was in pretty good condition, but the hike was more difficult than expected. I should have attempted it when I was younger or done more physical conditioning in preparation. My brother-in-law, his grandson, and I got a last-minute reservation for a one-night stay at the Phantom Ranch (PR) at the bottom, due to a cancellation. An additional night or two would have allowed for some hiking along the Colorado River and some physical recovery. Our reservation was for mid-August before the summer heat relented (September would probably have been better). We noted a temperature of 107 while descending.

We spent the preceding night at a Flagstaff motel and should have gotten an earlier start. With the drive to the park entrance and the shuttlebus to the start of the Kabab trail, it was nearly noon before we began our descent.

Surprisingly, I found the descent to be more difficult than the ascent. Much of the trail had “steps” of cross timbers and loose rocks. The tops were scooped out by hiker’s boots, leaving piles of loose stones on the downward side. More than once, I was saved from falling by that grandson grabbing my arm. The sound of burros plodding along in the Grand Canyon Suite is appealing, but less so when you are standing backed into the wall while the beasts pass by!

Dinners are served at the PR at two sittings. We arrived too late for either sitting but the considerate PR staff saw that we were served delicious ice-cold lemonade and a fine dinner.

We arrived at the men’s dormitory about midnight; only top bunks were available. We climbed into our bunks in the dark as quietly as possible and slept until about 5:30 a.m., when those who had arrived at a sensible hour were arising for the ascent.

We had a filling breakfast, and ascended the Bright Angel Trail, a mile longer but easier. It would have been better to have used this trail for the descent. We were satisfied with our time hiking up, but my wife and her sister were nearing panic before we arrived. One final misstep: I should have bought a Phantom Ranch T-shirt that can only be purchased at the bottom! I am glad I did this hike—but at my age, I wouldn't consider doing it again! For information on Grand Canyon National Park opportunities, see the Park Service website at www.nps.gov.

Amazing Senior Chemists' Stories



How to Bowl a Maiden Over - Part two by Roger Bartholomew

This is part 2 of the article written by Roger Bartholomew that appeared in the Spring 2021 issue of the Newsletter. Roger Bartholomew grew up in the United Kingdom (UK), obtained his PhD from Imperial College (London), and played professional cricket in Leeds. He was a post-doc at the National Research Council of Canada (Ottawa) and then worked for Corning (USA), retiring after 36 years.

When I grew up in the UK, I had a promising cricket career, playing for Leeds, a team equivalent to a baseball AA team. We played on the famous Headingley ground (see above), the Yankee Stadium of cricket. The decision whether to become a professional player or attend college for chemistry was a no brainer. The pay in the 1950s for a professional cricketer was not great, so chemistry won out. Other teams I have played for include the Imperial College, London University team, and while in Canada doing a postdoc., the Ottawa Cricket Club. I was a batsman who occasionally bowled.

The sport of cricket has its roots in England and is still a major sport in countries of the former British empire (England, Australia, India, New Zealand, West Indies, Pakistan, Sri Lanka, and South Africa). It has recently become a game enjoyed by men and women, up to the international level. The major international competitions involve Test Matches, typically a series of five matches, each lasting five days. The most famous of the international competitions is between England and Australia when they

compete for The Ashes. The origin of this term has been disputed but it is generally agreed that it came from a satirical article in the 1850s when Australia defeated England and the writer described the ashes of English cricket being buried in Australia.

These five-day matches are played in all first-class cricket, but to increase interest in the 1950s in India, shorter matches were arranged that lasted for a single day and were limited to a specific number of overs. This began in England in the 1960s and became very popular such that now in addition to the standard test matches, there are international series of limited-over cricket, 20 or 50 overs being the most popular. Both formats continue today in regional competitions throughout the world.

Some aspects of the actual game were presented in part 1 of this series. Most cricket elevens consist of five specialist batsmen (one of whom is the wicket keeper), four specialist bowlers and two who bat and bowl, called allrounders. There are nine ways for a batter to be out, some like baseball: caught, run out (caught stealing), bowled when the ball hits the stumps (strike out), impeding the fielder, to name a few. The names given to the fielders in cricket are strange and wonderful. The close fielders similar to infielder have names such as slip(s), square leg, gully, cover, point and silly point, among others. The outfield positions close to the boundary have names such as third man, fine leg, long on and deep mid-wicket.

So how does one bowl a maiden over? No, you do not push a young lady down. If a bowler bowls six balls in an over without a run being scored, that is a maiden over. And you never bowl two maidens over, you bowl two maiden overs.

The internet is full of great information such as espnricinfo.com or on You-Tube. My local cable TV station has a cricket channel called "Willow" which shows games from all round the world. Watch some—you might enjoy it!



Industrial Hygiene at DuPont: My Story by Norm Henry, SCC Member

Norm Henry received his BS in chemistry in 1965 from Lafayette College, IN. He received his MS in 1977 from the University of Delaware. Norm spent most of his career at DuPont.

I am the son of a doctor who used to make house calls in rural South Jersey. He usually took me along for company while he went inside to diagnose and treat patients. Patients would pay him with fresh chickens and vegetables. His practice and family responsibilities grew; he decided to specialize in clinical pathology at Jefferson Medical College in Philadelphia. While he was teaching at Jefferson, he would let me operate clinical laboratory equipment and introduced me to clinical chemistry. I remember chasing mercury droplets around the lab bench tops, not knowing how toxic it was.

My father's influence in chemistry and medicine led me to major in chemistry at Lafayette College in Pennsylvania, obtaining a chemistry degree in 1965 but unsure of my future in medicine, graduate school, or Vietnam. I was drafted for military service but was rejected because of a temporary medical condition. So, I applied for a job at DuPont and was hired in 1967 as a clinical chemist at the Haskell Laboratory for Industrial Toxicology in Newark, Delaware.

From the mid-1960s to the early 21st century, DuPont's Haskell Laboratory for Industrial Toxicology and Medicine handled the industrial toxicology function at DuPont. The toxicology of the chemical compounds that DuPont employees used were studied at Haskell in order to determine if they were safe for use in

daily work. This section also provided industrial hygiene support for air sample analyses, biological monitoring methods development, and environmental fate analysis.

After the passage of OSHA in 1970, the role at Haskell expanded as the need for more toxicology data increased. In addition to their own facilities, DuPont also provided data for customers. The company hired more hygienists who were trained with Dupont products. The hygienists were sent to plant sites to implement safety programs to protect workers. Each of the departments worked with different chemicals which required sampling and monitoring to determine exposure. Various potentially dangerous compounds and/or environments in the Dupont system provided the basis for study at Haskell.

Things began to change at Dupont as it moved into the 21st century. The laboratory accreditation was phased out since these services could be obtained outside at a lower cost. I retired from DuPont 14 years ago but am still active as an industrial hygienist working part time for the State of Delaware in Public Health. The future of the industrial hygienist profession depends on us applying good science and judgement.

Losing a Voice by John Berg

John R. Berg earned a BS in Chemistry at UC Berkeley and completed a PhD in Bioinorganic Chemistry at UC Davis. His career included 25 years at Varian Chromatography Systems doing instrument development, and 10 years at UC Davis as a Laboratory Manager. Now retired, he lives in Davis, California and is a member of SCC.

Most people take their voice for granted. You use it almost from the moment of birth. It is a part of your being, necessary for life in our human society. My voice was surgically removed in May 2020, and learning to live without it has been an interesting experience.

It is sobering to realize what havoc a small tumor can cause. In my case, a vocal cord tumor had extended into the cartilage, requiring a complete re-plumbing of my neck. My voice box was removed, a muscle from my chest was rerouted to reinforce my throat, and I now breathe through a hole in my neck.

The pandemic complicated matters, of course. A voice prosthesis is usually installed between three and six months after a laryngectomy. Because of surgery delays, I finally had mine installed at nine months, and I am slowly learning to use it. But during those nine months, I had to find creative ways to communicate. Ironically, the pandemic helped me in this endeavor.

Professionally, all meetings, mostly ACS related, as I am a Councilor, have been held on Zoom. Zoom has a chat function, which means I can smile at the camera while typing my thoughts. If I had had to attend meetings in person this last year, I would have been at a severe disadvantage in communication. Unfortunately, the Council meeting doesn't allow written comment. I've never been truly disabled before this, and not being able to comment was disconcerting. But at least I could vote (electronically).

I have used email a lot this year. Email was made for voiceless people.

Day to day communications have been more problematic. Chatting with my wife is gone. I have learned to use notepads that I leave all over the house. But writing down short communications loses all sense of nuance. And, it takes a lot longer than just saying what you want to say. Since I've had the voice implant, this has changed for the better, but is still not equivalent to my original voice.

Outside the house, I've adapted a bit. I've always been an introvert, but have learned to be more expressive. And to my surprise, people respond very well to my silent communications. I use hand signals, like thumbs up, and shrugs, and exaggerated nods and shaking of head, among other things. I wonder if the universal use of masks in our town has contributed to this kind of communication?

The moral of the story: I'm a member of the Senior Chemists Committee, which means I've lived a

while. In fact, I've had a full life, and am physically at the point where things in my body are betraying me (even more than the laryngectomy). What to do? We try our best to adapt. We continue to find a way to do what is rewarding in life. When this pandemic is over, I look forward to seeing all of the people I enjoy working with, in person and talking with them. For another perspective, since I used to sing, see: <https://www.dailykos.com/stories/2020/12/12/2000049/-Requiem-for-a-Voice>



Bacon Ke Celebrates His Centenary by G. Govindjee

G. Govindjee was born in India and received his B.Sc and M.Sc at the University of Allahabad, India, and his PhD at the University of Illinois, Urbana-Champaign, where he is Emeritus Professor of Biochemistry, Biophysics & Quantitative Biology, and is recognized as a leading expert in photosynthesis. For more information, please send an email to gov@illinois.edu.

Bacon Ke, who considers the American Chemical Society as one of the best organizations for chemists in the World, turned 100 years old on July 26, 2020 (See: <http://legacyplanning.acs.org/legacy-leader-stories/bacon-ke>). Recently, Govindjee, et al.¹ honored him as a legend in Chemistry of Photosynthesis. Among his pioneering research work is his measurements on the early steps of the primary photochemical reactions of the two photosystems of Photosynthesis² for which he used his own home-made and “top-of-the line” instruments (key collaborator: Ed Dolan). He also collaborated with top US and foreign scientists such as H. Beinert, T. Hiyama, V. A. Shuvalov and V.V. Klimov who came to work in his laboratory at the Charles F. Kettering Lab, in Yellow Springs, Ohio (see Figure 1 above, Bacon Ke demonstrating his instruments in the Kettering Lab to the Chinese delegation to USA in 1974).

Bacon Ke was born in China and trained in Physical Chemistry as well as Biology, before coming to USA in 1947. He obtained his PhD in Chemistry in 1959, under Dan Trivich at Wayne State University. Ke's academic career spanned six decades, mostly at the Kettering Lab. In addition to his leadership in research, Ke is known for his contributions to education through his two authoritative books. The first one, published in 1991 in Chinese, (Photosynthesis: Photons, Excitons, Electrons, Protons, and their Interactions with Photosynthetic Membranes, Anhui Education Press, Hefei) was the book that helped spread the basic understanding of the primary events in photosynthesis among thousands of students and researchers in China. The second one, published in 2001, is an authoritative treatise on

“Photosynthesis: Photobiochemistry and Photobiophysics” (Kluwer, now Springer).

He is a friend of many who have extolled him for his generosity, his acumen as an educator, and his extensive knowledge of the arts and music as well as science (see Figure 2 below, Bacon Ke with Yun-Kang Shen when Ke was visiting China in 2006).

Yasui Yamamoto remarked that his “first surprise on joining Dr. Ke’s lab was the nice organization of his instruments—most of which were constructed by Bacon Ke himself”. Hartmut Lichtenthaler remarked that “Bacon was an excellent scientist, a fully open character, a modest person, talking to all the participants of meetings he attended. He had an excellent memory of papers and results of his colleagues.” Robert Alfano said “He stands among the ranks of luminaries whom I interacted with and learned from”. Richard Malkin remarked “I think of Bacon as a wonderful friend and Renaissance man, knowing both science and arts”.

Dr. Ke is a Legacy Donor having included the American Chemical Society as a benefactor of his estate.

References

1 Govindjee G, Shen Y-K, Zhu X-G, Mi H and Ogawa O (2021) Honoring Bacon Ke at 100: a legend among the many luminaries and a highly collaborative scientist in photosynthesis research. *Photosynthesis Research* 147: 243-252; [Honoring Bacon Ke at 100: a legend among the many luminaries and a highly collaborative scientist in photosynthesis research | SpringerLink](#)

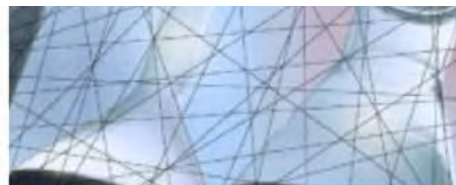
2 Mamedov M, Govindjee G, Nadtochenko V and Semenov A (2015) Primary electron transfer processes in photosynthetic reaction centers from oxygenic organisms. *Photosynthesis Research* 125:51-63; [Primary electron transfer processes in photosynthetic reaction centers from oxygenic organisms | SpringerLink](#)



Investing and Retirement

Chemical Angel





Angel Investing in a Pandemic by Sidney White, SCC Member

Sidney White has a PhD in Inorganic Chemistry from Texas Christian University. He has more than 37 years in the medical device industry mostly with Essilor International. After retirement Sid volunteered in the ACS at the local and national levels. In 2012 Sid co-founded the Chemical Angel Network, the only Nation-wide angel investing network for early-stage chemical business. He was named an ACS Fellow in 2020.

Although 12 months into this pandemic, the Chemical Angel Network (CAN), has seen no change in the number of chemical businesses applying for funding. The last five or six months have seen 20 startups presenting monthly in our CAN Office Hours where startups have five minutes to present five slides. There is no charge to the candidates for this service. Most of these startups are pre-revenue. Some have government grants, funding from friends, family and fools, angel networks or venture capital funds. Most do not have real customers. Since CAN is a Nation-wide virtual angel network there is no need for face-to-face meetings. Startups applying to other angel networks or funds in person could face problems in this pandemic environment such as reduced travel, less than 10 minutes in meetings, and states' orders to stay home. Since angel investing is extremely risky in normal times, there may be some negative effect on angel investing coming from a stock market slump. Still, angel Investors are going to continue to invest in startups.

Although grants are normally the most important early source of funding for startup companies, angel investing is a critical source for startup companies. The Chemical Angel Network offers chemists, chemical engineers and other chemical professionals a unique opportunity to participate in the growth of chemistry based industrial companies. In addition to possible significant financial opportunities, the Chemical Angel Network encompasses several unique elements. As well as financial capital, the network draws upon the members' special experiences and knowledge base to provide comprehensive due diligence, mentoring, contacts, and general technical expertise.

Since there is NO COST to be a member of CAN thanks to our Sponsors, our members can continue to be members of their Regional Angel Network or Fund. CAN has co-invested with many such organizations.

For those chemists and chemical engineers not interested in investing there are many opportunities for mentoring and advising early-stage chemical businesses. There are several benefits for being a member of the Chemical Angel Network:

- Opportunity to invest in chemical businesses with potential for a high return on investment capital
- Ability to make investment decisions with input from the network's members and shared due diligence
- Expertise of network members to help portfolio companies succeed
- Option to review private equity deals anonymously
- Free membership to the Angel Capital Association
- Free CAN Accredited Investor membership thanks to our Sponsors

CAN members collaborate on due diligence and mentoring but make individual investment decisions! For more information on the Chemical Angel Network, please visit our website www.chemicalangels.com or contact Sid White at sid.white@chemicalangels.com. We invite you to join this effort by applying at NO COST using the link on the Members webpage on our website.

Click using the link on the members webpage on our website.

The 5th Quarter—Retiring to Something

Originally published in the ACS Industry Matters Newsletter

Mary Virginia Orna, Professor Emerita of Chemistry, College of New Rochelle, New York. Mary Virginia Orna may well be busier in retirement than she was when working full-time. Her story illustrates the great promise of one's retirement years, and how to make the most of that promise.



Mary Virginia Orna, PhD, is Professor Emerita of Chemistry, College of New Rochelle, New York. Her academic specialties are in the areas of color chemistry and archaeological chemistry. She is an ACS Councilor for the Division of the History of Chemistry and has served on numerous ACS committees over the past thirty years.

Her more recent books include *The Chemical History of Color* (2013), *Science History: A Traveler's Guide* (2014), *The Lost Elements: The Periodic Table's Shadow Side* (2015), *Sputnik to Smartphones: A Half-Century of Chemistry Education* (2015), *Carl Auer von Welsbach: Chemist, Inventor, Entrepreneur* (2017), *Chemistry's Role in Food Production and Sustainability: Past and Present* (2019) and *Archaeological Chemistry: A Multidisciplinary Analysis of the Past* (2020).

She is presently preparing a book under contract with the Royal Society of Chemistry, *March of the Pigments*. She has thirteen other authored, co-authored or edited books on chemical education and history of chemistry to her credit. She is also the recipient of numerous chemical education and service awards, the latest being the American Chemical Society 2021 HIST Award "for her original research in the area of color and pigment chemistry."

In 1989, she was designated the New York State Professor of the Year and National Gold Medalist. In 1994 she served as a Fulbright Fellow in Israel. Her hobby is constructing crossword puzzles; she has contributed many of these to the New York Times and to many ACS publications as well. She is a religious of the Ursulines of the Roman Union.

[Read Mary Virginia's Story](#)

How COVID-19 Has Changed My Retirement Plan

by Son N. Nguyen, SCC Member

Son Nguyen is a member of SCC. He was born in Saigon, Vietnam, and won a scholarship to study medicine at the University of Padua in Italy. When the Vietnamese government cancelled his scholarship he immigrated to the USA and studied chemistry at University of Washington and Washington State University. He is employed by Lawrence Livermore National Lab.

COVID-19 will likely have permanent effects on the way we work. However, the ways we live, socialize, and interact with each other will also be changed. This is how COVID-19 has affected my life.

I talked with my family members about my retirement plan when we got together for Christmas 2019. We discussed everything, from healthcare, pension, social security benefits, 401(k) distribution, family trust, power of attorney, beneficiaries, to the volunteer work that I may do after retirement. According to my plan, I would retire in May 2020. Then in summer 2020, I would make a long European trip to visit my professors, friends and colleagues and attend the 75th wedding anniversary of my Italian godparents in Padua. This trip never materialized. Our family also discussed a possible trip to Vietnam in 2022 to visit our relatives and have a 50th year reunion with my high school classmates. This trip is pending on whether travel will be safe.

Before the pandemic, my life was hectic but punctuated by rhythms between my family, work, volunteer and alumni activities. But the COVID-19 has changed our life and upset my retirement plan. It's still us, keeping ourselves busy, but our lifestyle has been overturned.

Retirement plan: I postponed my retirement until things return to normalcy. I hope it will be within 2021.

Changes at work: Since the first week of March 2020, I have telecommuted. My projects are temporarily managed by using teleconferences. Unless social distances can be kept, teleconference may replace the personal meeting from now on. Digital signatures are widely adopted. There are newly-hired employees that I have not met and only talked to on the phone. Desk phones in the offices were removed and replaced with Cisco Jabber telecommunication service.

Changes at home: I could telecommute, but my wife's research work demands her presence in her office. The possibility of my wife getting exposed to the COVID in her workplace is not insignificant, therefore, our family members have kept physical distance when we were together. I have taken on more household chores since I work at home.

Changes in physical appearance: My hair is longer since I haven't had a professional haircut for months, and greyer. I gained some weight due to limited activities and more frequent snacks.

Changes in social interactions: The Vietnamese language school in San José where I volunteered as instructor was temporarily closed by the city's ordinance. I missed seeing those young kids and having weekend lunch with my friends.

I have wondered will my godparents and my friends in Europe still give me a big hug, kisses on the cheeks, or a firm handshake that I have longed for?

Losses: COVID-19 has taken away from us something even more important than freedom, our loved ones. I lost a brother-in-law and two of my dear friends from Italy in January – February 2021. Unfortunately, I couldn't attend their funerals.





How to Embrace the New Norm – and What that May Look Like by Arlene Garrison, Chair of SCC

The Senior Chemists Committee hosted a webinar on March 30 that attracted more than 300 attendees and achieved a 91% satisfaction rate. The Senior Chemists Committee event, "How to Embrace the New Norm and What that May Look Like," was held in place of our usual breakfast during the spring national meeting. Three excellent ACS speakers shared thoughts and answered questions regarding the new norm. Event cohosts were the ACS Webinars team and the ACS Office of Philanthropy.

The speakers approached the topic from differing perspectives. ACS CEO Tom Connelly, ACS Director of Meetings and Operations Robin Preston, and ACS Fellow Frankie-Wood-Black, Principle of Sophic Pursuits and Instructor at Northern Oklahoma College explored how lives will continue to be changed as a result of COVID-19. Communication, education, travel, and meetings will be changed for the better through things that were learned over the previous year.

Robin Preston outlined a number of ways that conventions and meetings will look and operate differently. She anticipates more regional locations/meetings with open air spaces, Hyper-hygiene, cleaning and virus testing protocols in travel venues, and that vaccines will aid in the recovery of the hospitality industry by bringing back confidence for travelers. An online poll of attendees indicated that more than 60% are vaccinated, while less than 10% indicated they are comfortable traveling and have done so already.

Frankie Wood-Black predicts that four things are here to stay: Interdisciplinary Cooperation, Changes to Education including Blended Hybrids of Learning, Work from Anywhere, and How we purchase necessities. An online survey during the event indicated that close to 65% of attendees use a video communication platform daily, with an additional 28% using it weekly.

The webinar recording of the event is available at www.acs.org/seniorchemists. Comments and discussion are invited on the Senior Chemists on the Move section of the ACS Network at [Senior Chemists: How to Embrace the New Norm & Wha... - ACS Community](#).

Notes from the SCC Editors: HELP!

My associate editor, Adriane Ludwick, and I hope that you have enjoyed reading this SCC Newsletter. So that we can continue to publish it, we need articles from our readers—not just from the Senior Chemists' Committee, but from YOU! What should you write about? Well, almost anything that will interest our readers. Do you have interesting hobbies or activities in your retirement? Did these change during the pandemic? How do you keep fit? What lasting difference has the COVID pandemic made to your life? Are you engaged in volunteer work, or perhaps you were before COVID, and plan to go back to it when things return to "Normal"? Tell us about a book you read that you enjoyed, or a movie that you saw. Tell us about interesting trips that you took and would recommend. If you have an idea, but don't know if it would make an interesting article, then contact us and ask, we will help you. We look forward to hearing from you. Please contact us at seniorchemists@acs.org

Lynn Hartshorn and Adriane Ludwick

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Committee Contact Information: SeniorChemists@ACS.org

(*) ACS Fellows

American Chemical Society | 1155 Sixteenth Street, NW | Washington, DC 20036

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