Volume 108, No. 3 March 2021

The Chemical Bulletin

A publication of the Chicago Section of the American Chemical Society

ACS Local Section Chicago

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CHICAGO SECTION ACS PUBLIC AFFAIRS VIRTUAL MEETING

FRIDAY, MARCH 12, 2021
6:25 - 8:15 PM

Register online at chicagoacs.org to receive meeting link

ADVOCACY FOR CHEMISTRY WITH FEDERAL, STATE, AND LOCAL LEGISLATORS

DR. MICHAEL G. KOEHLER

THE ROLE OF HIGHER EDUCATION IN ENVIRONMENTAL SUSTAINABILITY

DR. NANCY C. TUCHMAN

ACS SECTION MEETING AGENDA

FRIDAY, MARCH 12, 2021

6:25 – 6:30 pm	Introduction of Pre-Dinner Speaker by Sherri Rukes
6:30 – 7:00 pm	Pre-Dinner Talk by Michael Koehler "Advocacy for Chemistry with Federal, State, and Local Legislators"
7:00 – 7:05 pm	Announcements
7:05 – 7:10 pm	Introduction of Main Speaker by Michael Koehler
7:10 – 8:10 pm	Dr. Nancy Tuchman *"The Role of Higher Education in Environmental Sustainability"*

ALL K-12 EDUCATORS can receive Continuing Professional Development Units (CPDUs) for attending our Monthly Meetings — see online registration

College of William & Mary / M. E. Schott

PRE-DINNER SPEAKER BIOGRAPHY: Michael G. Koehler, PhD, ACSF, is the Chair of the Chicago Section Public Affairs Committee and a Fellow of the American Chemical Society. He is a member of the ACS national Committee on Chemical Safety, and the Divisions of Chemical Health & Safety, and Chemistry & the Law. From 1986 until 2008, he worked in the R&D laboratories of Honeywell International. Currently, he works at the intersection of chemistry and the law, investigating the legal implications of product failures and misuse, industrial and academic accidents, and product reliability.

ABSTRACT: The mission of the American Chemical Society is "*to advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people*." To accomplish this mission, a balance is required between **science**, **education,** and **public policies**. Science and education are the hallmarks of professional chemists. However, when it comes to defining or advocating for public policies, scientists tend to be less active. Yet, without the input of technical experts and scientists, public policies for funding and regulations become misaligned with scientific advances and education. The results can have serious consequences. The current pandemic and climate crisis are clear example of the need to align science, education, and public policies. This pre-meeting talk will focus on best practices when advocating for science with our legislators and government agencies. We will discuss the role of the ACS in steering legislation at the Federal and State levels, as well as the resources and tools available from the ACS to assist you in working with your legislators.

Past Monthly Meeting Programs on Video

Videos of recent presentations can be accessed at the Chicago ACS Section website [chicagoacs.org / Events / Videos of Past Meetings] or by going directly to https://www.chicagoacs.net/videos/index.html. The section's archive home page (https://www.chicagoacs.net/) can also get you to the list.

SPEAKER BIOGRAPHY: Nancy C. Tuchman, Ph.D. is a Professor of Biology and Founding Dean of the School of Environmental Sustainability at Loyola University Chicago. She served as President of the Society for Freshwater Science (2009), Associate Provost for Research (2004–2008) where she developed the University's Office of Sustainability, and Vice Provost (2010–2013) where she launched Loyola's Institute of Environmental Sustainability (IES) with its new $58M building, and was appointed its Founding Dean. The IES was promoted to School status in 2020. Her leadership in sustainability at Loyola earned her the Chicago Magazine Green Award (2013) and Chicago EcoChampion (2018). Loyola has consistently ranked in the top 5% of the greenest colleges in the nation, and aims to be carbon neutral by 2025. Tuchman earned BS and MS Degrees in Biology and Aquatic Ecology, respectively, at Central Michigan University, and a PhD in Aquatic Ecology at the University of Louisville.

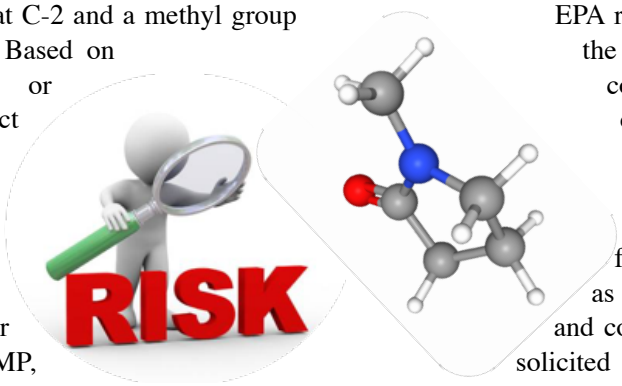
ABSTRACT: Human activities of natural resource extraction, industry, agribusiness, and technology, produce air and water pollution and solid waste that has overwhelmed Earth's ecosystems. Climate change, the loss of biodiversity and chemical pollution resulting from these activities constitute major environmental threats to Earth. The intersecting crises of ecological destruction and social injustice result from overconsumption, environmentally neglectful economies, policies, legal system, and cultural values. Loyola University Chicago's School of Environmental Sustainability focuses education and research on formation of the next generation of environmental leaders who can contribute to a just transition to a clean-energy and sustainable future.

A "Safety First!" Minute

CHEMICAL RISK MANAGEMENT AND THE EPA

News reports concerning chemicals often generate questions that can motivate **Safety First!** discussions. The idea for this article originated with a December 2020 news release about N-methyl-pyrrolidone, or NMP. The headline read "EPA Releases Final Chemical Risk Evaluation for NMP." So many questions come to mind! How does the Environmental Protection Agency (EPA) evaluate or regulate chemical safety? What is the process for selecting chemicals to evaluate? If a chemical isn't regulated, is it safe?

The chemical structure of NMP consists of a five-membered ring containing a nitrogen atom (pyrrolidine), with a ketone functional group at C-2 and a methyl group attached to the nitrogen atom. Based on your chemical intuition or experience, you might not predict that NMP should be unusually hazardous. The parent pyrrolidine ring is present in many natural products, such as the amino acid proline. The overall structure and polar aprotic properties of NMP, however, suggest it could be toxic. Experience is an unreliable asset in working with chemicals; it can blindfold us to possible risk. Always read the *Safety Data Sheet*, and always ask questions—NMP is a reproductive hazard.



Why is the EPA just now looking at the possible risks of exposure to NMP? The current EPA process for evaluating the safety of chemicals derives from the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which was signed into law in 2016. This law represents an amendment to the *Toxic Substances Control Act* (TSCA), first passed in 1976, which directed the EPA to protect the public from "unreasonable risk of injury to health or the environment" by regulating the manufacture and sale of ***new*** chemicals. Notably, the almost 62,000 chemicals already in commerce in 1976 were grandfathered in under TSCA and thus ***not*** subject to additional health or environmental safety review at the time. The 2016 revisions required the EPA to designate ten of these so-called "existing chemicals" as being of high priority for risk evaluation and management based on their known hazards, conditions of use, and likely routes, duration, intensity, and frequency of exposure. Note that risk may apply to either the ***environment*** or the ***health*** of affected individuals, including workers, consumers, and even the general public. As the risk evaluation for a chemical is completed, the EPA has to assign a new "high priority" chemical for review. Presently, the EPA lists 33 chemicals undergoing TSCA risk evaluation. Twenty, including NMP, are "existing chemicals," while the remaining 13 were requested by manufacturers.

EPA risk evaluation begins with defining the ***scope*** of the process. This entails compiling known information concerning the hazards of a chemical and identifying routes of exposure for specific "conditions of use." The latter include manufacture, processing, and distribution, as well as industrial, commercial, and consumer uses. Public comments are solicited and considered before the final scope is established. The next phase involves determining whether any specific conditions of use pose an "unreasonable risk" to health or the environment. Affected individuals are defined for each condition of use. A public comment period is also built into this phase of the evaluation process. The timeline from designating a chemical high priority to finalizing the scope of the process and publishing the final risk evaluation is about three years. Upon establishing that a chemical constitutes an unreasonable risk, the EPA will initiate a ***risk management*** process to regulate how that risk may be mitigated.

Federal, state and local regulations are an important component of laboratory safety, but they cannot guarantee safety. Consider the odds—only 20 out of 62,000, or 0.032%, of "existing" chemicals are currently undergoing EPA review. Let the precautionary principle be our guide in chemical and environmental safety!

Submitted by Irene Cesa

Letter from the Chair

Looking back at February and forward to March!

As we continue in the pandemic, the section continues to pivot. We strive to serve and provide our members and the community insightful monthly meetings via zoom. I want to highlight some of the wonderful things our section is doing.

The last meeting featured a presentation by Dr. Clara Granzotto, an Assistant Conservation Scientist at the Art Institute of Chicago. The general public might not realize all the chemistry that goes on at the museum, and the presentation highlighted some of their valuable research. The presentation gave insight to Joseph Yoakum's drawings, the effects of using varnishes on some of the drawings, and certain tools known in many chemical industries which are also used in art conservation. The presentation also explored the work on an intricate African sculpture to understand what was used to bind the layers of the materials together during the years it took to complete. This presentation was a great example of how chemistry is everywhere and that there are several nontraditional areas, such as a museum, where chemists can work.

March is typically our Public Affairs meeting. This year we are delighted to have Dr. Nancy Tuchman give a presentation about environmental sustainability. Climate change is impacting the world in many different ways. This should be a wonderful talk about the role chemistry has and what we can do on environmental issues. This is a topic that is near and dear to so many.

To that end our very own Michael Koehler, the current Vice Chair and an ACS Fellow, will share a presentation about the role for science advocacy and what we can do to help our voices be heard. I had the privilege of hearing Michael give a wonderful webinar in January on this topic. It gave insights on what we can do, how to get started, and about why advocating for issues about which you are passionate is so important . It made me really think about what I can do to help with STEM education and other causes dear to my heart. ACS has many valuable resources to help members and the general public understand the role of science advocacy and how to get started. I advise members to go to the site and check it out. Learn about what you can do, including contacting your representatives and senators in Congress. Find out who they are if you don't know, because our elected representatives in Congress really do want to hear from their constituents.

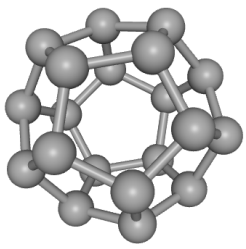
These are just two examples showing how the section is trying to bridge more gaps, get more involvement from our membership and make connections with our various communities.

If you have any comments, questions, or ideas, please reach out to me: chair@chicagoacs.org. I love to hear from our members about what we can do for you. There are many good opportunities for our members and communities to get involved. Please consider helping us out!

I hope you have a wonderful St. Patrick's Day and look forward to the days when it will be a tad warmer and nicer outside.

Sherri Rukes, Chicago Section Chair

Chicago ACS Section Officers for 2021			
	Chair	Sherri Rukes	chair@chicagoacs.org
	Vice Chair	Michael Koehler	vice-chair@chicagoacs.org
	Chair-Elect	Mark Cesa	chair-elect@chicagoacs.org
	Secretary	Aleks Baranczak	secretary@chicagoacs.org
	Past Chair	Paul Brandt	past-chair@chicagoacs.org
	Treasurer	Jason Romero	treasurer@chicagoacs.org



C_{20}: ACS Molecule of the Week (Feb 22–26)

2021 CCEW and Poetry Contest Are Coming
"Reducing Our Footprint with Chemistry"

Chemists Celebrate Earth Week (CCEW) 2021 is right around the corner. ACS and the Chicago Section will be participating in Earth Week during **April 18–24** this year. This year's theme is: **"Reducing Our Footprint with Chemistry." Please join us in April with many fun filled activities, videos, a carbon footprint pledge and a contest.** Go to **chicagoacs.org** to find out more starting on **March 15th**. One opportunity this that is open right now, however, is the 2021 **Illustrated Poetry Contest**. Please spread the word. We want as many K – 12 children to participate in this wonderful activity. Write and illustrate a poem using the CCEW theme, "Reducing Our Footprint with Chemistry." Your poem must be no more than 40 words and in the following styles to be considered.

HAIKU - LIMERICK - ODE - ABC POEM - FREE VERSE - END RHYME - BLANK VERSE

Possible topics related to the CCEW 2021 theme include:

Life cycles	Clean air and water	Environmental footprints
Reduce	Reuse	Recycle

Entries will be judged based upon:

Artistic Merit - use of color, quality of drawing, design & layout
Poem Message - fun, motivational, inspiring about yearly theme
Originality Creativity - unique, clever and/or creative design
Neatness - free of spelling and grammatical errors

Contest rules:

- All poems must be no more than 40 words, and in one of the following styles to be considered: Haiku, Limerick, Ode, ABC poem, Free verse, End rhyme, and Blank verse.
- Entries are judged based upon relevance to and incorporation of the yearly theme (Reducing Our Footprint with Chemistry), word choice and imagery, colorful artwork, adherence to poem style, originality and creativity, and overall presentation.
- All entries must be original works without aid from others. Physical drawings may be scanned or captured via camera and submitted to the online form. Illustrations may be created using crayons, watercolors, other types of paint, colored pencils, or markers.
- The illustration may also be electronically created by using a digital painting and drawing app on a computer, tablet, or mobile device. If the illustration is created using a digital painting or drawing app, the name of the program must be included on the entry form.
- The text of the poem should be easy to read and may be typed before the hand-drawn or digital illustration is added, or the poem may be written on lined paper, which is cut out and pasted onto the unlined paper with the illustration.
- No clipart or unoriginal images can be used.
- Only one entry per student will be accepted.
- Students must be sponsored by a school or another sponsoring group *(e.g. Homeschool Association, Boys and Girls Club, Scout Troop, 4-H, etc.)*.
- All illustrated poems and/or digital representations of the poems become the property of the American Chemical Society.
- Acceptance of prizes constitutes consent to use winners' names, likenesses, and entries for editorial, advertising, and publicity purposes.

Submissions:

K-12 students are asked to submit their illustrated poems directly via the new online submission form system. The deadline for the submissions is April 25th, 2021.

K – 2nd grade form
3rd – 5th grade form
6th – 8th grade form
9th – 12th grade form

Does "environment" rhyme with anything?

Good Luck and we hope to have many wonderful submissions! Any questions or comments please contact Sherri Rukes at community@chicagoacs.org

SHORT FILMS ABOUT CHEMISTRY

A New Resource for Teachers + the Community Alike!

Chemistry Shorts is a new series of brief films primarily aimed at the level of high school chemistry. The films spotlight innovative ways that chemists and chemical engineers are working to solve important problems and create new opportunities. Each film is accompanied by a lesson plan with standards alignments that offers suggestions for integration into the classroom. The first three films and lesson plans (listed below) are available at https://chemistryshorts.org/.

- ***Direct Air Capture & The Future of Climate Change, with Christopher Jones (Georgia Tech)***
- ***Under the Skin, with Zhenan Bao (Stanford; Gibbs Medal winner for 2020)***
- ***Rewriting Life, with David Liu (Harvard)***

Chemistry Shorts is also on YouTube and Twitter. This venture is supported by The Camille & Henry Dreyfus Foundation and The Research Corporation for Science Advancement and is endorsed by ACS, AACT (American Association of Chemistry Teachers), and AIChE (American Institute of Chemical Engineers).

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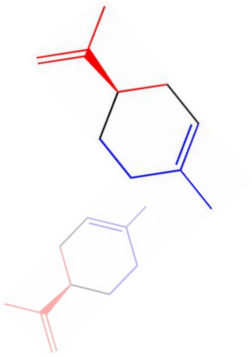

Welcome to the new education section of **ACS Webinars for Teachers.** The trend toward integrating technology in the classroom is growing as more educators use the internet to connect with their students and teach skills beyond the pages of a textbook. Our goal is to be the destination for educators endeavoring to connect students with chemistry in new ways. With input from educators across America, we've created a few resources to help you transform your classroom. As we continue to create additional resources, please share your questions and feedback with us. Also, tell us your story (we love stories)!

"Diversity pays off, big-time. Science is global. Science knows no boundaries." - Chemistry Nobel Laureate Fraser Stoddart (2016)

Teacher Kit Information & Updates
Check back next month for the next Teacher Kits. Teacher Kit sign up will be coming out the 1st of April – no fooling!

Bulletin Information

MARCH 2021, Vol. 108, No. 3
Published by the Chicago Section of the American Chemical Society, September – June (monthly, 10 issues)

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EXCELLENCE IN HIGH SCHOOL TEACHING OF CHEMISTRY AWARD

Deadline: June 1, 2021

https://chicagoacs.org/Teacher_Excellence_Award

Purpose: To recognize, encourage, and stimulate outstanding teachers of high school chemistry or a chemical science in the Chicago section.

Amount of Award: $1000.00, a framed certificate, and membership for one year in the American Association of Chemistry Teachers.

Who May Nominate: Any individual, except a currently enrolled student of the nominee or a member of the award selection committee, may submit one nomination in any given year. The awardee should recently (within the last two years) have taught chemistry at an area high school.

Nomination Portfolio*: A nomination portfolio consists of a completed Nomination Information Form, a Nomination Letter, one or more Recommendation Letters (maximum of 750 words), and a two-page resume or CV.

Submission of Nomination: Nominations should be submitted to the Chair of the Awards Committee by e-mail (send to chicagoacs@ameritech.net with the subject line denoting "High School Excellence Award Nomination") by **June 1**. Please include your name, phone number, and email address. Alternatively, you may submit the nomination online using the link above. Please include your name, phone number, and email address. Alternatively, you may submit the nomination online using the link above.

* Please Refer to the Complete Set of Nomination Instructions at the Link Provided Above

SCIENCE AS A DIPLOMATIC TOOL

Register for this free webinar!

Wednesday, March 10th, 10–11am CT

Zafra Lerman {Malta Conferences Foundation and Chicago ACS Section member) will join Peter Hotchkiss (Organisation for the Prohibition of Chemical Weapons) and Vaughan Turekian (National Academies' Policy and Global Affairs Division), as they discuss how diplomacy can be promoted through science and how your work contributes to science diplomacy. This ACS Webinar is to be moderated by Lori Brown of the American Chemical Society, and co-produced with ACS External Affairs & Communications.

ACS Chemistry Advocacy Workshop

Module 1: Introduction to chemistry advocacy

Module 2: Chemistry advocacy within the U.S. government

Module 3: Advocating for chemistry in Congress

Module 4: Chemistry communication for advocates

LINK TO ADVOCACY

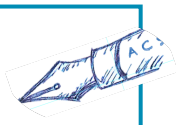
Free Career Guidance Sessions

• Advance your career on the fly! Join your fellow ACS Members for upcoming Virtual Office Hours with ACS Career Consultants, every Thursday at 12:00 PM ET / 11:00 AM CT for casual, small-group networking, and convenient career advice. **Register for free!** • Available for ACS Members only, you can also schedule a one-on-one session with an ACS Career Consultant for personalized answers about résumé writing, video interviewing, optimizing your LinkedIn profile, and more. • Andreea Argintaru, Principal Scientist, Axalta Coating Systems, and three other ACS Career Consultants explain why mid- and late-career chemists need a development plan, and how to build one.

The ACS Chemistry Advocacy Program is designed to help ACS members passionate about science and chemistry advocacy maximize Society resources through an this on-demand course. This workshop includes four modules covering skills, resources, logistics, and communication for the purposes of advocating for chemistry on the federal level.

Action Center: Contacting your elected officials has never been easier! Send a message to them on pre-selected issues or compose your own message.

From the Editor's Desk



Dear Readers,

With February's frigid temperatures and tremendous snowfalls behind us, vaccine shots "getting into arms" at an increasing pace, and a science-aware U.S. president unfurling plans for the new administration, things are beginning to look up for many. Speaking of vaccines, check out UK-based chemistry educator Andy Brunning's one-page illustrated explanatory lessons on *"What Are RNA Vaccines and How Do They Work?"* and *"How Are RNA Vaccines Made?"* (www.compoundchem.com). Our shared pandemic-era language continues to evolve: consider, for example: in-person learning, Zoom wardrobes, social-isolation socials, online break-out rooms, students in the digital dark, campus re-openings, and so on. For an historical take on epidemics and pandemics see page 11. This issue includes contributions from Chicago Section members Russ Kohnken, Sherri Rukes, Irene Cesa, Andrea Twiss-Brooks, Mike Koehler, and Susan Shih. Thanks to all! Send ideas for articles or science humor (we all need a laugh now and then) to editor@chicagoacs.org. I hope you enjoy this issue. ~~ M. E. S.~~

- **Great Lakes Regional Meeting registration opens March 1st at glrm2021.org**. Abstract submission is now closed.
- **Information About Nominations for Four Awards**: Stan Israel Award for Advancing Diversity (deadline was March 1st) • Ann Nalley Award for Volunteer Service • Partners for Progress and Prosperity Award • Excellence in High School Teaching Award can be found on the website by clicking on the awards link. The latter three award **nominations are due April 1st.**

PROGRAM MEETINGS
WINTER / SPRING 2021*

Friday, March 12
Friday, April 23
Friday, May 21
Friday, June 18

* Check chicagoacs.org for the most up to date information

BOARD MEETINGS
Open to Section Members

Thursday, March 4
Thursday, April 15
Thursday, May 6
Thursday, June 10
Thursday, August 5

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UPCOMING EVENTS

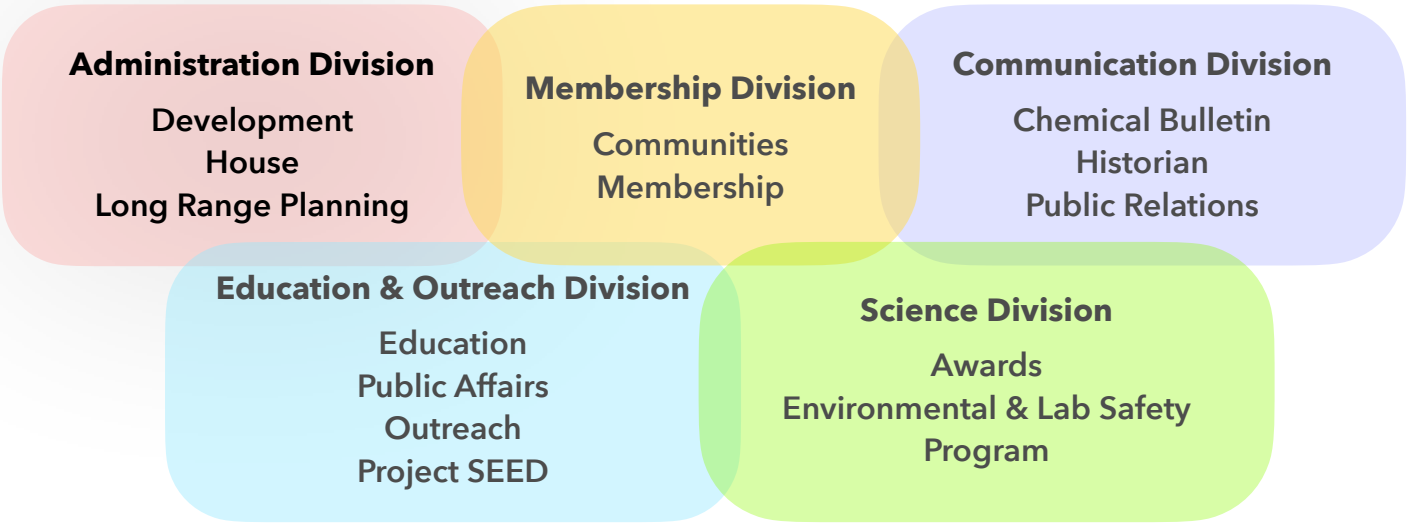
Please refer also to the Section's website chicagoacs.org and Chicago ACS Section Social Media

March 10	ACS Webinar – Science as a Tool for Diplomacy (see page 7)
March 11	ACS Webinar – Neither Fish nor Fowl: The Growth of Alternatives to Animal-Derived Food
March 17	ACS Webinar – Chemists Make the Best Home Brewers
March 30	ACS Webinar – How to Embrace the New Norm . . . and What That May Look Like
March 15-18	Climate Change Conference, Loyola School of Environmental Sustainability
April 5–16	ACS Spring National Meeting: 2nd Century of Macromolecular Chemistry
April 18–23	AIChE 2021 Spring Meeting and 17th Global Conference on Process Safety
April 18–24	Chemists Celebrate Earth Week (CCEW) – Reducing Our Footprint with Chemistry*
June 6–9	Great Lakes Regional Meeting (GLRM) – see above for more information
June 14–16	25th Annual Green Chemistry & Engineering Conference – "Sustainable Production to Advance the Circular Economy"
August 22–26	ACS Fall National Meeting: Resilience of Chemistry
September 17	Gibbs Medal Award Dinner

Updates from Your ACS Local Section

- **High School Olympiad Exam** – Invitations have gone out to high school teachers inviting them to nominate students to take the Olympiad Exam, which will be administered online in March.
- **Middle School Media** – Teachers are invited to visit MiddleSchoolChemistry.com for free lessons filled with videos of experiments, animations and questions to create virtual activities students can do at home. Each remote learning assignment is a Google Form that can be assigned to students to complete asynchronously or to be used during a synchronous virtual class.
- **AACT Membership** – Membership in the American Association of Chemistry Teachers has now reached over 8,000. According to Sherri Rukes there are hundreds of labs, lessons, demonstrations, simulations, and other activities for teachers to use in their classroom to help with chemistry topics specific to each grade band. Until April 30th, AACT is offering a reduced annual membership fee of $45 either for renewal or to receive the discount for a K – 12 teacher.
- **Distinguished Service Award** – Paul Brandt is the recipient of the DSA for 2021. Congratulations, Paul!
- **Monthly Programs** – The Section's Zoom meetings had a positive effect on attendance last year. Average meeting participation went from 30 pre-pandemic, when travel was required, to more than 100 attendees per meeting.
- **Science Advocacy** – Mike Koehler did a terrific job speaking about science advocacy in a recent ACS webinar. He gave insights on how to be an advocate and shared best practices including: make it personal, know who you represent, and ask what you can do. For more information about advocacy, please see: www.acs.org/chemistryadvocacy.

Organizational Structure of the Chicago ACS Section



The new organizational structure of the Chicago Section serves the purpose of allowing more collaboration and communication among the various committees. In reality, the work of many of the committees intertwines and, instead of being separate silos, is now be set up for more effective collaboration. We hope our members will consider joining a committee and lending their talents to make our section even better.

Don't know what to do, but want to help?
Contact our Section Chair at chair@chicagoacs.org
... or fill out our form here: https://chicagoacs.org/form.php?form_id=11

Consider joining a committee, for example:

- Minority Affairs Committee: minority@chicagoacs.org
- Women Chemists Committee: wcc@chicagoacs.org
  Young Chemists Committee: ycc@chicagoacs.org
- Senior Chemists Committee: seniors@chicagoacs.org

For additional information see:

https://chicagoacs.org/Volunteer
https://chicagoacs.org/board.php
https://chicagoacs.org/Committees
https://chicagoacs.org (main website)
https://www.facebook.com/ChicagoACS/

Of Epidemics and Pandemics

The article, "Future Chemotherapy," which is reproduced here in part, was published ninety-five years ago in *Industrial & Engineering Chemistry* (**1926**, 18, 1268). The text is based on a talk given by Arthur S. Lovenhart (University of Wisconsin) at the Round Table Conference on "The Role of Chemistry in the World's Future Affairs" at the Sixth Session of the Institute of Politics, Williamstown, Massachusetts, on August 25, 1925.

Epidemic and endemic diseases have played an important part in the political and economic changes which have occurred within recorded history, and have deeply affected the philosophic and religious thought of mankind. W. H. S. Jones, in his "Malaria and Greek History," maintains that the disintegration of Greek civilization from the year 400 B. C. onward was due to endemic malaria throughout a large part of the Greek world. Epidemics of bubonic plague swept the world at intervals between the second century B. C. and the seventeenth century A. D. The greatest pandemic of any disease occurred in the bubonic plague visitation in the fourteenth century, known as the "Black Death," during which it has been estimated that 25 million persons died. The outbreak of 1665 was immortalized by Defoe. Similar terrible outbreaks of other diseases—cholera, syphilis, influenza, etc.—have occurred from time to time.

Although these pandemics have attracted the greatest attention because of their tragic and spectacular suddenness, there can be no doubt that endemic diseases, such as malaria, syphilis, and hookworm disease, constantly reducing the vitality of nations, produce a greater economic, moral, physical, and political disintegration. We criticize the inhabitants of a given section as being indolent and lazy and having no moral fiber, when these characteristics [result from] the physical state of the people induced by disease. Before the day of modern medicine, visitations of plague were looked upon as evidence of divine displeasure with mankind, and throughout the ages speculation regarding sickness and death has been intimately connected with philosophical and religious thought. Divine healing at the beginning of our era and at the present time is sufficient evidence of this fact. Medicine and mystery have been almost synonomous [sic] terms. Medicine is merely a branch of applied biological science and for its proper development should have no relation to the mystical and the occult.

Disease a World-Wide Problem

However nationalistic one may be in his political ideas, it is a fact that science is international and that truth recognizes no national boundaries. The control and treatment of disease is necessarily a world problem, and the promotion of international health should be one of the prime efforts of civilization. The presence of contagious disease anywhere in the world, in spite of quarantine, is a menace to the health of all. The methods used in the control and treatment of any section are almost certain to be useful elsewhere. To use Herbert Quick's expression, we are all passengers on board the good ship "Earth" and are most vitally concerned with health conditions in the steerage or in the first cabin.

The "Office international d'Hygiène publique" was created under the convention of Rome, signed December 9, 1917. This was the beginning of international concert in the field of public health, but the office lacked financial support and was impotent. Under the Covenant of the League of Nations, Article 23, section f, the members agreed that they "will endeavor to take steps in matters of international concern for the prevention and control of disease," and again in Article 25, "The members agree to encourage and promote the establishment and cooperation of duly authorized voluntary Red Cross organizations having as purposes the improvement of human health, the prevention of disease and the mitigation of suffering throughout the world." The United States officially held aloof from the health program of the League of Nations until October, 1923, when our Government agreed that the old "Office international d'Hygiène" created under the Convention of Rome, to which United States had been a signatory, was permitted to ratify the health program of the League of Nations. All Americans can take pride in the fact, however, that prominent American sanitarians have sat with the Health Committee of the League of Nations and that the International Health Board, which is a part of the Rockefeller Foundation, has generously contributed financial support for the epidemiologic intelligence service. This service publishes monthly at Geneva vital statistics covering nearly the whole civilized world and gives a summary of the prevalence of communicable and other diseases which is of very great value to sanitarians. The office also concerns itself with questions of quarantine, with standardization of vital statistics, with the standardization of pharmacopeias and the methods of testing certain important remedies, such as antitoxins, salvarsan, insulin, etc.

Hygieia

The conquest of a disease such as yellow fever, malaria, diphtheria, etc., is a matter of accumulation of exact knowledge through the patient labor of many [researchers]. The general public in all fields of scientific endeavor hears only of the spectacular advances. The spectacular discovery made by a genius becomes possible only by the general increase in knowledge through the accurate, unsensational investigations of many predecessors.

Solution to February's Chemistry Crossword Puzzle:
"How to Measure It"

1 C	2 A	3 L	4 O	5 R	6 I	■	7 O	8 S	9 M	10 O	■	11 L	12 O	13 A	14 M
15 R	O	O	V	E	S	■	16 C	H	A	R	■	17 T	A	N	G	O
18 A	R	R	E	S	T	■	19 T	O	N	I	■	20 A	X	I	A	L
21 S	T	E	N	T	■	22 L	A	T	T	E	■	23 M	E	T	R	Y
24 S	A	N	■	25 O	26 P	A	L	■	27 E	N	28 T	E	R	■	■	■
■	■	■	■	29 R	I	D	■	30 S	A	T	E	■	■	31 T	32 A	33 S
■	34 C	35 I	36 V	E	T	■	37 C	P	U	■	38 R	39 E	40 C	E	P	T
41 F	O	C	I	■	42 T	43 A	R	E	■	44 A	M	M	O	N	I	A
45 A	L	O	S	46 S	■	47 P	Y	C	48 N	O	■	49 F	U	S	E	S
50 C	O	N	C	I	51 S	E	■	52 T	A	L	53 E	■	54 L	O	C	H
55 T	R	I	O	S	E	■	56 T	R	Y	■	57 S	58 C	O	R	E	■
59 S	S	C	■	■	■	60 E	61 C	H	O	■	62 P	T	A	■	■	■
■	■	■	63 O	64 R	D	E	R	■	65 M	E	A	L	■	66 C	67 A	68 P
69 G	70 R	71 A	V	I	■	72 N	O	73 M	A	D	■	74 C	75 L	O	S	E
76 I	O	T	A	S	■	77 S	U	I	T	■	78 G	I	A	N	T	S
79 S	M	O	T	E	■	80 O	G	L	E	■	81 S	U	M	M	I	T
82 H	E	M	E	■	■	83 R	H	E	O	■	84 A	M	P	E	R	O

This puzzle first appeared in the Fall 2020 issue of *Chemistry Distillations*, Department of Chemistry, The College of William & Mary in Virginia. Professor Robert D. Pike has given his permission to reproduce it here. For more crossword puzzles see: http://rdpike.blogs.wm.edu/crossword-puzzles/

VIDEO HELP FOR 6 – 12 EDUCATORS!

Several years ago, NOVA had a special called *Hunting the Elements*. It was a remarkable resource for any person who is interested in chemistry. David Pogue gave wonderful insights on the elements and how they were discovered. PBS recently aired a short series called *Beyond The Elements*, once again hosted by David Pogue. This series aims to look at key molecules and chemical reactions that help foster understanding of the way human civilization, life, and even the universe came about. It is a remarkable short series. Just as with the series *Hunting the Elements*, PBS has broken the new series into video clips that are less than 10 minutes long. There is also a set of photo media for use in the classroom. These resources examine the various chemical reactions that affect our daily lives, how chemistry has been used to solve problems, and what impacts some of these solutions have had on our environment. Teachers can invite students to interact with the materials using Google Classroom.

Besides this new series, PBS offers many resources for the PreK – 12 educator. There are a wide variety of videos, interactives, media galleries and documents, as well as resources in Spanish, for educators to use in their classrooms. All school subjects are included, but one should take a look at the science section to get some chemistry help!