

Newsletter for Senior Chemists

NOVEMBER 2016

Welcome Note from SCC Chair

Welcome back to reading our Senior Chemists Committee (SCC) newsletter. I have some changes to report. A new feature describing ACS International Chapters begins in this issue. We plan to highlight one of the 16 (soon to be 19) international chapters in each of the upcoming newsletters. Thanks to Ray Anderson and Shelli McAlpine for their efforts in getting the series started.



The articles about lesser-known museums and other sites that we began in the last newsletter engendered very positive feedback from readers, and five additional articles are in this issue. Your feedback is encouraged if you have taken one of our suggestions to visit, and we welcome suggestions about other hidden gems.

Herein, you will find an article by our SCC staff liaison Semora Smith describing the initiation of our updated Senior Chemists Group on the ACS Network, which I encourage you to sign up for and try out. It is another avenue in which SCC can engage with and encourage dialog among all ACS senior chemists and indeed all ACS members as well. Thanks to Jim Chao and Semora Smith for implementing this activity.

At our SCC meeting at the ACS National Meeting in Philadelphia we discussed whether to retire the "silver circle" moniker we have been using for years. We wondered whether the newsletter, previously sent from silvercircle@acs.org, would be better recognized and more likely to be opened by our constituency if it were sent from seniorchemists@acs.org. Thinking from SCC members was unanimous that it was time to consolidate. Thus, moving forward, seniorchemists@acs.org will be used for all communications sent, information received, and promotions by SCC.

We thank you for your continuing feedback regarding our SCC newsletter. Your effort to let us know how we are doing, and how we can do better, is appreciated; so keep those comments coming.

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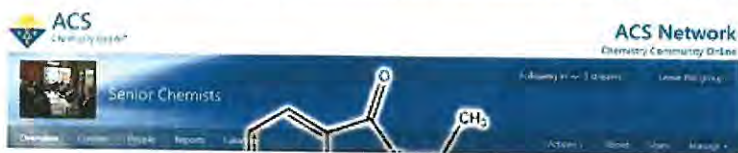
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Dr Thomas Beattie gained his Ph.D. in Physical Organic Chemistry at The University of Wisconsin. His career has been mainly spent working in early stage drug discovery, and he currently consults in the biopharmacy area. He has served on the Senior Chemists Committee (SCC) for several years, and is now the SCC chair. His work on the SCC has included planning the very successful series of Senior Chemists Breakfasts held at National Meetings, and finding speakers for that event. He lives in San Diego and is a member of the San Diego Local Section.



Senior Chemists Group on the ACS Network SHARE YOUR THOUGHTS & JOIN THE CONVERSATIONS

A new Senior Chemists Group has been established on the ACS Network to encourage communication among senior chemists. Members of the group can communicate with their peers, post announcements about upcoming Local Section events for senior chemists, and start discussions and blogs about subjects of interest. Members will also receive information from the Senior Chemists Committee, which includes *The Newsletter for Senior Chemists*, and details for participating in programs in need of your expertise and experience. You may JOIN THE GROUP by selecting the following link that will take you directly to the ACS Network: <https://communities.acs.org/groups/senior-chemists>.

Once you're there, log in with your ACS username and password. Then select the "Browse" button and under that list, select "Groups." It will bring up a listing of all the groups that have been established on the Network. In the filter/search window, type in "Senior Chemists" and the group will come up. You may select the group and then choose to join the group or follow the group. If you experience difficulty with logging in, please let us know by sending a message to seniorchemists@acs.org for assistance.

We hope you will find the group to be a great way to communicate with your senior chemist peers. Remember to SHARE YOUR THOUGHTS and JOIN THE CONVERSATIONS!

Our New Travel Series and Other Articles by Lynn Hartshorn, Editor

The following are five examples of our new series about lesser-known places to visit. They are brief descriptions, but each includes a web site where you can find further information. We encourage you to submit a short article about a museum or other site that you have visited and would like to recommend to other seniors, especially if it is not well known. We also encourage you to submit other articles. We have an on-going series about the many and varied activities of senior chemists after retirement – see "From Chemistry to Art History, Music and Me, and Chemistry is for the Birds." We welcome articles about finding employment, for seniors who want to continue working, and articles about science, famous scientists, and reviews of books about scientific topics.

We encourage you to submit articles about topics noted above, or other topics of interest to Senior Chemists by sending an email to me (LGHARTSHORN@stthomas.edu) and Semora Smith

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The Newsletter for Senior Chemists is published by the American Chemical Society's Division of Membership & Scientific Advancement.



(s_smith@acs.org). We ask that the articles be in the form of Doc. or Doc.X with 500 words or less. We would also like to get photos to accompany articles.

Visiting the Corning Area by Roger Bartholomew, PhD, Fellow of the American Chemical Society

Roger is a Corning Section Councilor and a member of the Senior Chemists Committee (Local Sections Subcommittee chair). He did his PhD at Imperial College, London, in Physical Chemistry. He worked for most of his career at Corning Incorporated, Corning, NY and is a docent at the Corning Museum of Glass.



Depiction of the Periodic Table in the Corning Museum of Glass Innovation Hall Corning, NY was voted in 2013 as the best fun small town in US (<https://youtu.be/EraE9BXGbjY>), which makes it a very good reason to come and check out the city and take in the surrounding countryside. The Finger Lakes with its wineries, many of which are within twenty miles, also provide recreation opportunities. The Curtis Aviation Museum in nearby Hammondsport (on Seneca Lake) is a "must visit" for aviation and motor cycle enthusiasts. Then for the NASCAR fans, Watkins Glen is only a short drive from Corning and is on Keuka Lake. An hour drive away is Ithaca, the home of Cornell University and Ithaca College. Those interested in Mark Twain should check out nearby Elmira. Twain married a local Elmira woman and the studio where he wrote several novels is situated on the grounds of Elmira College.

However, the main reason visitors are attracted to Corning is the Corning Museum of Glass (www.cmog.org), the world's most outstanding museum on the technology, history, and art of glass. For the senior chemist, the Museum's Innovation Hall is a must see. Here, the science and technology of glass is laid out in an easy way to follow. You can learn about fiber optics, how the fiber is made, and its impact on technology. A history is presented on how windows were made in the past and the way they are made today. Also shown is the technology behind the glass used in LDTVs and gorilla glass which can be found in Innovation Hall. The Contemporary Design and Art wing, which opened in March of 2015, showcases the recent work of major artists in the field. Of course, you cannot miss the Gallery depicting the history of glass over the past 4,000 years and the contributions of the Romans and Venetians. A highlight of any visit to the Museum is watching gaffers and their aides using glass blowing tools to produce vessels, bowls, or sculptures as they perform on the stage in the newly opened area. All shows are narrated to give a better understanding of what is happening. If you want to try your hand at working with glass, you should check out the Hot Glass Studio across the parking lot from the main museum. There you can attend a week-long course on various techniques such as lampworking, or glass blowing. Or, you can spend an hour and work on a sand blasting beaker or make a sun catcher. Grandchildren over the age of six love making something out of glass - I know my grandchildren do! Several retired senior chemists, members of the Corning ACS Local Section, are docents at the museum and, if available, would be willing to assist you on your tour. A SPECIAL NOTE: You will need a good half day or more to do justice to the many facets of the museum. To maximize your visit, I suggest you check the web site above before you plan your visit.

When you have had your fill of glass, you can change gears and visit the Rockwell Museum, which is just a short walk over the Centerway Bridge. This museum contains a collection of Western Art, with many examples of Remington's major works plus that of other major western artists. Market Street is full of boutique stores and ethnic restaurants. The street was named one of the 10 Great Streets by the American Planning Association. Centerway, which is just off Market Street, is a good place to relax with a cup of coffee and have an ice cream.

George Eastman House and Museum by Robert Moore

Dr. Moore is a member of the Senior Chemists Committee. He belongs to the Rochester NY Section. He obtained his undergraduate degree in chemistry, with a minor in naval science from the University of Wisconsin-Madison and his PhD from U.W. Madison in physical chemistry. Most of his working life was spent at the Eastman Kodak Company doing research/research management on the physical chemistry of polymers. Now retired, his retirement activities include singing in the Rochester Oratorio Society, the Eastman Rochester Chorus and the Asbury First United Methodist Choir, plus sailing on Lake Ontario. Earlier, he enjoyed many years of downhill skiing.

The George Eastman House and Museum located in Rochester, New York on East Avenue is a unique combination of an elegant mansion and a world famous museum of photography. The mansion houses elegant artifacts of George Eastman's life including an arboretum and a unique organ on which concerts are played weekly. The mansion and the arboretum have floral displays which are changed with the seasons. The

museum contains unique examples of cameras and other photographic equipment, as well as still pictures and motion pictures. Movies are usually shown weekly in the Dryden Theater. The Mansion and Museum are well worth the modest entrance fee! More information is available at the Website: <https://Eastman.org>



The Harley Davidson Museum by Gerry Meyer

E.G. "Gerry" Meyer, born November 2, 1919 in Albuquerque, NM, grew up in a sheep farming family. He attended Carnegie Tech (now Carnegie Mellon U) graduating and joining the ACS in 1940. WWII interrupted his education. After release from the Navy in 1945, he returned home and received his PhD in 1950 at the University of New Mexico. He joined New Mexico Highlands University serving as chemistry department head, graduate dean, and director of the Research Institute. In 1963, Gerry moved to the University of Wyoming (UW) as Professor of Chemistry and Dean of the College of Arts and Sciences. He rose to the rank of Vice President for Research and Graduate Studies and retired in 1990, but has continued to work for UW, the ACS, and for a company he established which uses coal as a raw material to produce chemicals. He remains active in the ACS in both the Wyoming Section and the Rocky Mountain Region, in the Senior Olympics, and in local and state organizations. He continues his great interest in science education.



One of the most unusual and rewarding places to visit is the [Harley Davidson Museum](#) located at 400 W. Canal St. in Milwaukee. The museum sits on a 20-acre campus facing the river. Milwaukee is the home of Harley Davidson, and the company has spared nothing to make the museum a complete and accurate history of motorcycles and motorcycling. There are some 450 bikes starting with #1 and going to the present day. Each change is noted and the technology improvements are apparent in passing through the collection. It is arranged in a temporal manner that makes the improvements all the more impressive. The Archives are open, and

individuals are available to answer questions. In addition there is a complete souvenir shop and a fine restaurant (the Motor). One should plan 2-4 hours for a visit. The museum is open daily, but check with the museum (<http://www.harley-davidson.com>) for the hours (they vary with the season). Admission is \$14 for seniors or military.

A Visit to the Nomatic Corporation Headquarters by James L. Chao

Dr. Chao obtained his BS and MS Chemistry degrees from University of Illinois in Urbana-Champaign and his PhD from University of California - Berkeley in 1980. Most of his working life was spent at IBM Corporation working in the laboratory as a Materials Chemist and later as an Emerging Technology Strategist working on IP licensing and promoting intellectual property business development. He retired in 200 and thereafter, has become involved heavily in the ACS as councilor of the North Carolina Section and serving in the National Committee on Patents and Related Matters, and is also currently on the Senior Chemists Committee.

The North Carolina section had an insider tour of the [Nomatic Corporation's Headquarters](#) Operations Facility in Zebulon, NC in 2015. Nomatic is the world's leading supplier of synthetic closures used with still wines, with more than two billion manufactured each year. They are used for some of the leading premium wines of the world. The product is a perfect example of how chemistry solved a significant problem. There is a diminishing supply of cork from trees, and these closures avoid the need for the cork. An additional benefit is the synthetic closure's built-in immunity against fungus infection, which often occurs with corks and can spoil wine.

The senior chemists were impressed by the patented technology that allows these synthetic closures to be recycled, enables the closures to control the amount of oxygen that permeates into wine so it ages properly, and achieves high quality from the extruded polymeric material. The material is FDA approved to be in contact with food and is easy to use and reinsert. It was interesting to see how they customized things such as trademarks, color, and degree of permeability for these products. Nomatic's products are Green Certified and meet Environmental Sustainability Goals.

The company is relatively young and its headquarters are located in the Research Triangle area of North Carolina. They are happy to provide tours of their facilities at 400 Vintage Park Drive in Zebulon, North Carolina. Visit the company's web site at <http://www.nomacorrc.com/> or email to info@nomacorrc.com.

The REACH Museum in Richland, Washington by James Noyce

Dr. James (Jim) Noyce obtained his BS in chemistry from the University of Tulsa, his MS in nuclear chemistry from Carnegie-Mellon University and a PhD in radiochemistry from the University of Arkansas. He worked for ten years in the Radiochemistry Group at the National Bureau of Standards, now the National Institute of Standards and Technology (NIST), as a research chemist and then for 10 years in support of the Department of Energy's Hanford Site on various projects, and for 10 years as a radiochemistry laboratory supervisor for the Illinois State Department of Nuclear Safety after retirement. Dr. Noyce earned an AA in music with emphases in composition and choral performance. He retired to Pasco, one of the Tri-Cities in SE Washington State, with his wife of 47 years, and is presently a member of the ACS Richland Local Section. This is his first article for the Newsletter.

Although Washington is known as the Evergreen State, much of the non-mountainous area east of the Cascade Mountains is shrub-steppe country, which is drier, warmer, and sunnier than farther west. Where the Columbia, Snake, and Yakima Rivers meet in southeast Washington are the Tri-Cities and The REACH Museum. This museum interprets the Columbia River Reach, the last free flowing, non-tidal part of this majestic river in Washington and a National Monument. The largest gallery has a variety of exhibits and interactive activities about the geology, flora, fauna, Native Americans, and history of the Lower Columbia River Basin. This gallery also explains the long-term efforts required to protect The Reach Museum as a National Monument and gives information for visitors.



The Columbia River Reach is also significant in World War II history because it forms the eastern and northern boundaries of the U.S. Department of Energy's Hanford Site, and provided the cooling water for the nuclear reactors that produced plutonium during that war and the following Cold War. A large gallery presents the history of the Hanford Site during WWII and the science that preceded it. Exhibits include photos, videos of personal histories, historical film clips, and artifacts from the Site, which is a part of the new Manhattan Project National Historical Park.

There are smaller exhibits about the Bonneville Power Authority, Lower Columbia Basin agriculture, and there is a large aquarium containing fish species native to the river. Another gallery has rotating exhibits on a wide variety of topics. There is also an outdoor stage for plays and musicals, and an unusual gift shop. An important emphasis of The Reach Museum is educational activities and field trips, especially for children - www.visitthereach.org will provide you with current activities and events, and all the information needed for a successful and enjoyable visit.

SENIOR CHEMISTS BREAKFAST AT THE PHILADELPHIA ACS NATIONAL MEETING

by Tom Beattie, SCC Chair



Tom Beattie, SCC Chair; Magid Abou-Gharbia; Tom Connelly, Jr., ACS Executive Director & CEO

Image provided by Linda Wang, ACS Publications Division

At our most recent Senior Chemists Committee (SCC) breakfast in Philadelphia, the featured speaker was Magid Abou-Gharbia, who since 2008 has been the Director of the Moulder Center for Drug Discovery Research and Associate Dean for Research in Temple University's School of Pharmacy. This was his second visit to speak at our breakfast. Eight years ago he spoke when he was a Vice President at Wyeth Pharmaceuticals.

This time, he spoke about the challenges of creating new drugs in an academic environment, an endeavor that has become more widespread in university settings. The goal is to facilitate collaborative research efforts to support discovery and development of novel therapeutic agents to improve the health and life of patients. The initial phase of drug discovery relies on an understanding of disease biology in order to identify good drug targets, an activity common in university research labs and is becoming less common in the pharmaceutical industry as drug companies have become more risk averse.

Professor Abou-Gharbia was successful in his 26 years at Wyeth where he helped to create eight marketed drugs, and was a recipient in 2014 of an ACS Heroes of Chemistry Award. He retired from Wyeth in 2008 and immediately moved to Temple University, where he clearly is enjoying a personally satisfying second career in his senior years.

Our next SCC breakfast will be held on Tuesday, April 4, 2017 at the 253rd ACS National Meeting in San Francisco, CA. If you are planning to attend the national meeting, mark your calendar and plan to join us at the SCC breakfast.



Diane Grob Schmidt (ACS Immediate Past President), Susan Butts, Ned Heindel, Adriane Ludwick, and Tom Connelly, Jr. (ACS Executive Director & CEO) - Images provided by Linda Wang, ACS Publications Division

ACS 2016 Legacy Leaders

ACS Legacy leaders Diane Grob Schmidt, Susan Butts, Ned Heindel, and Adrian Ludwick were honored by Tom Beattie, SCC Chair and ACS Executive Director & CEO Tom Connelly, Jr. during the Senior Chemists Breakfast held at the national meeting in Philadelphia.

Congratulations to the Senior Chemists Committee 2016 ChemLuminary Awardees



Allyson Campbell, ACS President-Elect; Tom Beattie, SCC Chair; and Representatives from the Colorado and Detroit Local Sections - Images provided by Peter Cutts Photography

Best Ongoing Senior Activity in a Local Section that Benefits the Community, Local Schools, or Legislative Government – Colorado Local Section hosted the Summer Senior Lunch Program for the past 10 years. During the event, 50- to 60-year members are given certificates and senior members have a chance to meet and socialize with section members.

Most Innovative Activity in a Local Section for Senior Chemists – Detroit Local Section held a Senior Chemists Meeting at the Detroit Institute of Arts. Attendance was filled to capacity and included a tour of the Conservation Labs, networking, and future planning for senior chemists.

Employment Assistance for Senior Chemists by Ray Anderson

Dr. Anderson obtained his undergraduate degree in chemistry from the University of Kansas and his PhD from the University of Wisconsin in organic chemistry. Most of his working life was spent at Gulf Oil, the National Institute for Petroleum and Energy Research and the Idaho National Laboratory doing energy related research. Now retired, his retirement activities include travel, skiing, hiking, volunteering, and grandkids. He and his wife, Virginia, live part-time in Idaho and part-time in Oklahoma.

Editors of the senior chemist newsletter occasionally receive requests from readers regarding aid in finding employment. This article lists various sources available from the ACS, as well as other online sources for those seeking employment. An earlier edition of this newsletter (June 2015) included an article, "Consulting as an Alternative Career Path", by Dr. Alan Cooper.

The American Chemical Society provides a number of employment aids. These can be found online at www.acs.org; type "career services" in the search bar.

ACS Career Consultants: Offers resume reviews, interview tips, career counseling, advice on transitioning jobs, salary negotiations, and job search strategies. It's available for personalized phone or e-mail consultations throughout the year and available live at ACS Career Fairs and virtual events. Individual Career Consultants can be located at www.acs.org: CAREERS tab → Career Services → ACS Personal Career Consultants → Find a Career Consultant → input country, state, specialization and sector.

C&ENJobs: Offers an extensive network of jobs and employment opportunities. Postings are updated daily.

ACS Career Navigator website: Has many online resources to help with resume preparation, interviewing, salary information, event listings, and news articles. This website can be followed by blog, Facebook, LinkedIn, and Twitter.



ACS Career Pathways: An innovative workshop series that enables exploration of the various pathways and opportunities available to chemical scientists and engineers. Courses are available at ACS National Meetings, some Regional Meetings, and through member-only content online.

Career Fair and Workshops: At National Meetings, Regional Meetings, and virtual online.

Other on-line sources are provided below:

- American Institute of Chemical Engineers (aiiche.org). Membership is not required for job listings.
- Chronicle of Higher Education (chroniclevitae.com) Access a comprehensive database of higher education jobs.
- General Job Data Bases - the following data bases claim to be oriented toward seniors; many more can be readily found on the internet:
 - seniorjobbank.org
 - workforce50.com
 - retirementliving.com/jobs-for-seniors
 - employ seniors.com/employment
 - indeed.com
- The same job opportunities are sometimes found on several of the above sites.

From Chemistry to Art History by Adri Mackor

Adri Mackor studied physical organic chemistry at the University of Amsterdam. He taught at the University of Applied Sciences, Utrecht, and for the independent research organization TNO (Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek) in The Hague. More recently he has pursued an interest in Marinus van Reyerswale, a painter from the Netherlands. This article is one of a series describing the varied interests of senior chemists.



When my heart started protesting in 1994 at nearly 60 against my heavy life of research and teaching in chemistry, I had to start thinking about alternative ways to fill my days after my bosses reluctantly let me go in early retirement. There were, and are, many notes about research, mostly in EPR of free iminoxyl radicals, NMR and photocatalytic subjects. But I realized that this also was a unique opportunity, a second chance, to explore another pillar of my life, the love of Netherlandish paintings, from Flemish primitives to 17th century Golden Age.

Over the years, I had become particularly curious about a 16th century painter by the name of Marinus van Reymerswale (ca. 1489- 1546), whose work seemed to be completely absent from my country, The Netherlands.

However, during my many business and private travels I found it in several museums all over the world. In encyclopedias, the description of his life and work formed a confusing mystery to me, and a great challenge for further exploration and investigation. It was clear from the beginning that I had to withstand the request of art historians for technical help in their investigations. I found it to be my interest and duty to investigate what I saw as the basic question: what was the relation between the image and the frequent and extensive inscriptions, which the artist added, and used to specify his intentions. It turned out that in his everyday (genre) paintings, he had used contemporary documents from his hometown of Reymerswale (now drowned by the North Sea). In his images he had been inspired by financial, administrative, and legal matters with which he was apparently familiar. As in my chemical career, I had to apply a combination of disciplines, i.e., art history and archival science, including palaeography. This proved a very useful approach to distinguish his authentic paintings from those of his followers. Thus, a presumed oeuvre of more than 100 paintings was reduced to about 45, including some highly surprising new discoveries.

In the meantime, the world has become more interested in his many versions of Two Tax Collectors, The Tax Collector and His Wife (an early example of emancipation); while his religious works include 19 (!) versions of St. Jerome in His Study; six of The Calling of St. Matthew; and several other subjects, none identical in image and text.

It had been my intention to submit my results for academic scrutiny, leading to a second PhD thesis. However, the persistence of my heart problems and my advancing age (now 81) have reduced my ambitions to the writing of many publications. I have developed a better understanding of the relations between image, text and historic documents.

Now, I am in the process of finishing the lengthy monograph which I always had in mind, and will reflect the many aspects of this study.

“MUSIC AND ME” by James Noyce

How many chemists are very involved with music? I don't know, but I suspect hundreds in the United States and thousands worldwide. Does being left-handed make such involvement more likely? Again, I don't know, but I would like to because I'm a strongly left-handed, retired chemist and musically minded. So both sides of my brain are exercised. My principal passions have been singing for most of my life, with playing piano and viola from grade school until college. I considered majoring in music in college, but chose chemistry partly because my father, who was an organic chemistry professor, was my hero. Listening to music, recorded and live, is a joy to me. However, since retiring from paying work, composing music has become a strong second.

My mother said I physically responded to music in utero, and I've sung as an amateur in too many amateur choirs and choruses to detail here - church, college, and community. Singing in an orchestra chorus is always special, and I have participated in several. As a middle-age adult I took several years of voice lessons to improve my singing, and took several lessons earlier this year. After the first two years of lessons I was invited to join a vocal group without the usually required audition. Two especially memorable experiences were learning two new major works and participating in their world premieres, one of which was at The Lincoln Center in New York City.



In my working adult years as a radiochemist, I composed only two pieces total, both for solo voice and piano, but had no working knowledge of music theory and composition, and I couldn't notate my efforts properly! After retiring in December 2006, I enrolled in the local Columbia Basin Community College as a part-time music student, fulfilling a decades-long desire. Besides the required

courses, I chose all the composition and choral performance classes offered. I graduated with an A.A. degree and high honors in music, and was definitely the oldest member of the 2012 graduating class.

Since re-entering college in 2007 until now, I have composed twenty-some pieces, mostly while a student. I use a keyboard to assist the process. Presently I'm working on a song. I've notated them and my two earlier ones using the professional software Finale. The majority of my compositions are sacred music for choir or solo voice with various accompaniments, mostly piano and organ, but also harp, guitar, hand bells, and flute. I've also written a few songs of a lighter vein. My instrumental compositions include a prelude and a fugue for organ; a suite of eight short pieces in varied genres (waltz, march, tango, cool jazz, etc.) and a few other pieces for piano; two movements (out of four planned) for string quartet; and an atonal vocalize with three instruments. The last is an exception for me because as a singer I want an actual melody in my compositions.

Performances of my music to date have been limited to my church, with my singing the vocal part of non-choir pieces, and during sessions of a summer music camp for adults at Whitman College, Walla Walla, where I participated in the symphonic choir, small singing groups, and various music classes. My latest music education adventure is participation in a songwriting classes at the Grunewald Guild in the Cascade Mountains. I will continue singing in my church choir and the Symphonic Chorus of the local Mid-Columbia Mastersingers. Music will always be a joy in my life.

Chemistry is for the Birds-5 by Dwight Chasar

Dr. Dwight Chasar did his BS in Chemistry at the University of Pittsburgh and his PhD in Organic Chemistry at Case Western Reserve University. Most of his career was spent at BF Goodrich and succeeding companies doing R&D in the synthesis of stabilizers for various polymers and vulcanization accelerators for rubber curing. He now lives in Sagamore Hills, Ohio and is a member of the Cleveland Local Section. He is an enthusiastic bird watcher and this is the fifth in a series of articles that he has written about "Chemistry and Birds". He also makes presentations on this subject to ACS local sections.

In part 4 of this series, I wrote about the effects of organohalogen compounds on birds and their eggs, which were not necessarily very favorable chemistry for the birds. Now, I would like to bring your attention to some recently discovered chemicals that play very important positive roles in the lives of some birds.

Many readers will be somewhat familiar with dimethyl sulfide (DMS). If you have never smelled it, you probably can imagine what it does smell like since it is a low molecular weight sulfide related to hydrogen sulfide, which has the odor of rotten eggs. While most birds possess a very poor sense of smell, seabirds like petrels and albatrosses have an excellent sense of smell. These birds have to navigate over a relatively featureless ocean. During nesting season, they need to find their way back to their nesting islands, after foraging over large expanses of ocean. It has now been demonstrated [Biology Letters (2005) 1: 303-305] with Antarctic prions that these birds navigate by smell, using the odor of DMS that is emitted by phytoplankton. Phytoplankton can reflect bathymetric features such as shelf breaks and seamounts in an otherwise featureless ocean landscape. Naturally, the concentration of DMS needs to be great enough for the birds to detect and this may explain why these birds typically fly only a few meters above the water surface.



Using a different approach, the green wood hoopoes of Kenya, when disturbed in their roosting cavities, will turn their tails toward the threat and excrete a smelly concoction from their uropygial glands. One of the major components is DMS [Journal of Chemical Ecology (2004) 30:1603] and the odor persists on any surface it touches. It sounds like the skunk of the bird world.

It is generally accepted that the turkey vulture has a very keen sense of smell and in fact, finds decaying carrion (yummy) by smelling the odor of ethyl mercaptan ($\text{CH}_3\text{CH}_2\text{SH}$) produced from decaying flesh. It has been reported that these vultures can detect parts per trillion levels. So sensitive is the bird's ability that gas pipeline companies use the birds to detect pipeline leaks because the companies add this mercaptan to the gas line.

During courtship crested auklets, colonial seabirds of Alaskan waters, rub prospective mates using special neck feathers that emit a citrus smelling secretion. Humans can detect this citrus odor from a substantial distance. The purpose of the odorant appears to be as a repellent for ticks and mosquitoes, so a prospective mate that produces more of this secretion would be more advantageous as a mate. Recent analysis [Naturwissenschaften (2008) 95:45-53] of this odorant reveals that it is a mixture primarily of various even-

numbered alkyl and alkenyl 6-12 carbon aldehydes; some of the longer ones can be cis-unsaturated between either the 4-5 or 6-7 carbons.

It has been known for some time that poison dart frogs contain a neurotoxic steroidal alkaloid on their skin as a protective measure against predators. In 1992 (*Science* **258**, 799) and then more recently in 2000 (*Proc. Natl. Aca. Sci. USA* **97**, 12970), it was reported that two genera of New Guinea birds, *Pitohui* and *Ifrita*, respectively, contain a very similar batractotoxin mix on their feathers. Handling these birds can cause a burning sensation and then licking one's fingers can cause the mouth to tingle. High Performance Liquid Chromatography-Mass Spectrometry (HPLC/MS) of methanol extracts of the feathers revealed a mixture of complex alkaloids, the structures of which are shown in the Proceedings of the Natural Academy of Sciences reference quoted above. Data obtained from both the frog and bird studies point to dietary sources of the toxins.

From the very simple to the very complex, birds can take advantage of chemistry in their daily lives.

The International Chapters of ACS by Shelli McAlpine

This article is the first in a series about the international chapters of ACS. In future Newsletters, we will publish articles about specific international chapters and what they do. This introductory article was written by Shelli McAlpine, the chair of the Australian chapter. Dr. McAlpine did her BS in Chemistry at the University of Illinois and a PhD in organic Chemistry at the University of California Los Angeles. She did a post-doc at Harvard University. She spent the first 10 years of her career at San Diego State University, and has spent six years at the University of New South Wales in Sydney Australia. Her research centers around developing anticancer agents, with a major focus on developing small molecule inhibitors of heat shock proteins. She is the chair of the ACS Australian chapter.

The article was edited by Dr. Ellene Contis, Chair of the ACS International Activities Committee.

The ACS International Activities Committee (IAC) supports the initiation and development of ACS International Chemical Sciences Chapters around the world. Currently, there are 16 chapters approved by the ACS, an increase from just six in 2014. These are: Australia, Brazil, Hong Kong, Hungary, India, Malaysia, Nigeria, Peru, Romania, Saudi Arabia, Shanghai, South Africa, South Korea, Taiwan, Thailand, and United Arab Emirates. Three more international chapter applications were approved by the ACS Council at the national meeting in Philadelphia in August 2016, and will be presented at the ACS Board meeting for final approval within the next six months.



The IAC has three Subcommittees: I - Africa and the Americas, II - Europe and the Middle East, and III - Asia and the Pacific Basin. Subcommittee I supports and reviews the activities of the International Chapters in Brazil, Nigeria, Peru, and South Africa. Subcommittee II supports and reviews the activities of the International Chapters in Hungary, Romania, Saudi Arabia (our oldest chapter), and the United Arab Emirates. Subcommittee III supports and reviews activities of the International Chapters in Australia, Hong Kong, India, Malaysia, Shanghai, South Korea, Taiwan, and Thailand.

To form a chapter in any country, the process requires at least 25 ACS members that live in the country or a region within that country to sign a petition indicating their willingness to be part of the chapter. These members should then identify a chair, treasurer, and secretary for the chapter, and draft chapter by-laws. The application package along with supporting information regarding interest and support by the community is submitted to the ACS Office of International Activities, and forwarded to the appropriate IAC Subcommittee for review and approval thereafter prior to presenting the application to the entire IAC Executive Committee. The IAC votes on each chapter based on the recommendations and comments from the subcommittees. Approval of a chapter by the IAC allows them to present the new chapter to the ACS Council for approval. Once the Council approves the chapter application it is then forwarded to the ACS Board for a final decision.

ACS members who are located in a particular country or region in the country where there is an approved International Chapter are automatically assigned as members of the Chapter. The Chapter Executive Committee, which typically consists of the chair, treasurer, and secretary, has direct access to the members within that region and can engage them in ACS related events. Each chapter size varies, for example, the Australia chapter had 100 signatures sign the petition, and it has approximately 900 members that belong to the chapter.

There is not a single approach to running or maintaining the chapters. Each chapter plans its own activities, and provides an annual report on their activities. Many chapters hold local events with partial funding from ACS. The ACS Office of International Activities (OIA) provides an email address for the chapter, a website, and support for chapter activities. The OIA has held two "Chapter Summits", where chairs of each chapter were brought together to meet each other and share their experiences. These invaluable summits have allowed chapters to collaborate on joint events. At the last Chapter Summit held during the PacifiChem meeting in Hawaii in December 2015, the international chapters in the Asia Pacific basin discussed having a conference that will involve all the chapters in this region. The joint conference is scheduled for November 2017, with the venue being in Jeju, South Korea, targeting 200 people from around the Asia and Pacific Basin.

We anticipate that through the Office of International Activities and the International Activities Committee, and with the support of ACS, the international chapters will continue to grow in strength, diversity, and number, which will ultimately increase the membership and influence of ACS around the world.

ACS SENIOR CHEMISTS COMMITTEE

The Senior Chemists Committee was established in January 2013 as a Joint Board-Council Committee and consists of 16 members and seven associate members. The Committee serves two constituencies within the ACS: (1) seniors who are still active either as full time or part time employees and consultants, or those who wish to stay closely connected to the ACS and its spectrum of activities; and (2) younger members and students who have questions about a chemistry-based career or who have started careers and are looking for guidance in how to progress.

SCC VISION

Improving lives using the knowledge and experience of senior chemists

SCC MISSION

Address and support the needs and ambitions of senior chemists and to utilize their experience and knowledge

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