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Chicago Section

The Chemical Bulletin

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FEBRUARY • 2019

CHICAGO SECTION AMERICAN CHEMICAL SOCIETY
THE MONTHLY MEETING
FRIDAY, FEBRUARY 22, 2019
HAS BEEN CANCELLED

DISPOSING OF UNUSED MEDICATIONS—A "SAFETY FIRST" MINUTE BEST PRACTICE TO ADVANCE A CULTURE OF SAFETY

The principal goal of the Environmental and Lab Safety Committee (ELSC) of the ACS Chicago Section is to promote and advance the strategic goals of the ACS in support of safety as a core value in its Strategic Plan for 2018 and Beyond. Recognizing the importance of safety for the well-being of its members and for the success of the chemical enterprise in all facets of education, research, and development, the ELSC provides authoritative information and resources, as well as a regular discussion forum, to help Chicago ACS members integrate safety awareness in their professional activities.

Ongoing and continuous awareness of safety should be at the forefront of all chemistry activities, and safety awareness must be embedded within the culture of chemistry. One best practice that has been adopted across the chemistry landscape, including schools, industry, graduate research labs, etc., to instill a culture of safety is to start every meeting or activity with a brief "safety moment" or "safety minute." The Chicago Section has now formalized this practice as well by starting its monthly board and dinner meetings with a "Safety First" Minute. This article is the first contribution to expanding this practice to the *Chemical Bulletin.*

"Safety First" Minutes will be most beneficial, not to mention more interesting, if all members participate by volunteering topics for discussion based on recent experiences, events, interests, readings, etc. Many of you already engage in this type of cultural practice in your own professional roles, and we look forward to learning from all of you in the future. Please submit ideas for future safety minutes to our section chair, Tim Marin, or to Irene Cesa, Chair of ELSC, or Paul Brandt, editor of the *Chemical Bulletin*. Safety minutes can be on any topic on chemical, laboratory, and process safety, or even one of general interest to the public.

For this month, we have chosen a "public interest" safety minute about disposal of unused, expired or leftover medications. Each year in the United States, approximately 60,000 children are treated in emergency rooms following accidental exposure to and ingestion of medications in the home. All of us can help prevent future accidents of this type by promptly disposing of expired, unwanted or unused medications from our home medicine cabinets. The FDA provides a number of helpful online resources concerning the disposal of unused medications. See, for example: **https://www.fda.gov/drugs/resourcesforyou/consumers/buyingusingmedicinesafely/ensuringsafeuseofmedicine/safedisposalofmedicines/ucm186187.htm**

The best way to dispose of ANY unwanted prescription or over-the-counter medications is to take them to authorized "take-back" locations. Licensed take-back sites are conveniently located all across the Chicago metropolitan area at various retail pharmacies. To find a location near you, enter your zip code in an interactive **web tool.** Disposal is safe, simple, and easy!

Alternatively, the FDA also recommends the following general procedure for disposing of unused medications in the home. The image shown below is reproduced from the the FDA website, "Where and How to Dispose of Unused Medicines," **https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm101653.htm**

There is one very important exception to the general procedure portrayed in the graphic. Potentially dangerous prescription medicines should NOT be mixed in the trash! Examples of potentially dangerous medicines include diazepam, fentanyl, hydrocodone, and methadone. (See the FDA website for a complete list.) Your best option to dispose of these medications is to find a site, as discussed above, that will safely and securely collect and dispose of these unwanted medications. If that is not possible, the medicines should NOT be mixed in the trash but may be disposed of by flushing down the toilet if necessary.

Let's join together to show that chemistry is a safe and environmentally responsible science!

Irene Cesa - Environmental & Lab Safety

IN THIS ISSUE

The incongruity of the reviewers' comments with the criteria that one thinks should govern the evaluation of a paper or proposal is what makes the cartoon funny. But, as is always true in Sidney Harris's cartoons, there is another message under the surface: Perhaps scientists should embrace the "broader audience" of their papers, or the "outreach" criteria of the granting agencies more openheartedly. Nothing in the nature of the world or the understanding of scientists would be damaged if humor and suspense were allowed to enter scientific papers. Gatekeepers relax!

-- Roald Hoffmann, Cornell University

GREAT LAKES REGIONAL MEETING – MAY 2019

The 2019 Great Lakes Regional Meeting will take place on May 1-4, 2019 at the Sheraton Hotel, in Lisle, IL approximately 30 minutes from O'Hare airport Details can be found on the meeting website at **https://www.2019acsglrm.org/**.

The theme of the meeting is Chemistry Connections: Careers, Education, and Sustainability, and the program will feature technical sessions from areas including Inorganic Chemistry, Electrochemistry, Chemical Education, Materials Chemistry, Organic Chemistry, Medicinal Chemistry, Consumer Chemistry, Analytical Chemistry, and Bio-related Chemistries. Symposia sessions within these areas will highlight advances in the field of chemistry as they pertain to the 46 topic-specific sessions being offered. In addition to the technical symposia sessions, a general poster session and different technical workshops will be offered. The workshops will cover topics related to Sustainability in Education, High School Chemistry Education, Safety, Careers, ACS Student Chapter Success, Social Media and Technology in Chemistry, Building Connections Between ACS, and Industry,and utilizing the IONiC VIPEr in Teaching. The meeting will feature 2016 Nobel Laureate Sir Fraser Stoddart as the plenary speaker, as well as several social events. The awards banquet will feature the Gibbs awardee, Dr. Marcetta Darensbourg. A symposium honoring her work is planned for Friday afternoon (5/3/2019).

Some of the symposium sessions include "Effective Instructional Strategies in Chemistry"; "Fostering Principles of Sustainability in Chemistry Classrooms"; "Biomimetic Alternative Energy Applications"; "Battery Technologies"; "Nano Materials for Energy Applications"; "Functional Materials"; "Undergraduate Research at the Frontiers of Inorganic"; "Inorganic Applications in Energy and Sustainability"; "Photo Chemistry"; "Organic Chemistry Research at Primarily Undergraduate Institutions"; "New Advances in Medicinal Chemistry and Drug Discovery"; "Biologically Related Molecules and Processes"; "Chemical Immunomodulation"; "Spectroscopy Under Extreme Conditions"; "Physical Chemistry at Interfaces"; "Proteomics"; and "Environmental Analytical Chemistry" as well as other technical and general sessions.

A Career Day on Saturday, May 4, 2019 will also be held. A workshop on interviewing, as well as resume reviews and an employer showcase will be held as part of the Career Day.

A High School Chemistry program is to be held on Saturday, May 4, 2019.

Again, further details, including names and contact information for program and session chairs, can be found on the meeting website at **https://www.2019acsglrm.org/**.

We hope to see you there!

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WIN YOUR OWN SIDNEY HARRIS ORIGINAL CARTOON!

A contest will be held in which ACS members can submit "one original cartoon caption" of 35 words or less. Cartoonist Sidney Harris will draw a cartoon based on the winning caption. The grand prize winner will receive the original cartoon based on his/her winning caption. The runner-up will receive a personally autographed copy of one of Harris's most famous cartoons chosen by Harris. For more information and the official entry form, go to: **http://acshist.scs.illinois.edu/index.php**

CHICAGO'S ROLE IN DESEGREGATING NATIONAL ACS MEETINGS (PART I)

Special for Black History Month

Should ACS meetings be racially segregated?

That shocking question was on the minds of ACS members in 1957. Consider the dilemma facing ACS at the time: the Society hosts national meetings at different locations all over the country, aiming to be fair about making travel convenient for the most members over time. But even though ACS's proceedings and activities were integrated, the hotels, restaurants, transportation, and other facilities in many cities across the U.S. South discriminated against non-white members.

ACS's 1957 Spring meeting was held in Miami, FL, which was racially segregated at the time. To help ensure this situation would never occur again, Chicago Section councilor Herman S. Bloch introduced a resolution to the ACS Council for its consideration.

"WHEREAS, the American Chemical Society has an obligation to provide equal services to all its members of equivalent membership status, and, insofar as possible, to afford all of its members equal opportunity to avail themselves of such services, and

WHEREAS, these internal obligations of the Society to its multiracial membership cannot properly be fulfilled in areas wherein legal restrictions or social custom require racial segregation. Now be it

RESOLVED by the Council of the American Chemical Society that the Society refrain from holding national meetings in such segregated areas, and Be it further

RESOLVED that it is the sense of the Council that avoidance of segregated meeting areas should be construed simply as an action necessary to the fulfillment of the Society's equal obligation to all of its members."[1]

The Council's response? Modern readers would assume that such a resolution would be unanimously approved by voice vote after little discussion. But according to J. H. Pomeroy, Editor of the Chemical Bulletin at the time, "After a brief statement by one [other] councilor, it was tabled by a vote of approximately three to two." Meaning all discussion and action on the proposal was postponed with no assurance it would be reconsidered in the future! The Miami meeting closed with no commitment to action.

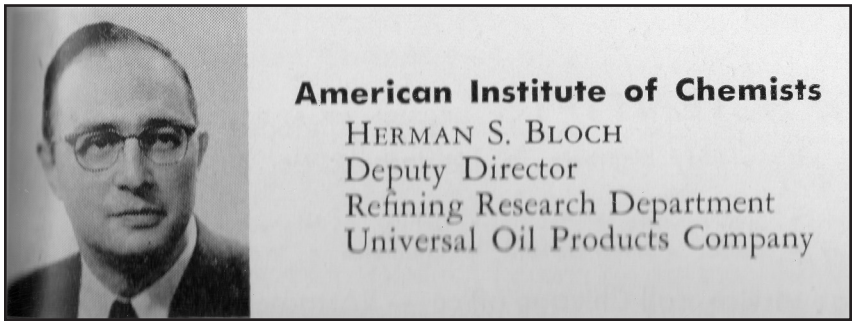
Bloch's initiative needed help, and the Chicago Section stepped up. Realizing that this change could prove difficult, key Chicago drivers knew that hard data on the scope of the problem would succeed at Society-wide scale. Through the late spring and summer of 1957, Chicago's Chemical Bulletin broke out of its normal regional boundaries and conducted a nationwide survey asking members where they stood, and invited open commentary. Should ACS adopt a strict policy of avoiding segregated cities? Should it make an effort, but accept segregated locations under some circumstances? Should ACS stay out of social questions because it's not a political organization?

Hundred of members across the country responded to the "straw poll", and many spoke their minds at great length on the subject. Chicago volunteers combed through the responses, tallying numbers of people who indicated they agreed with various statements. They admirably handled the task of combing through hundreds of open responses, studying their language, and classifying them in ways that enabled quantitation of members' opinions. With this data, the Chicago Section was ready to push Bloch's initiative at the ACS Council meeting.

We will cover the results of the straw poll and subsequent action in Part II of this article.

Josh Kurutz, Section Historian

[1]Chemical Bulletin, May 1957, v.44(5) p.5



STUDENTS AND POSTDOCS: WRITE FOR THE BULLETIN, PUT IT IN YOUR CV!

Younger chemists applying for jobs often have trouble showing a substantial publications list on their CV or resume. This list can be augmented with articles published here in the Chemical Bulletin! Our venue, which reaches about 4000 members, is especially useful for anyone who needs to prove a track record of nontechnical writing and writing for semi-technical or public audiences.

Of course, these are not peer-reviewed technical publications, but nontraditional media contributions are becoming more important in the competitive employment environment. These can be filed under "other publications". Your competitors may not even have that section.

IDEA SUGGESTIONS:

- Do you like people stories? Write a biography of an important chemist, especially one who has not been traditionally celebrated.
- Are you involved in a student ACS chapter or graduate student/postdoc association? Write up a summary of a recent activity. Your colleagues on other campuses might like to use your idea.
- Did a younger chemist you know just win a big award? Do a short interview with them and publish it! The awardee can put the interview on their CV as well.
- Did your institution experience a lab accident or safety issue that others should know about? Keep others safe and write it up, establishing a pro-safety track record for yourself as a side-benefit.
- Are you aiming to be part of a startup company and want to make contacts and bring it some attention? Write an article about it for our "A Company You Should Know" series.

SCALE: Feature articles should be about 250-600 words, and should be found interesting by a general chemistry audience, or at least a major subset thereof. Articles should each include an icon image and perhaps one or two other images (photos, graphs, diagrams, etc.)

Current Bulletins are archived on our website, and permanent unique links to articles are easy to generate; e.g. **https://chicagoacs.org/news.php?id=33#A_Company_You_Should_Know** .

Contact the editor, Paul Brandt, at **editor@chicagoacs.org** and propose an idea. Good luck!

WHO IS THIS? 1994 GIBBS MEETING FOR M. FREDERICK HAWTHORNE

Photographic documentation of the 1994 Willard Gibbs Award meeting needs help, especially with identifications of people at the head table. We have 26 photos from the event, which are now posted to a gallery on our website: **https://chicagoacs.org/gallery.php?id=77**

The images show a lively event at Café Continental (on Lincoln, in Chicago), with musicians and a large number of chemists, but in most photos of the audience it is difficult to determine people's identities. The Historian would appreciate any identifications or insights about the meeting; please drop a note to historian@chicagoacs.org.

Two photos show august denizens of the head table, but not all are identified. Photo #1 shows three unknown people plus Chicago Section Chair Sandy Angelos (S.A.), medalist M. Frederick Hawthorne (M.F.H.), and ACS President Ned Heindel (N.H., who bears a remarkable resemblance to former Section Chair Keith Kostecka). Photo #2 shows six people this Historian could not identify. However, we know that some appear in several photos from other Chicago ACS events, and it will be very useful to identify them. 9405-D and 9405-E, for instance, appear regularly in photos of this era, especially at Gibbs meetings. 9405-K spoke at the lectern, probably introducing the medalist, but the May 1994 issue of the Bulletin only identifies the person doing the introduction as "To Be Announced".

Photo #3 shows a small cluster of people admiring the medal, including Prof. Hawthorne (M.F.H.), two people who are obscured (possibly Sandy Angelos and Jim Shoffner), and a fourth person, who remains unidentified. Your Historian suspects 9405-M may be Luis Echegoyen , who is now the 2019 ACS President-Elect. What do you think?

The title of Prof. Hawthorne's talk was not printed in the Bulletin. If you know the title or can identify anyone in the photos, please send the Historian an email at **historian@chicagoacs.org**.

To help provide an impression of the evening and perhaps jog your memory, consider Prof. Hawthorne's award citation: "For outstanding contributions to the fields of inorganic chemistry and organometallic chemistry through his seminal discoveries in the rapidly expanding area of borane clusters. In particular, his work has provided pioneering insights into the syntheses, structures, bonding, and reactivity patterns of polyhedral borane anions, carboranes, and metallocarboranes. His research has made possible major new advances at the interfaces of chemistry with the biosciences, medicine, and other fields of contemporary importance such as molecular recognition."

Josh Kurutz, Section Historian

"CHEM SHORTS" For Kids

The Energy in Rubber Bands

In the February 2018 edition of ChemShorts For Kids you investigated how to make a chemical hand warmer. Although this month's activity may not be particularly effective if you need to warm up, it describes an interesting phenomenon.

Materials:
Thick rubber band
Blow dryer
Hammer
Ice

Experiment:
With the rubber band taut, place it on your forehead noticing the temperature. Now, stretch the rubber band quickly and put it back to your forehead. Do you notice a temperature change? Now stretch the rubber band fully and keep it pulled fully for about 10 seconds. Place it against your forehead and let the rubber band go slack. Do you again notice a temperature change? Now hang the hammer from the rubber band and notice where the bottom of the hammer is. As you heat the rubber band with the hot hair dryer do you notice that the hammer is moving? You can also try to ice the rubber band and see if the hammer moves.

What's happening?
Normally when you heat a substance, the substance gets larger or it expands. Water is a little odd here in that when you freeze it the ice takes up more space than the water did originally, but most substances don't behave that way. A thermometer works because the mercury or alcohol in the thermometer expands as it gets heated and contracts when it is cooled. It's why bridges have expansion joints in them so that when it gets hot, the surface won't buckle. Rubber bands however are made up of very long chain polymers that are all twisted up on each other as seen in the diagram below. When you stretch the rubber band the molecules line up with each other better.

The long chain molecules in unstretched and stretched rubber

The reason that most things expand when heated is because when you heat a substance you give the atoms more motion or kinetic energy. Now imagine the stretched rubber from above and you cause those atoms to move more quickly. You might perceive that as the atoms in the middle move around more that you might shrink the rubber band. This is what happened with the hammer pulling on the rubber band and heating it, the rubber band shortened. The same is true when you start with a tight rubber band and you allow it to go slack, your forehead put heat into the rubber band and the rubber band felt cool as it pulled heat from you. This allowed the molecular strands to jumble up with the increased amount of kinetic energy in the molecules.

References:
https://www.scientificamerican.com/article/bring-science-home-rubber-band-heat/

https://revisionworld.com/a2-level-level-revision/physics/force-motion/solid-materials/rubber

To view all past "ChemShorts for Kids", go to:
http://chicagoacs.org/articles/article_category/1

Paul Brandt

NEW ACS CHEMICAL SAFETY EXAM READY FOR FIELD TESTING

The ACS Exams Institute is developing a new, updated standardized Chemical Health and Safety Examination to replace the current one, which was published in 1997. Trial exams will be ready for administration this spring (April 2019), and the Exams Institute is seeking faculty members and participating institutions to field-test the exam(s) in their courses this spring (end of winter/spring term). Statistics from the two trial exams will then be used to select final content (questions) for the updated exam, planned for release in Fall 2019. The quality - and resulting success - of the new exam will thus be heavily dependent on the quality of data obtained from the trial exams. The most important variable in obtaining good statistics is a large sample size (n). Please consider signing up to participate in testing the trial exams! Exam content is focused on safety principles and concepts that students should have mastered in the first two years of college chemistry. Each trial exam will have 60 multiple choice questions and will require 55-60 minutes to administer. There are two criteria for the exam: 1) students should have completed at least two years of college chemistry, and 2) students' exam performance should permit allocation of some points toward their final course grades in order to ensure that students take it seriously. Please contact Irene Cesa, member of the Exam Committee and Chair of Environmental and Lab Safety for the ACS Chicago Section, at irenecesa@gmail.com if you are interested in supporting this initiative to promote and advance the importance of safety as a core chemistry value. Irene will forward the names and email addresses of interested faculty members to the chair of the Exam Committee. Thank you in advance for your interest and participation!

Irene Cesa

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www.facebook.com/ChicagoACS

twitter.com/ChicagoACS

https://www.youtube.com/user/AmerChemSoc

CALENDAR

February 7: Chicago ACS Section Board Meeting

February 10: Family Open House at the Lederman Science Center at Fermi Lab from 1-5 pm. Children must be accompanied by an adult (There's plenty for the grown-ups too). Most appropriate for children in grades 3 and up. **http://ed.fnal.gov/events/openhouse/**

February 22: Chicago ACS Section Dinner Meeting.

February 22: Spring 2019 Chicago Symposium Series on Excellence in Teaching Mathematics and Science: Research and Practice at Northern Illinois University – Naperville from 11 am to 6 pm. **https://www.math.uic.edu/chicagosymposium/index_html**

February 23: DuPage Area STEM Expo at the Illinois Institute of Technology - Rice Campus at 201 East Loop Drive, Wheaton (10:30 – 3:30) "Engineering New Horizons". **https://appliedtech.iit.edu/stemexpo**

March 14: Chicago ACS Section Board Meeting

March 17 – 21: Pittcon 2018 will be in Philadelphia, PA. **http://pittcon.org/**

March 21: Chicago ACS Section Dinner Meeting.

March 22: Spring 2019 Chicago Symposium Series on Excellence in Teaching Mathematics and Science: Research and Practice at Loyola University from 10 am to 5 pm. **https://www.math.uic.edu/chicagosymposium/index_html**

March 31 – April 4: 255th American Chemical Society National Meeting and Exposition "Chemistry for New Frontiers", Orlando, FL. **https://www.acs.org/content/acs/en/meetings/national-meeting.html**

April 11 – 14: 67th Annual NSTA's National Conference on Science Education, St. Louis, MO. **http://s6.goeshow.com/nsta/national/2019/overview.cfm**