

THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

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Making HERstory: Women in STEM, April 5
Gina Malczewski, Director, Midland Section ACS



MUSEUM OF CULTURAL & NATURAL HISTORY

CENTRAL MICHIGAN UNIVERSITY

FREE VIRTUAL PROGRAM

Making HERstory: Women in STEM



Learn about female scientists like late-blooming Rachel Holloway Lloyd, rulebreaker Marie Curie, Mildred Cohn and Gerty Cori (both fought gender AND religious prejudice) and contemporary inventors like Paula Hammond. Discuss characteristics of these successful women, barriers women in science continue to face and how we can encourage diversity within STEM fields!

WHEN: April 5th @ 1pm

HOW: Register to receive ZOOM link

Register here: <https://forms.office.com/r/w6t08MTzit>



ACS
Chemistry for Life®

AMERICAN CHEMICAL SOCIETY

MSU St. Andrews Family Astronomy Night, April 6
Clare Light, Project/Event Coordinator, MSU St. Andrews

FREE Family Astronomy Night, Wednesday, April 6, 2022, 7:00 PM – 8:30 PM



Stars: Wonders of the Night

At night, under a dark sky, we can see thousands of stars. How many can we see? And how many are there? Some are much brighter than others. Why is that? And what can we do with that information? Many stars have names—some more than one. Where do those star names come from? Who named them, and when? Some stars seem to have color. Why is this, and what does it tell us? Stars move as a group and individually. Who first discovered that the stars actually move? And how was it done? How far away are the stars? Which one is closest to us? Which is furthest? What are stars made of? One more extremely important question: how do stars produce so much energy? And what data do we have to show this? Finally, which of them are making their best appearances this month, and where are the planets traveling among them? Join us by Zoom to learn more!

We will describe how humanity learned what we know about stars: observations by eye, by telescope, and studies using mathematics and experiment. Along the way, we will provide answers to all the questions raised above. Finally—are you ready to learn about the most distant stars? For our monthly technology update, we will focus on the furthest star we have ever found—a star whose discovery was announced just this week!

And, as always, we will show you how to find many fun things in the sky this month. Have you noticed that the constellation of Orion is now lying face-down in the west? Did you know that mighty Hydra, the largest and longest of all constellations, is now completely visible in the south? Or that Cancer, Leo, and Virgo (the largest constellation in the zodiac) are now well-suited for viewing? Were you aware that, near the end of this month, all five naked-eye planets will be visible in a single night? We will help you see all of these things for yourself.

Free event! Please register below to receive the Zoom login. You may register up to the presentation start time or even during the meeting to join us. https://msu.zoom.us/webinar/register/WN_QdNi0Oz6QUaTi13hKfVwIA

Time allowed for live Q & A throughout the event. ASL Interpretation featured during the event.

Earth Action Expo: Beyond Bugs, April 24
Gina Malczewski, Director, Midland Section ACS



Come for the insects and stay for the information! While this year's CCEW (Chemists Celebrate Earth Week) theme – “The Buzz about Bugs: Insect Chemistry” – will be featured at a number of our Expo exhibits on April 24, the event in Midland at **Dow High School 12 PM – 4 PM** will also address many other topics related to energy, wildlife, and the environment. Besides Midland ACS, our sponsors include Midland Center for the Arts, Midland Recyclers, Michigan State University at St. Andrews, and the Dow High Go Green Club. Over 30 organizations and businesses (so far) will offer information, activities, and products—**admission is free.**

Submissions to our **K-12 Illustrated Poem Contest** will be on display, and a caricaturist will be present. Do some science on the SVSU STEM bus, make your own bug at the Marshall Fredericks Museum table,

or race with beetle larvae at “The Mealworm Hub.” At the ACS booth we will do tie dye and pH testing with ground-up bugs, and give away a few (some edible, some not). The ACS H2OQ group will also be there to show how water quality is assessed. Ride an e-bike, learn about climate change legislation, and become familiar with local birds. Check out our Facebook event for more information and join us...we hope to have a Tesla available, too!

Stay tuned also for more earth-friendly programs... a tour of the hydroponics area at the Arnold Center, volunteer opportunities at the Recycling Center, and speakers on topics like pollinators and bugs as food. Visit also our website at www.midlandacs.org for upcoming events.



A Monarch
butterfly.
Photo by Gina
Malczewski.

ACS Spring Awards Recognition Dinner – RSVP Deadline, April 25
Diana Deese, Awards Committee Chair, Midland Section ACS

ACS Recognition Dinner

Wednesday, May 4th, 2022, 5:30 PM to 9:00 PM
Great Hall Banquet & Convention Center at Valley Plaza Resort
5121 Bay City Road, Midland, Michigan

Program

5:30 PM – Cash Bar and Social Time
6:00 PM – Dinner
6:45 PM – Featured Speaker
7:15 PM – Awards Presentations

Educators, students, ACS members, volunteers, industry colleagues, and 50-, 60-, 70-year ACS members/retirees will be recognized for their outstanding achievements at this 31st annual event. Our special guest speaker will be Wayde Konze (photo at right), Ph.D., Senior R&D Director with Analytical Sciences at Dow, who will entertain us with a presentation titled *“The Use of Basic Statistics: Don’t Believe Everything You Read.”*



Mark your calendar and join us in support of our award recipients, to connect with colleagues, or just to mingle with a diverse group of people passionate about chemistry and the related sciences! Oh, and did I mention, it is May the 4th? The force is with us...and possibly a few “others.” The cost of the dinner is \$20.00 per person and includes a plated chicken dinner, dessert, and beverage. A pre-dinner cash bar will be available. Your dinner reservation request must be received by April 25, 2022.

Payment options will be via the ACS Midland Section website www.midlandacs.org and using the SignUpGenius button to RSVP (to conveniently pay ahead of time), at the door the evening of the event, or by mail using the address indicated below. Dress is business casual. This event is sponsored by the Midland Section of the American Chemical Society. For further information, contact Diana Deese at (989) 636-9915.

To reserve your spot by mail, return this form with payment (\$20.00/person) by **April 25, 2022**, to Diana Deese, The Dow Chemical Company, 1897 Building, E-bay East: E65, Midland, MI 48667, or RSVP via e-mail to dkdeese@dow.com. If paying at the door, you must still RSVP to Diana by April 25.

Name(s): _____

Affiliation: _____

Address: _____

Phone/Email: _____

ACS member? Yes / No (indicate by circling your member status)

Dietary Considerations: _____

Enclose payment of \$20.00 per person. Checks should be made payable to “Midland Section ACS.”

H2OQ Goes Full Scale at Midland Public Schools

Sandra Masters for H2OQ Program

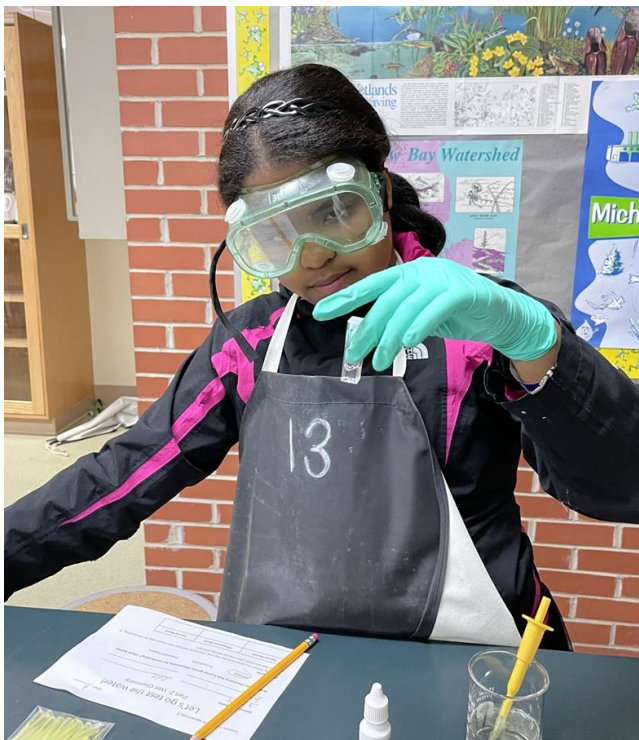
Seventh grade students at both Northeast Middle School and Jefferson Middle School had the unique opportunity to conduct water quality chemistry testing in our local community this past fall. Through a partnership with Central Michigan University's "H2O Q in the Classroom," the Midland section of the American Chemical Society, and the Chippewa Nature Center, students were educated about the importance of water quality and were trained to administer six different measures of water quality to analyze the health of surface waters in the Midland community. H2OQ's water quality backpack tests pH, conductivity, dissolved oxygen, phosphate, and nitrate. The students' data will be stored on a citizen science data map along with data from students at other schools across the state who are also testing water quality in their communities.

Finally, with the help of local partners, Midland students implemented a stewardship project with the goal of maintaining or improving the health of Kiwassee Lake in Stratford Woods Park. This program gives the students an opportunity to experience field chemistry and grow interest in the importance of water quality.

Portions of this article appeared in the November 15, 2021, Volume 9 - Edition 16 MPS Communique written by Jennifer Lenon.

Students at work on the H2OQ program; photos submitted by Sandra Masters.





Smelly Buckets

Mark Jones, Director and 2020 Chair, Midland Section ACS

The buckets still smell like vinegar. The buckets we use to collect maple sap every spring still smell. They've been washed repeatedly and used for years, yet they still retain the distinctive odor of acetic acid.

Maple syrup production is largely my wife's activity. Maple syrup production gives Erin a chance to dust off her chemistry expertise. She, too, is a PhD chemist. She carefully tracks temperature and sugar concentration as she completes the boil-down. It takes about 40 gallons of sap to get a gallon of syrup. Buckets store the gallons and gallons of sap syrup making requires.



Going to the local home center and purchasing an orange, blue, or green bucket isn't prudent. The HDPE pails sold there aren't approved for food contact. Skeptics will no doubt question whether a food contact-approved bucket and a utility bucket are different, other than in the higher cost for food grade.

For years, I purchased used buckets from a local bakery. They smelled of chocolate or strawberry, smells they would hold for years. Yard use turned them chalky and brittle, faring far worse than a home center bucket. No doubt antioxidants, flame retardants, and UV stabilizers present in the home center buckets are withheld from those intended for food contact.

Our sap buckets are used pickle buckets from a local sub shop. Freshly used pickle buckets smelling of acetic acid is not surprising. The human nose is sensitive to acetic acid in the [low part-per-million range](#). The lingering smell after repeated washings with soapy water and years of use is more of a surprise. It also raises questions about recycling.

I encountered our stinky buckets soon after reading a recent International Pollutants Elimination Network (IPEN) report with the ominous title "[How Plastics Poison the Circular Economy](#)". The ominous title accurately reflects the ominous conclusions it contains. It addresses consumer goods, not food-grade materials contact. The report concludes plastic additives, such as flame retardants, antioxidants, and [PFAS](#), are getting into recycle streams. They are ending up in products where they don't belong, imperiling users.



There are several versions of the [waste reduction hierarchy](#). Buying used buckets saved me money while allowing me to feel virtuous. Using an item again and again for the same use—reuse—is more virtuous than recycling. Recycling describes when the item is remanufactured from the same material. I favor a distinction between recycling, where the material is returned to the same use, and downcycling, where collected material is remanufactured into something else of lower value. Turning milk jugs into park benches, just as an example, would be downcycling. Making milk jugs from used milk jugs after reprocessing is recycling.

Returning polymers to the same use in food contact applications is a particular challenge, exemplified by my smelly buckets. I know there is contamination. I can smell it. Acetic acid is smelly, but not particularly harmful. The worry is dangerous and odorless compounds, and there are many.

Many are working to let food contact polymers be recycled back to food contact applications, but I remain uneasy. I can't help but worry about plastics used with pesticides and other toxic materials being mixed into plastic used for food contact. Encountering acetic acid smells in the sap buckets reinforces my concerns about mechanical recycling for food contact, for packaging things I'm going to eat. The IPEN report extends that concern to things that don't touch food, but that I could touch.

About a year ago, the [FDA revised its guidelines](#) for inclusion of recycled content in food contact. The FDA is responsible for establishing acceptable levels of things that can be in food, and stuff that touches food. The FDA determines how much [rodent filth, mammalian excreta, and insect larvae](#) can be in food. I'm happy they're looking, a bit unhappy the answer they come up with isn't zero. The FDA levels reflect that zero isn't practical for rodent filth and mammalian excreta. It's come to the same conclusion for contaminants in recycled plastic. Zero isn't a realistic option in the eyes of the FDA. Levels are set where there is unlikely to be harm. The FDA plays the odds. The smell of the sap buckets is troubling, yet the syrup comes out great with nary a whiff of vinegar. Uneasy as I am, playing the odds on food contact has worked out OK in my household's syrup production.

The quest for ever and ever higher levels of recycled content is putting recycled material into more and more things. Testing for all detrimental additives or contaminants is hard, bordering on impossible, as the IPEN report details. There are so many possibilities. As we play the odds, we have to hope the odds are in our favor.



Sucker Punched and Snapping Back: Surviving the Challenge of Unexpected Career Changes *Diana Deese, Awards Committee Chair, Midland Section ACS*

Editor's note: This article is reprinted, in part, from the March 31, 2022, issue of the online *ACS Industry Matters* newsletter, a publication of the American Chemical Society.

Diana K. Deese shares a deeply personal story about a forced job change



Currently working at Dow, Diana Deese's degree in electrical engineering technology, from Michigan Technological University, has provided the basis for a chemistry career that has spanned 35 years in research and development/analytical sciences. Her occupational adventures have included secret government projects, military initiatives, advancing silicon carbide wafering technologies, and the charged world of interlayer dielectrics for the electronic industry. She has experienced many changes, most planned and anticipated ... save one. Her life experiences have allowed her to travel and immerse herself in several diverse cultures, the learnings of which strengthens her everyday interactions. That, and her saucy sense of humor.

Among the multitude of awards Diana has received are the 2014 ACS National Chemical Technician Award, the U.S. Army Artillery Order of Molly Pitcher Medal, and Girl Scouts of the USA

"Thanks" badge. She has several patents and trade secret processes to her name.

Diana spends lots of her free time passionately volunteering. This is her thirteenth year as chair of the ACS Midland Section Awards Committee and tenth as an ACS Science Coach. She is also actively involved with the Girl Scouts and the Mid-Michigan Technician Group.

Diana will tell you her greatest achievement is her daughter, Emily, her travel and adventure buddy. When they are not scheming together, Diana enjoys photography, genealogy, gardening, and soaking up all the useless trivia she can find. The sum of these activities keeps her from having her house overrun by her weakness—cats.

People resist change ... but change is inevitable.

When we were young, everything was new. Everything was change. We were learning through our choices and resulting experiences. Sometimes those choices were wise, sometimes not. We changed clothing styles, music, peers, food preferences. We couldn't wait to be 16 and drive, 18 and vote, 21 and drink, go to college, be out on our own, and freed from the governance of our parents. We were fearless, resilient, and optimistic. They were our choices and we evaluated and adjusted them to make them comfortable and personal ... and we eagerly embraced that exciting change. It was foreseeable, planned, controllable, and for the most part, anticipated and positive. When change presents itself in this way, or in small imperceptible increments, coping teaches us resilience.

Then we got older. With our job, debts, marriage, kids, and house came responsibilities, obligations, commitments, routine, and habits. We traded in our wings for roots, sought stability, and our attitude toward change became “improvise, adapt, overcome.” Maybe we started to realize our own mortality and, by not changing, we thought we could stop time and avoid the inevitable ... but still embrace change that was in our best interest.

Based on its severity, disruptive change results in personal perspectives that may seem irrational but makes perfect sense to the individual. Since these individuals are not involved in the decision-making process, they take it as deeply personal criticism and suffer the snide remarks of friends and family. They feel pushed, blindfolded, off a cliff into raging waters.

Some top changes that cause stress:

- Death of loved ones
- Divorce/legal issues
- Job loss
- Marriage
- New home
- Chronic illness
- Birth
- Poor work/life balance
- Emotional problems (depression, anxiety, anger, grief, guilt)
- Increased financial obligations

I thought 2012 was going well, as the annual review I received from my immediate supervisor was above average and I was recommended for a promotion. But there was an uneasy feeling within the corporation and, two weeks later, I was “downsized.” HR stated the reason: I negotiated my salary too well; I was on the old medical/retirement plan. I was part of the successful, but aging, workforce being forced out ... giving way to younger, cheaper employees in the name of progress. It became my year from hell. From that list of 10, I experienced 8, some twice over ... with the last two being caused by the loss of my job, which also broke my spirit. I had done everything right but after 18 years ... poof ... gone. It was unforeseen, not “my fault,” and out of my control.

I was angry and defensive! I jumped right into interviewing the next week. A bad plan, as I walked out knowing that chip on my shoulder was clearly visible.

There are five stages of grief: denial, anger, bargaining, depression, acceptance. Daily, I dealt with these thoughts:

- loss of control, dignity, self-worth
- feeling helpless, defeated, scared
- questioning my competence
- lack of pride in work accomplishments - completely gone, my confidence shattered
- isolation, no one understanding what I am going through

I needed to give myself time to grieve my old life and set up plans for how to build a new one. I had to do this with grace, as my daughter was watching ... this would be an important lesson for her, by my example, in how to handle adversity. I realized that who I am was not defined by my employer or my job title, that friends I had made through work may be gone. I had to push aside panic and face adversity with dignity and resilience to emerge stronger

Forbes' List for the Newly Unemployed:

- stay future focused (no woulda-shoulda-coulda)
- do not let your job status define you (stay positive and confident)
- prioritize self-care (no regrets, no guilt)
- surround yourself with positive people (emotions are contagious)
- tap into your network (your network is your net worth ... build/invest in it before you need it)
- treat finding a job as your new job (keep a routine, save the end of the day for revitalizing with family and friends)
- extend kindness (do not wallow in self-pity)

During this demoralizing type of change, you must believe in you. How you manage change defines your success. "I can't" must become "I can."

I started making lists to regain control. I listed the people in my network who I could reach out to, places I was qualified to work, how to apply for a job in the virtual world, evaluated what was important to me, what I could sell or do in the meantime to generate income. Getting organized and making a plan was cathartic. Keeping a "work" schedule everyday kept me motivated and fought off depression. My job was to find a job. The only advice the employment agency gave me: "cut your hair." I have had long hair forever and I haven't changed my hairstyle in – well, never. With all the other change I was experiencing, this was my stake in the mud ... I was not changing my hair. A small thing, but it was mine to control.

I was unemployed for 18 weeks. Allowing four weeks to put my feelings into perspective, cleaning my house like a fiend with my angry energy, making/following a plan, my diligence paid off and I took a contracting job at a 60% pay decrease from what had earned previously. Continuing to work my network, I parlayed it into a full-time position – but it took two years.

We need change and change is inevitable. The sooner you adapt (a testament to your flexibility), the more productive you will be. What I learned is to listen to my intuition and follow my instincts. Keep busy, remain persistent, stay focused on my positive attributes, and be proactive. Organize, plan, prioritize, execute ... repeat as necessary. My current job is less stressful, more enjoyable, more diversified, I'm appreciated, and I have more opportunity for personal growth.

Honestly, the ghosts of past resentments can still creep in and haunt me, but I survived walking through hell to get here ... and I am better for it.

Viktor E. Frankl said, "Everything can be taken from a man or a woman but one thing: the last of human freedoms to choose one's attitude in any given set of circumstances..."

Embrace the ride. It all starts with your attitude.

2022 Central Regional Meeting of the American Chemical Society, June 7–10

Vickie Langer, Co-Editor, The Midland Chemist

Editor's note: This article is reprinted, in part, from the January 27, 2022, issue of the online *ACS Industry Matters* newsletter, a publication of the American Chemical Society.

The Huron Valley Local Section is hosting the 2022 Central Regional Meeting of the American Chemical Society, June 7-10, 2022. This four-day event will take place at Eastern Michigan University's Student Center.

ACS Regional Meetings feature technical programming to help you stay up to date on the latest research and keep you connected with chemists in your region.

Registration opened March 21, 2022. Visit the meeting website to find a list of the programming divisions and planned symposia open for submissions: [2022 Central Regional Meeting](#).



MSU St. Andrews Announces 2022 Turner Alfrey Visiting Professor, June 14

Clare Light, Project/Event Coordinator, MSU St. Andrews

Dr. Christopher K. Ober (photo at right), Francis Norwood Bard Professor of Materials Engineering of the Department of Chemistry & Chemical Biology at Cornell University has been named the 2022 Turner Alfrey Visiting Professor. He will be in Midland on Tuesday, June 14, 2022. A hybrid format event is being planned. Dr. Ober will speak in-person at MSU St. Andrews, in Midland, and attendees will also be able to join his lecture via a Zoom webinar link.

Save the date. More details to follow. For more information about Chris Ober, please see <https://chemistry.cornell.edu/christopher-k-ober>.

For more information about his visit to Midland on June 14, please contact Clare Light at lightcla@msu.edu.



Orange Flames

Mark Jones, Director and 2020 Chair, Midland Section ACS

Editor's note: A version of this article originally appeared in *Newsprints* in the March 6, 2022, issue of *Chemical & Engineering News*, a publication of the American Chemical Society.

Kerri Jansen contacted me with questions concerning her gas stove's flames going orange. Her observation served as the catalyst for a short piece in C&EN. Orange flames can be an indication of a malfunction in the stove, an indication of incomplete combustion. It can be very dangerous. Kerri, however, linked it to the operation of an ultrasonic humidifier. Her question was why did a humidifier make her stove burn orange and was it cause for concern?

I initially assumed it was salt in the water and did some testing. My assumption was that the ultrasonic humidifier was creating a mist rather than a vapor. My guess was that it was making small droplets that contain whatever the water contained. Sodium and calcium both have orange atomic emissions, both are common in municipal tap water. My hunch was the flame is sufficiently hot to promote electrons in sodium and calcium in any droplets from the humidifier that found their way into the flame. When those electrons relax, they emit the characteristic atomic emission of those elements, both orange.



I don't have an ultrasonic humidifier. I do have spray bottles. I filled one with store purchased distilled water, one with Midland tap water. Spraying either into my stove flames both produced orange coloration. Spraying into a butane torch also turned the flames orange for both. I went on to try placing a spoon with water in it in my stove's flames. As the water starts to boil and sputter, the flames go orange. Both distilled and tap water colored the flames orange. I was really scratching my head trying to determine why I was getting some orange color even with distilled water. I purchased several containers from different vendors, but had no way of testing whether the distilled water was pure. All the distilled waters colored the flame tips orange. Adding extra salt made the flames brighter orange, signaling the atomic emission was part of the reason. But there was clearly something else, too.

There is some literature on pure water coloring flames, with some theorizing that the expansion of the droplet as it vaporizes creates turbulence and oxygen deprivation. Those can lead to some coloration of the flame due to soot production. These are seen in water sprays for firefighting. There is an extensive discussion of the phenomenon on physics.stackexchange.com. At least I was not alone in noting orange when distilled water was introduced into flames.

Kerri definitively proved it was atomic emission from the salty Washington, D.C. water with her stove and humidifier. The orange flames were clearly correlated with operation of the humidifier. Operation on distilled water gave normal flames. Going back to tap water gave orange flames. Back to distilled and the flames were normal again. Adding salt to the distilled water rapidly returned the flames to orange. Kerri even did some rough calorimetry, measuring the time it took to boil the same volume of water on a stove with the humidifier on, the flame was orange, and with the humidifier off. The time was the same indicating the stove performance was not impacted. The orange flame did not indicate degraded stove performance.

Safety is certainly a worry, one only briefly mentioned in the article. Orange flames can be a sign of poor combustion potentially accompanied by carbon monoxide production. Ultrasonic humidifiers do not create poor combustion, but they can create orange flames. Testing to ensure any orange flames are correlated with humidifier operation is prudent. Salt-containing aerosols are produced by ultrasonic humidifiers that can reach a stove and produce atomic emission from salts present in the droplets. Ultrasonic humidifiers produce respirable droplets. All indications are aerosolized sodium and calcium chloride are benign. That is certainly not true for all salts. Transition metal salts or oxoanions could be health risks if placed in the ultrasonic humidifier in an unconceived effort to color flames. It is dangerous to add compounds to an ultrasonic humidifier. They will be breathed. It should not be done.



ACS Division of the History of Chemistry Centennial

Carmen Giunta, Editor, Bulletin for the History of Chemistry

The Division of the History of Chemistry of the American Chemical Society (HIST) is 100 years old in 2022, and we have a present for you!

HIST is the home within ACS for chemists interested in the history of their discipline. Among our activities are publication of a peer-reviewed journal in the history of chemistry, the *Bulletin for the History of Chemistry*, and holding symposia on historical topics at national and regional meetings of the ACS. Both activities involve chemists and historians from around the world. All members and affiliates of HIST receive two issues of the *Bulletin* each year as part of their membership – hard copies delivered by mail as well as electronic access.



In this 100th anniversary year, we have prepared an extra issue of the *Bulletin*, available electronically to anyone (open access). Prominent chemist historians and historians of chemistry were invited to contribute essays on the theme “Novel Insights in the History of Chemistry: Looking Back Yet Mostly Looking Forward.” This theme led to a wide variety of responses, which we have collected together into the following six topics:

- Expansive Approaches to the History of Chemistry
- Foci on Specific Topics
- Multidisciplinary Approaches and Tools
- Thriving, Inclusivity, Diversity, and Equity and the History of Chemistry

- Relationships of Historians and Chemist Historians
- The Past, Present, and Future of the History of Chemistry

We invite you to peruse this commemorative issue online at:

http://acshist.scs.illinois.edu/bulletin_open_access/bull22-vol47-1.php

While you are there, check out 30 years of open-access issues of the *Bulletin of the History of Chemistry*, which are free to all after a three-year window of access exclusively by HIST members and subscribers:

http://acshist.scs.illinois.edu/bulletin_open_access/bull-index.php

Finally, consider joining HIST as a member or affiliate. More information about HIST is available at:

<http://acshist.scs.illinois.edu/index.php>

and a membership form can be found at:

[http://acshist.scs.illinois.edu/HIST%20Brochure\(ACS\)rv2020.pdf](http://acshist.scs.illinois.edu/HIST%20Brochure(ACS)rv2020.pdf)

Please Consider the Midland ACS Scholarship Fund in Your 2022 Giving!

Gina Malczewski, Director and Scholarship Committee, Midland Section ACS

Last year in May, **Dr. Wendell and Marcia Dilling** (photo at right) issued a challenge relative to growing the Midland ACS Scholarship Fund. **Few have responded to that call so far, and the fund today currently stands at just over \$72,000.** Please read more below about the history and purpose of this fund. Past scholarship recipients are often highlighted in issues of the *Midland Chemist*.



The Midland Section ACS has been proud to offer scholarships to deserving undergraduate students majoring in a chemical science since 2002. Annually, two to four scholarships are awarded to candidates who have graduated from a high school in one of the Section's five counties (Bay, Midland, Saginaw, Isabella, and Gratiot), are studying at a Michigan university, and are ideally intending to pursue a career in some aspect of chemistry or chemical engineering. Selections are made by a committee and are based on academics, service and extracurricular contributions, and an essay on the student's sources of motivation as well as future plans.

Awards usually range from \$1,000-2,000, depending on the financial performance of the Midland ACS Scholarship Fund (#399) administered through the Midland Area Community Foundation. A long-standing goal of the Section has been to raise the base amount to \$100,000 to serve more students.

Wendell and Marcia Dilling, both trained chemists and stalwart supporters of our Local Section, are prepared to help us reach that goal by donating up to \$18,000 as part of a Challenge Grant to the Scholarship Fund, which

currently stands at \$72,100. **They will match 1:1 any new contributions to the fund at the Midland Area Community Foundation over the next couple of years (\$18,000 X 2 + \$72,100 = \$108,100).**

Please consider contributing to this worthwhile cause. **Your donations will help shape the future of chemistry!** If you have any questions about contributing to the Midland ACS Scholarship Fund, please call the Midland Area Community Foundation at 989-839-9661. Thank you.

An online donation form can be found through the following link:

[Midland Section American Chemical Society Endowed Scholarship Fund #399](#)



Looking for Electronic Versions of *The Midland Chemist*

Mark Jones, Director and 2020 Chair, Midland Section ACS

Electronic versions of *The Midland Chemist* are available back to the year 2000, but some of those issues are missing. Anyone having electronic versions of past issues of *The Midland Chemist* is asked to notify webmasters@midlandacs.org. Please see midlandchemist.org for the missing issues.

Specifically, three issues of *The Midland Chemist* are missing from the electronic archive: March 2004, October 2010, and December 2010.

In Memoriam – Hans Georg Elias

Steve Keinath, Co-Editor, *The Midland Chemist*

Editor's note: The obituary notice for Hans Elias as it appears below is reprinted, in part, from the Saturday-Sunday (Weekend), February 12-13, 2022, issue of the *Midland Daily News*.

Dr. Elias joined the American Chemical Society in 1968, and at the time of his passing he was a 54-year member of the ACS. Early on, Hans bought in on the option of lifetime ACS membership, a decision that proved to be an economical benefit to him over the long haul. For much of his membership, he was a member of the Midland Section ACS. Several years ago, when he and his wife, Maria, moved to the Dallas, Texas, area to be closer to family, his local section ACS affiliation was transferred to the Dallas-Fort Worth Section. In 1996, the Midland Section ACS honored Dr. Elias with its Outstanding Achievement and Promotion of the Chemical Sciences Award.

On a personal note, it was my privilege to be hired by Hans Elias to join the staff of the Midland Macromolecular Institute (later renamed the Michigan Molecular Institute and retaining the moniker MMI) in the summer of 1978 as a Senior Research Assistant. In MMI's early days, the Institute hosted annual week-long symposia on a range of polymer science topics. A subsidiary entity of MMI known as MMI Press was launched in the early 1980s to manage the publication of these symposia proceedings in book form, and I had the privilege of serving as the Assistant Editor of MMI Press for a couple of years, working closely with the Editor, Mary Reslock, another long ago name and ACS member who came to MMI following her retirement from the Dow Chemical Company Library. After Hans' retirement from MMI, he wrote and published a number of polymer science textbooks of which I had the privilege of serving as one of his trusted, keen-eyed copy editors.



Dr. Hans Georg Elias passed away peacefully on January 19, 2022, and is with his wife, Maria, again. Maria had passed away on July 24, 2021.

Hans was born on March 29, 1928, in Germany, to the late Hermann Elias and the late Elisabeth Elias. His two sons, Peter (of Texas) and Rainer (of Washington), daughters-in law, Annabelle (of Texas) and Melissa (of Washington), grandson, Marcos (of Texas), and sister, Ursula (of Germany) survive him.

Hans and Maria met during ballroom dancing and married in 1956 after a seven-year courtship. His ongoing education took place in Germany: obtaining a M.S. in Chemistry from the Technical University of Hannover in 1953, and then, in 1957, the Technical University of Munich awarded him with the Doctor of Natural Science degree.

In January of 1960, he joined the Swiss Federal Institute of Technology (ETH Zürich). In his 12 years at ETH, he supervised 32 doctoral theses of students from Egypt, Germany, India, Mexico, and Switzerland, as well as many master's theses. His large group at ETH was also comprised of postdoctoral researchers and visiting scientists and professors from 15 countries.

In December 1969, he was asked to become the founding director (later President, CEO, and Professor of Polymer Science) of what was the Midland Macromolecular Institute, later renamed Michigan Molecular Institute (MMI), which started its operations in 1971. After leaving MMI in the fall of 1983, he became an in-house consultant to the Dow Chemical Company, and in 1985, an independent industrial consultant.

During his time at ETH and MMI, he was a consultant to American, German, and Swiss industrial companies as well as an expert witness to companies and the courts in Germany and Switzerland. He also held adjunct professorships at Michigan Technological University, Case Western Reserve University, Central Michigan University, and MMI (1987 onwards).

His research led to more than 200 scientific and technical papers, two patents, and numerous lectures at universities and industrial companies in Belgium, the former Czechoslovakia, Germany, Hungary, Israel, Japan, Mexico, the Netherlands, Poland, Switzerland, and the United States.

He served on a committee of the U.S. National Academy of Science, on editorial boards of five scientific journals, as well as various other national and local scientific committees.

He authored six books and collaborated on four others. The books appeared in several volumes, and editions, and were published in multiple languages.

Hans was a member of the Honorary Board of the Midland Symphony, served on the Committee 2000, the Beautification Committee of the City of Midland, and was twice a director of the Saginaw Valley Torch Club.

He loved his family, gardening with Maria, and mountain hiking, especially in Switzerland. His former doctoral students in Switzerland still have an annual reunion in his honor.

Even with all his professional accomplishments, spending time with his family, whether traveling or visiting with them, was paramount to the unity and cohesion the family enjoyed. We all miss Hans and Maria and will eternally be grateful for their dedication to our family.

Hans is inurned, joining Maria, at the Whispering Waters Mausoleum at Restland Memorial Park in Dallas, Texas.

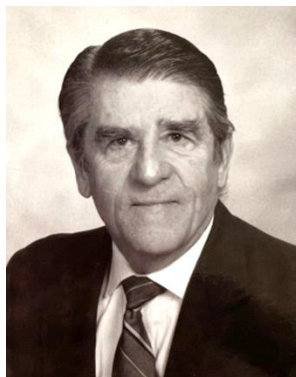
Funeral arrangements for Dr. Hans Elias have been faithfully entrusted to the care of Restland Funeral Home and Cemetery of Dallas, Texas.

In Memoriam – Dale Joseph Meier
Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: The obituary notice for Dale Meier as it appears below is reprinted, in part, from the Tuesday, March 15, 2022, issue of the *Midland Daily News*. Dale joined the American Chemical Society in 1958, and at the time of his passing he was a 64-year member of the ACS.

Dale Meier served as the General Chair of the Midland Section ACS Fall Scientific Meeting in 2007, during one of the years when that meeting was held at the Midland Center for the Arts. The Midland Section ACS honored Dr. Meier with two of its prestigious awards, namely, the Outstanding Achievement and Promotion of the Chemical Sciences Award in 1993, and the Outstanding College Chemistry Teaching Award in 2003.

On a personal note, I had the privilege of working with and around Dale for many years as member of the scientific technical staff of the Michigan Molecular Institute, sometimes directly involved in joint research projects with him spanning multiple years depending on the length of a project's external funding. In addition, Dale taught a number of graduate level polymer science courses back in the day when MMI was doing polymer science teaching, and it was my good fortune to sit in on essentially all of Dale's courses. The breadth and depth of my formal polymer science training and understanding was considerably expanded by Dale's teaching and mentoring over the years. He was always very well prepared for his lectures and always had many interesting, first-hand stories to share that kept his lectures interesting and relevant. He was a consummate old-school professional, dressing in a jacket and tie pretty much the entire MMI career over which I knew Dale.



Dr. Dale Joseph Meier, age 99, passed away on March 12, 2022, at MyMichigan Medical Center in Midland, Michigan, about six weeks shy of his 100th birthday.

Dale was born April 21, 1922, in The Dalles, Oregon, to Joseph and Ellen Meier. He grew up in Los Angeles, California, and attended school there, graduating from George Washington High School in 1940. The family spent many summers at the log cabin his parents built in Dillard, Oregon, in 1924. Here began his love of fishing, nature, and being outdoors.

In 1942, Dale paused his studies at the California Institute of Technology to enlist in the United States Marine Corps during World War II, serving as a First Lieutenant in Okinawa, Japan. Upon returning from the war, Dale continued his education at Caltech and later attended UCLA where he earned his PhD.

Dale met Helen Ledin in 1946, and they were married on June 19, 1948, in Los Angeles. The couple moved to the San Francisco Bay Area where Dale was employed at Shell Development Company. During his time at Shell, he was transferred with his family to The Netherlands for one year. The family returned to the Bay Area and then he was transferred to the Los Angeles area for a year with Shell.

In 1972, the family moved to Midland, Michigan, where Dale accepted a position at the newly opened Midland Macromolecular Institute (which was later named Michigan Molecular Institute) as a Senior Research Scientist in the field of polymer science. During his professional career, Dr. Meier published many scientific papers, received numerous honors and awards, consulted for a wide variety of companies, and served as a visiting professor at universities in Japan, Poland, and the U.S.

Dr. Meier had many hobbies including fly fishing and gardening. He especially loved raising bromeliads in his home green house. An accomplished woodworker, he created many beautiful works of art and furniture for the family home. His work was exhibited at the Midland Center for the Arts, Northwood Gallery, and Creative 360. He was very active, playing handball at the Midland Community Center and rollerblading on the Rail Trail until he was 87 years old.

Dale is survived by his brother, Donald Meier; two daughters, Janet Boyd (Brent) of Calgary, Alberta, Canada, and Carol Meier of Midland; two grandsons, Eric and Alex Boyd, of Calgary; and many nieces and nephews. He was predeceased by his wife of 71 years, Helen Meier, in April 2020, and his parents, Joseph and Ellen Meier.

In accordance with Dale's wishes, cremation has taken place and there will be no services. In lieu of flowers, please consider a donation to the Chippewa Nature Center, Midland Center for Arts, or United Way of Midland County. Arrangements have been entrusted to the care of the Ware-Smith-Woolever Funeral Directors, of Midland.

The family would like to thank Brittany Manor and MyMichigan Medical Center for their kind care.

In Past Issues of *The Midland Chemist*
Wendell L. Dilling, Director and Historian, Midland Section ACS



From these volumes . . .

50 Years Ago, *The Midland Chemist* 1972, 9, No. 4, 7.

In *Professional Relations News* by David A. H. Roethel, Manager, Office of Professional Relations: "A frequently alluded to but seldom understood activity of the Council Committee on Professional Relations is its willingness to counsel members confronted with professional problems. Generally, the Committee defines such problems as those which can impair the chemist's professional standing or his attainments.

Examples range wide. They include the case of a reputable chemist who was early retired on a modest consulting basis with his former employer. Negotiations by the Committee led to better arrangements."

40 Years Ago, *The Midland Chemist* 1982, 19, No. 4, 4.

In 'A great contribution to the theory of silicone chemistry': Speier by Industrial Research & Development, February 1982: "'This development [of the silicon-silicon double bond] is a great contribution to the theory of silicone chemistry,' declares Dr. John L. Speier, a senior research chemist at Dow Corning, Midland, MI, and generally regarded as the father of silicone chemistry.

'For many years, researchers have postulated the existence of transitory double bonds between silicon atoms in proposed reaction mechanisms. Now, they have firm proof that silicon-silicon double bonds exist,' Speier told IR&D."

30 Years Ago, *The Midland Chemist* 1992, 29, No. 2, 13.

In *Say Goodnight to Authors' Night* by George Eastland: "After considerable consideration of the matter, it has been decided by a committee appointed by Vicky Cobb, and approved by the Board of Directors, that the event associated with Authors' Night should be discontinued. While it might be resumed at a later date, the turnouts at the last few Author's Nights simply do not warrant continuation of the event for now.

However, we do wish to continue to acknowledge those individuals in the Midland Section who have published a paper or patent. Thus, we will again endeavor to perform a search of **Chemical Abstracts** for authors of papers or patents from the Midland Section. Such a list will be published in **The Midland Chemist**. If you were an

author of a paper or patent in 1991 and feel that, for some reason, that paper or patent might not appear in **Chemical Abstracts**, send me a copy of the abstract and I will see to it that it is included.”

20 Years Ago, *The Midland Chemist* **2002**, 39, No. 3, 5.

In *MMTG Presents Seminar on Careers* by Debbie Bailey: “The Mid-Michigan Technician Group (MMTG) presented its first 2002 lunchtime seminar on ‘Weighing the Pro’s and Con’s of a Career Switch from Chem Tech...Is the Grass Really Greener?’ The seminar was presented by Janet Smith and Tina Leaym.

Janet has worked as a technician for Dow Corning for approximately fifteen years in areas of tech service, product development, research, and commercialization.

Tina has worked in the chemical industry in research and development for approximately twelve years. She worked nine years as a technician (six years at Dow Chemical and three years at Dow Corning) and is currently in her third year as a chemist at Dow Corning.”

10 Years Ago, *The Midland Chemist* **2012**, 49, No. 2, 8.

In *The Midland Section of the American Chemical Society presents Dr. Pete Ludovice: ‘Lab Coats & Other Fashion Statements: The Lighter Side of the Chemical Sciences’ at the 21st Annual ACS Awards Banquet, May 3rd, 2012* by Diana Deese: “A PhD from MIT and over a decade of teaching engineers at Georgia Tech gives Pete a truly unique perspective on the humor of science and technology. Pete also produces and hosts a weekly radio show on WREK-Atlanta whose moto is “Science, only funnier” (see www.insidetheblackbox.org). If you’re a nerd, or have ever met one, Pete will leave you convinced that engineers can truly be funny and not just funny-looking.”

Upcoming Dates, Events, and Other Updates

- April 5 (1:00 PM) – *Making HERstory: Women in STEM*. Free virtual program. Central Michigan University Museum of Cultural & Natural History. Register to receive ZOOM link at <https://forms.office.com/r/w6t08MTzit>. See flyer in this newsletter for additional information.
- April 6 (7:00 – 8:30 PM) – MSU St. Andrews Family Astronomy Night free virtual event, *Stars: Wonders of the Night*. Register at the link to receive the Zoom login. You may register up tot the presentation start time or even during the meeting. https://msu.zoom.us/webinar/register/WN_QdNi0Oz6QUaTi13hKfVWiA See the article in this newsletter for additional information.
- April 11 (4:00 – 5:00 PM) – Midland Section ACS free virtual workshop, “*How to Write a Poem*,” for the Chemists Celebrate Earth Week (CCEW) Illustrated Poem Contest. Fun and free virtual workshop for 6th to 12th graders to learn about the CCEW theme, “*The Buzz About Bugs; Insect Chemistry*.” Sign up is required by April 8 by going to <https://www.signupgenius.com/go/70A054BADAA2EA20-howtowrite>. For more information or any questions, please contact Michelle Rivard at michelle.rivard@dow.com.
- April 11 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - April 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting is being held on the second Monday of April, not the usual first Monday.**
- April 21 – **Deadline for 2022 Chemists Celebrate Earth Week (CCEW) Illustrated Poem Contest** on the topic “*The Buzz About Bugs; Insect Chemistry*.” Go to [Spring Poetry Contest](#) to obtain more information and to download a poem submission entry form. For more information, any questions, and to submit your entry forms, please email Michelle Rivard at michelle.rivard@dow.com.

- April 24 (12:00 – 4:00 PM) – Midland Section ACS Outreach event, “*Earth Day Action Expo.*” Free event at H.H. Dow High School, in Midland. Topic: *The Buzz About Bugs: Insect Chemistry.* See article in this newsletter for additional information.
- April 25 – **Deadline to RSVP for the Midland Section ACS Spring Awards Recognition Dinner.** Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland, Wednesday, May 4, 2022. Featured speaker: Wayde Konze, Senior R&D Director, Dow. Cost: \$20.00 per person. For more information or any questions, please contact Diana Deese, Midland Section ACS Awards Committee Chair, at dkdeese@dow.com or 989-636-9915.
- May 2 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - May 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- May 4 (5:30 – 9:00 PM) – Midland Section ACS Spring Awards Banquet, Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland. Featured speaker: Wayde Konze, Senior Research Director, Dow. Cost: \$20.00 per person. For more information or any questions, please contact Diana Deese, Midland Section ACS Awards Committee Chair, at dkdeese@dow.com or 989-636-9915.
- June 6 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - June 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- June 7-10, 2022 – Central Regional Meeting of the American Chemical Society, *Archaeometry to Zymurgy*, Ypsilanti, MI. For information visit [2022 Central Regional Meeting](#).
- June 14 (Save the Date) – MSU St. Andrews, in Midland, will host 2022 Turner Alfrey Visiting Professor Christopher Ober of Cornell University. A hybrid format event is being planned. For more information, please contact Clare Light at lightcla@msu.edu.
- August 1 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - August 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- August 21-25, 2022 – ACS Fall 2022 National Meeting and Exposition, Chicago, IL. This meeting is being planned as an in-person and virtual hybrid meeting. Meeting theme: *Sustainability in a Changing World.* For more information, please see [ACS Meetings & Expositions - American Chemical Society](#).
- September 12 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - September 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting is being held on the second Monday of September, not the usual first Monday of most months due to the Labor Day holiday.**
- October 3 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - October 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- November 7 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - November 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

- December 5 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - December 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

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