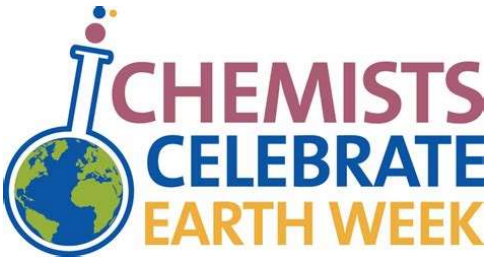
THE VORTEX

The American Chemical Society
California Section Newsletter

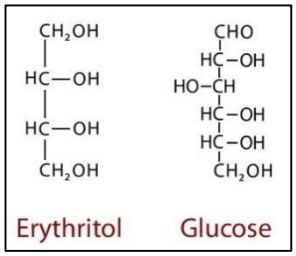
April 2023, Volume 85, Issue 4

WHAT'S INSIDE

Meetings, Activities, and News



History and Education



Review (s)

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MAGAZINE OF THE CALIFORNIA SECTION, AMERICAN CHEMICAL SOCIETY

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Middle: Chemists Celebrate Earth Week – acs.org
Bottom Right: Structure of Erythritol and Glucose - How Sweet It Is! Part 2, Bill Motzer
Bottom Left: One Day's Egg Take - Donald MacLean

If you have material you think is worthy, submit it to Donald.maclean.acs@gmail.com

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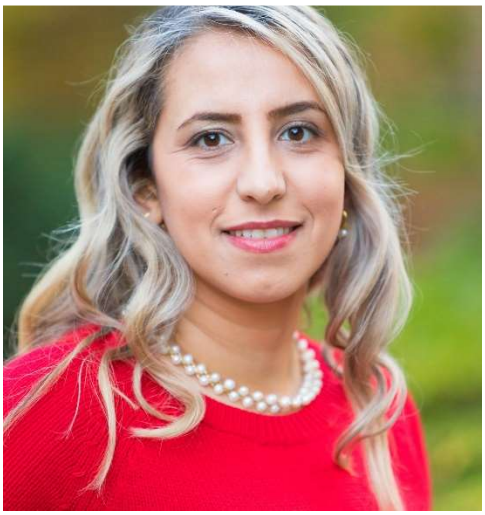


Greetings and welcome to April's edition of Vortex.

April is Earth Month, and it is an excellent opportunity for us all to raise awareness about environmental issues and advocate for change to protect our planet Earth. April 22nd is also celebrated as Earth Day, which was first observed in 1970 to bring attention to environmental problems, and it has since grown into a global movement.

It is interesting to note that Earth Month originated from a group of activists who were moved to action after the 1969 Santa Barbara oil spill. Wisconsin senator Gaylor Nelson was also instrumental in inspiring a group of activists to start a proactive environmental initiative called Earth Day, which led to the creation of Earth Month.

This year's theme for Earth Day and Earth Month is "Invest in Our Planet." It highlights the need for partnership and accountability from businesses and governments to protect our planet. As chemists, we have a critical role in supporting and advancing sustainable solutions.

Speaking of environmental activism, it is impossible not to mention Rachel Carson and her groundbreaking book, Silent Spring. Her work highlighted the dangers of indiscriminate pesticide use, particularly DDT, and paved the way for the formation of the Environmental Protection Agency (EPA) in 1970.

Our section has several exciting programs planned to celebrate Earth Month. On April 22nd, we will join other organizations to celebrate John Muir's 185th birthday and the 53rd Anniversary of Earth Day at John Muir National Historic Site. We invite you to participate in and support this fun event. If you would like to help at the event, please contact Sushila Kanodia (see her flyer in this issue).

Lastly, if you want to get involved in environmental activism and support our planet Earth, we encourage you to check out earthday.org website.

Thank you for your continued support of our section, and we look forward to seeing you at our upcoming events.

References:

https://www.earthday.org/history/

https://en.wikipedia.org/wiki/Silent_Spring

2023 Lloyd Ryland Outstanding High School Chemistry Teacher Award

By Eileen Nottoli

Brad Vereen from Dublin High has been awarded the 2023 Lloyd Ryland Outstanding High School Chemistry Teacher Award. Brad has been a frequent participant in the Chemistry Olympiad and his students are consistently high performers. He is also active in a number of extracurricular activities and is highly regarded by his students. We will be sending him a check for $500 and a check for $500 for the school's chem department. Two of his students are among the 14 that will participate in the 2023 National Chemistry Olympiad.

2023 Chemistry Olympiad Participation

By Eileen Nottoli

This year was even more time consuming than past years because the Local exam was leaked online. Twenty-three schools participated and we have five additional students who were online, homeschooled, or at non-participating schools. We and most other Sections use the Local exam to select students to participate in the Olympiad. ACS scrambled to get a new test and Julie Mason put in heroic efforts during the month of March to get the exam to all participating schools.

We have selected the 14 students to participate for the National Exam and each participant will receive a $50 honorarium.

This year, student from Abraham Lincoln High (San Francisco) scored a perfect 60 on the Local exam. He was a Project SEED student last summer and participated in tutoring last year with Alex Madonik and Peter Olds.

The National Olympiad will be held at Santa Clara University on April 22. Al, Bryan and Charlie [Al Verstuyft, Bryan Balazs, Charlie Gluchowski] have offered to help [proctor the exam]. Natalie McClure from the Silicon Valley Section and I [Eileen Nottoli] have agreed to increase the honorarium to $300 each.

The 20 top-scoring students from the National Exam will spend two weeks at a Study Camp June 4-17 to undergo rigorous training. Based on their performance, four students and two alternates are chosen from the 20 to represent the U.S. at the International Chemistry Olympiad July 16-25 at Swiss Federal Institute of Technology in Zürich, Covid 19 withstanding its taking place.

Exceptional Students

We have four Exceptional Students this year who will be getting $100 checks:

A senior Abraham Lincoln High [San Francisco], a three-time Olympiad, Project SEED student

A senior Dougherty Valley High [San Ramon] (participated in tutoring this year with Alex Madonik and a two-time Olympiad participant)

A junior at James Logan [Union City] (nominated by her teacher for her inquisitive mind)

A sophomore at Basis Independent (nominated by her teacher for her many chemistry activities)

Summer Project SEED Application Deadline Extended

By Donald MacLean

ACS has extended the Summer Project SEED deadline to Apr. 12. If a student is interested, he/she should submit as soon as possible. It may be that that student will get on the "Eligible list". The Application process for Project SEED (originally “Summer Experiences for the Economically Disadvantaged”). During Covid 19 on site summer internship did not occur; this year, on site experience will resume.

Go to https://www.acs.org/education/students/highschool/seed.html for information and application.

The coordinators are Elaine Yamaguchi and Michael Cheng.

In Memoriam: Gordon Moore

By Donald MacLean

Gordon Moore passed away on March 24, 2023. He is best known for the 1965 Moore's Law for chip density doubling every 2 years. Gordon was the co-founder of Intel. He attended San Jose State College (San Jose State University), UC Berkeley (BS Chemistry 1950), and California Institute of Technology (PhD Chemistry 1954). Information on his life can be found on Wikipedia and at the Intel website.

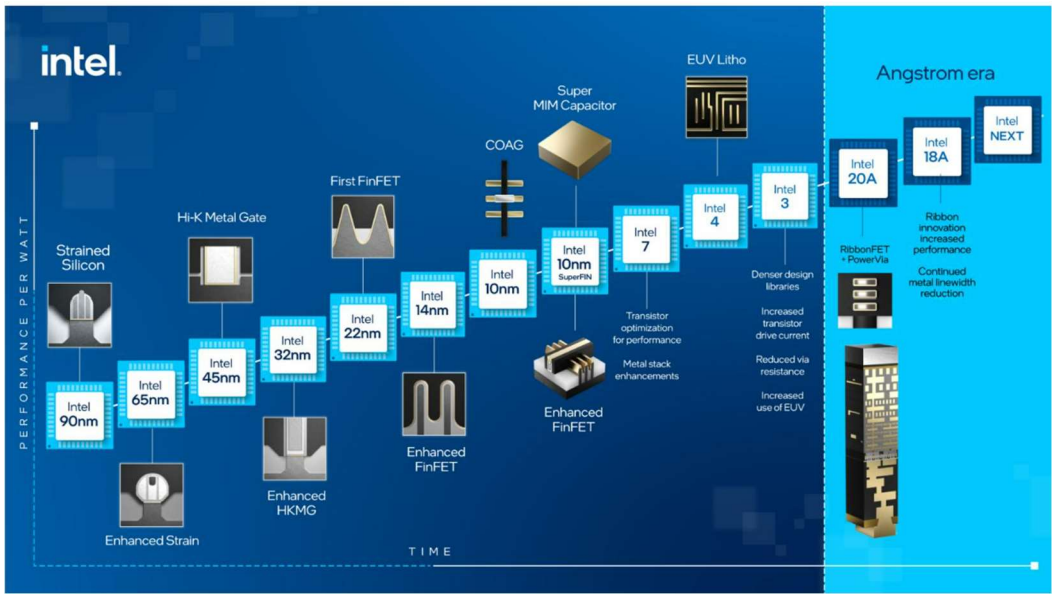


Figure 1. Evolution of the Transistor Over Time. The image taken from the Intel website does not show doubling, instead the performance per watt. Source: https://www.intel.com/content/www/us/en/newsroom/opinion/moore-law-now-and-in-the-future.html#gs.u9fpi2

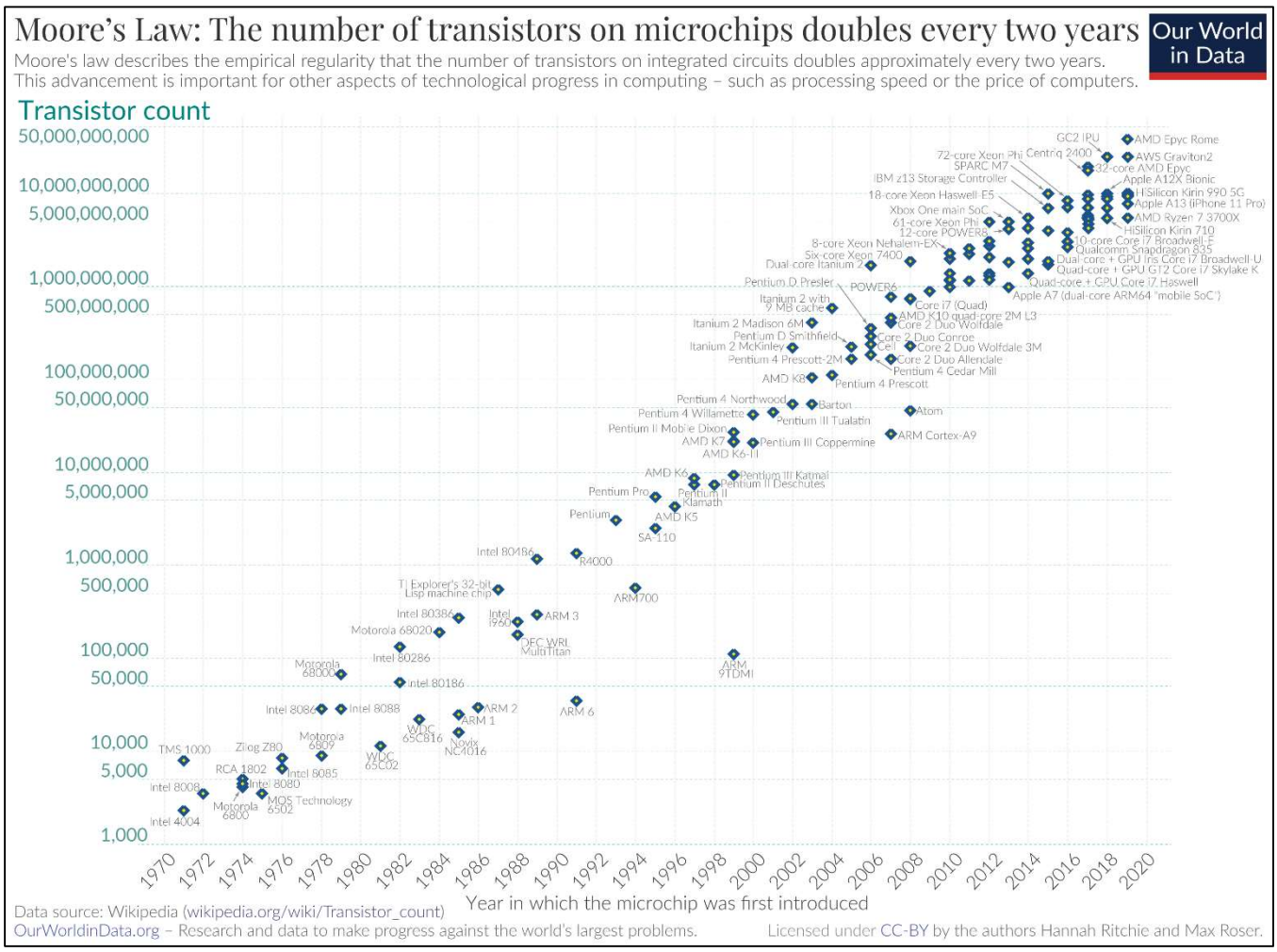


Figure 2. Semi Log Plot Showing the Doubling Relationship of Transistors with Time. Plot shows familiar names like 386, 486, and Pentium that were groundbreaking in the 1980's - 1990's.

Source: https://commons.wikimedia.org/wiki/File:Moore%27s_Law_Transistor_Count_1970-2020.png

Upcoming Events

By Julie Mason and Donald MacLean

1. Thurs., April 6th, Fuel Your Career with Chevron: An insider's Look into University Recruiting – Atefeh Taheri will be the lead. See subsequent pages for details.

2. Sat. April 8,2023 9:00 am-Berkeley Science Bowl Invitational - UC Berkeley

3. Sat. April 22, Earth Day Celebration- John Muir Birthday- John Muir Nat'l Historic Site - Sheila Kanodia will be the lead.

4. Sat. April 22, Chemistry Olympiad – Santa Clara University

5. Sat. May 6th, 8:30 am – 12:30 pm., Northern California ACS Undergraduate Research Symposium St. Mary's College. See calacs.org website for details. Encourage your students to submit an abstract by the April 24, 2023 deadline. For more details contact Steven Bachofer at bachofer@stmary-ca.edu. Please include NorCal Undergraduate Symposium on the subject line.

ACS Chemistry for Life® | California Section

Fuel Your Career with Chevron: An Insider's Look into University Recruiting

Thursday April 6, 2023
6-7 PM (PT)

The California Section of American Chemical Society is excited to announce a special session with Chevron, a leading global energy company. Attendees will have the opportunity to learn about the company's vision, values, and its university hiring process. In addition, the session will provide an inside look into the types of roles Chevron hires for, the types of candidates we look for, as well as tips and tricks on how to stand out in the interview process. If you are passionate about chemistry and looking to start or advance your career in the energy industry, this is a must-attend event!


Presenters: Mark Fields, University Recruiting Advisor – Petrotech (left) and Brian Redmond, University Recruiting Advisor – IT(right)

RSVP here!

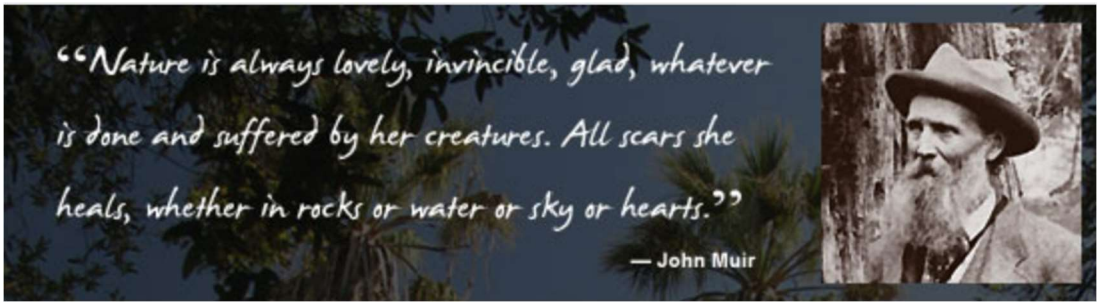
Zoom link to be shared with attendees the day of the event.

The event is FREE and open to all.

For questions: email taheri@ucdavis.edu

California Section of ACS Celebrates Earth Day by Partnering with John Muir Association.

Martinez, Saturday, April 22, 2023 10:00–4:00



Celebrating John Muir's 185th birthday,
the 53rd Anniversary of Earth Day,
and the National Park Service Centennial,
plus the 68th Anniversary of the John Muir Association

Cal ACS will be there with hands-on chemistry, featuring the 2023 Earth Week theme,

"The Curious Chemistry of Amazing Algae"

The California Section will join numerous other community and educational organizations for the return of this Earth Day celebration to Martinez. Look for the Cal ACS canopy, where visitors will discover how algae make oxygen by splitting water using the power of sunlight. Try splitting water by electrolysis, using electricity from photovoltaic panels, or make their own UV light-detecting bracelet using photochromic beads and much more!

If you can **help out at the ACS** booth, please contact **Sushila Kanodia** at calacsearthweek@gmail.com. See you there!

Admission and parking: FREE!

Location: 4202 Alhambra Avenue at Highway 4 in Martinez, California 94553

Reference:

https://johnmuirassociation.org/php/bday-earthday/bday-earthday.php

ACS Chemistry for Life®

CHEMISTS CELEBRATE EARTH WEEK

The Curious Chemistry of AMAZING ALGAE

April 16-22, 2023

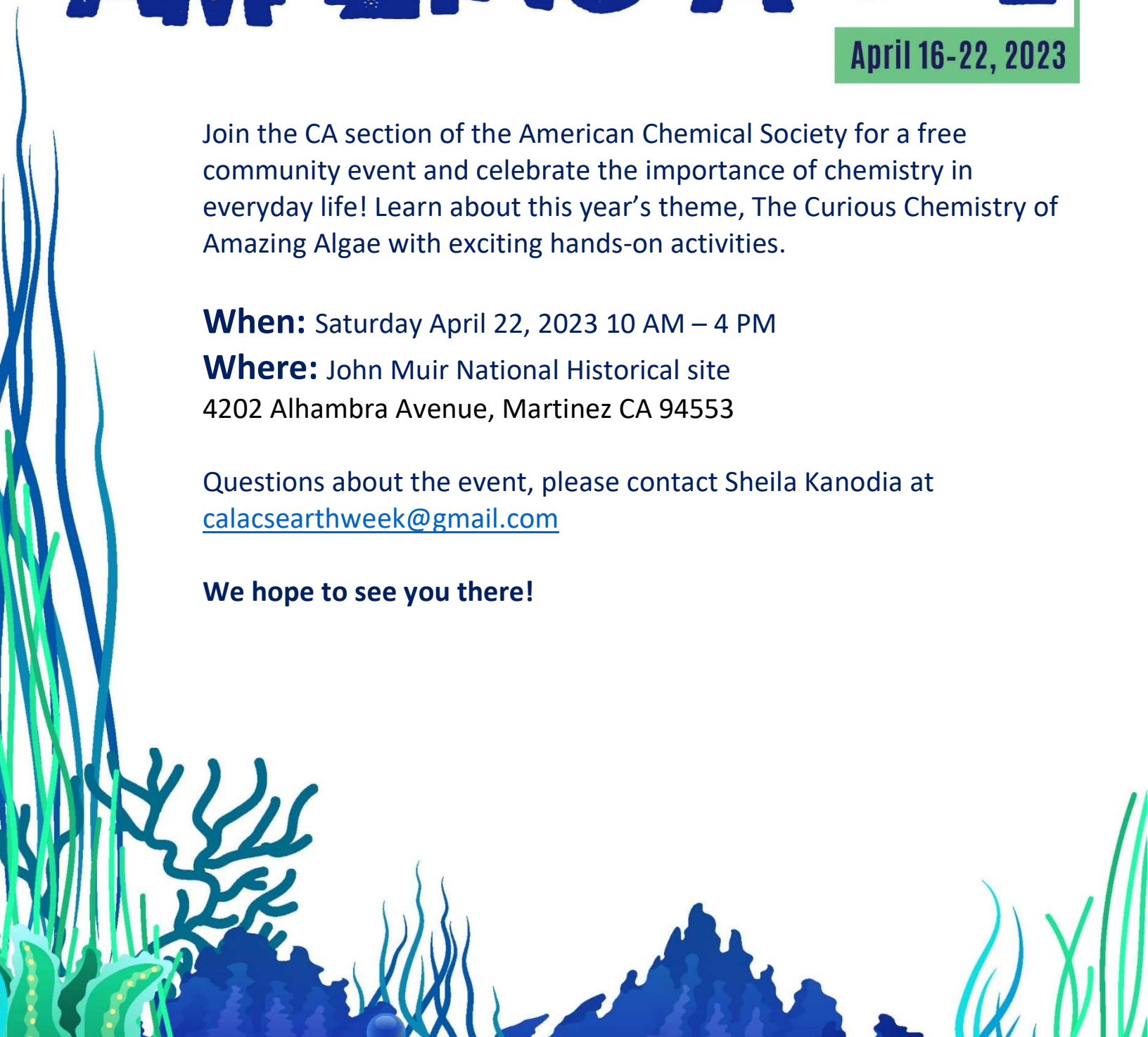
Join the CA section of the American Chemical Society for a free community event and celebrate the importance of chemistry in everyday life! Learn about this year's theme, The Curious Chemistry of Amazing Algae with exciting hands-on activities.

When: Saturday April 22, 2023 10 AM – 4 PM

Where: John Muir National Historical site
4202 Alhambra Avenue, Martinez CA 94553

Questions about the event, please contact Sheila Kanodia at calacsearthweek@gmail.com

We hope to see you there!



How Sweet It Is!
Part 2

by
Bill Motzer

In Part 1 of this series (Motzer, 2023), I discussed some sweeteners that currently are included in many of our food products. One such sweetener is the so-called sugar-alcohol, erythritol. Although it's a complex carbohydrate, erythritol is so named because it has a structure similar to sugar (e.g., glucose) and alcohol (**Figure 1**). This sweetener has become increasingly popular in foods such as snack bars and low-sugar ice cream substitutes. Although it's touted as naturally-occurring, erythritol is a manufactured product. According to a recent research paper published in the journal *Nature Medicine*, its consumption may increase heart attack and stroke risks (Witkowski, et al., 2023). This research prompted numerous news article comments concerning possible erythritol health effects (Herper, 2023; Johnson, 2023; Sullivan, 2023). Outside experts who reviewed the paper emphasized that more evidence is needed, with some raising concerns that the study's findings could be due to other factors that make it appear the sweetener causes risks when it does not (Weiss, 2023).

In a previous VORTEX article (Motzer, 2018), I reviewed some of the chemical characteristics of erythritol (CAS No. 149-32-6; systematic IUPAC name: 2*R*,3*S*-butane-1,2,3,4-tetrol; chemical formula: $C_4H_{10}O_4$; molecular mass = 122.12 g/mol). In the U.S. the Food and Drug Administration (FDA) has approved it as a food additive with a *Generally Regarded as Safe* (GRAS) designation. Because erythritol is about 60% to 70% as sweet as sucrose (common table sugar), and passes through the body relatively undigested, it's considered essentially noncaloric, thereby not affecting blood sugar, or causing tooth decay. Under FDA labeling requirements, it has a caloric value of 0.0 kilocalories per gram (kcal/g), which is approximately 95% less than sugar and other carbohydrates (ToxStrategies, 2018). Nutritional labeling varies with some countries, such as Japan and the U.S. which label it as a zero-calorie food and the European Union labeling it 0 kcal/g (Knowledge for Policy, 2021).

Erythritol occurs naturally in some fruits (up to 0.2 g per serving) (e.g., pears, melons, and grapes), mushrooms, and fermented/yeast-derived foods (e.g., wine, beer, sake, soy sauce, and cheese). It also occurs naturally (endogenously) in human and animal tissues and body fluids. Industrially, it's manufactured by starting with the enzymatic hydrolysis of the corn and/or wheat starch, generating glucose, which is then fermented with a non-GMO yeast (e.g., *Moniliella pollinis* or *Trichosporonoides megachilensis*) or another fungus producing erythritol. The end or final product is then crystalized to 99.5% purity by concentrating and filtering the fermentation

broth. Commercially, erythritol is produced as a white, anhydrous, crystalline powder, granules or liquid with a shelf life of about two years.

In the stomach, erythritol generally remains undigested passing through to the small intestines where about 90% absorption occurs by passive diffusion similar to many low molecular mass organic molecules, which do not have associated active transport systems. For such molecules, the absorption rate is determined by their molecular size. Therefore, erythritol, which is a 4-carbon molecule (**Figure 1**), passes through intestinal membranes at a rate faster than larger molecules such as mannitol or glucose. Therefore, because only 10% absorption reaches the large intestine, it does not have the laxative effects often experienced after consumption of other sugar alcohols such as xylitol and maltitol. However, extremely large doses can cause nausea and stomach upset. Erythritol consumption studies indicate that a dose of less than 35 g has less gastrointestinal side effects such as bloating, abdominal gas, and diarrhea than other polyols (e.g., xylitol). However, if erythritol intake exceeds 50 g, nausea and borborygmi (a rumbling or gurgling noise made by the movement of fluid and gas in the intestines) may occur. Another study showed that in males, doses greater than 0.66 g/kg body weight and in females, doses greater than 0.8 g/kg body weight, will cause laxation.

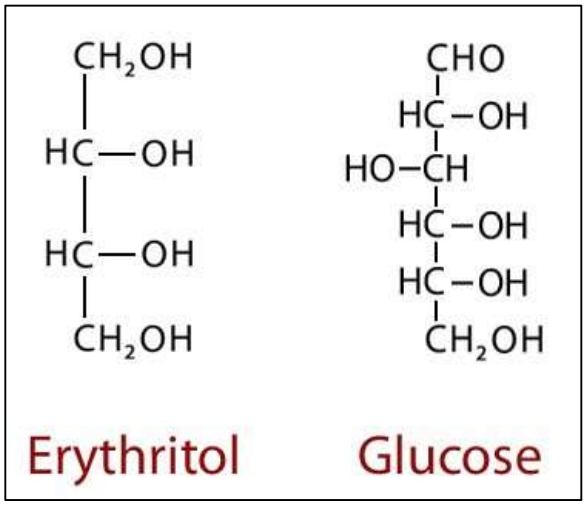


Figure 1: Structural comparison of erythritol and glucose.

Some general physical properties include:

- It has no discernible odor occurring with a clean sweet taste. In crystal form, it has a strong cooling effect in the mouth; however, when dissolved, such as in soft drinks, the cooling effect is lost.
- It does not decompose at ordinary cooking/baking temperatures of about 180 C (356 F).
- Very low hygroscopicity, not readily attracting moisture from air with a relative humidity 90%.
- Density = 1.451 g/cm^3 at 20° C.
  Water solubility at 25 C (77 F) = 370,000 mg/L solution, which is much lower than that of sucrose's water solubility at 2.12 x 10^6 mg/L at 25° C. However, it reaches sucrose's solubility at higher temperatures, for example, rapidly dissolving in water at up to 600,000 mg/L at 30 C, giving a low viscosity and clear / colorless solution.
- It's only slightly soluble in ethanol and insoluble in fat.
- The crystalline form's melting point range is 119 C to 123 C (246 F to 253 F).
- According to some producers, erythritol does not caramelize; however, some cooks believe that it does. Erythritol does not undergo the Maillard browning reaction with amino acids.

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Recommended Location:

Chicks Are In, Ready for Easter

By Donald MacLean

Urban chicken interest has been heighten due to high egg prices from bird flu driving the price of eggs to $10 / dozen and the difficulty of finding eggs, rivaling the Covid 19 toilet paper hunt. The interest in chickens around Easter are those that lay blue and green eggs by three chicken breeds, Olive Eggers, Ameraucana, and Easter Eggers. This month's activity recommendation is looking for and raising chicks (or ducklings / goslings).

Determine if you can have them:

Before going headfirst with getting chicks, there are some things that need to be checked. Determine how many chickens are allowed (Alameda County =3, Berkeley = no limit), what permissions are needed (Albany = Permit, 50 feet clearance or neighbors' approval). Do you have housing with a roosting area (off the ground)? Are you interested in eggs, meat, or show? How are you going to deal with waste?

Where are you going to put the chicks during the first 6 weeks? After 4 weeks the living room is going to get dusty and stinky. Use an outbuilding or garage if possible.

Obtain the birds:

It is time to decide what chicks (or ducklings / goslings) and where to get them. For goslings get these by mail order for $20+ each during April to July. It is very uncommon to find goslings at a feed store. For chicks there are many options, in person at a feed store, Craig's List, or snail mail for $5 to $10 each. If raising chicks is not your thing, you can buy pullets (4 month or older hens) for about $25 each in person or on sites like Craig's list, usually in the fall. Chicks obtained at the feed store will have been given the Marek's vaccine (Herpes virus disease). I recommend getting chicks that have been vaccinated.

Figure 1. Ad for Chicks from the March 17th, 2023 issue of Capital Press.

Here is what you need to know about buying young birds.

1. Mail order Chicks are sold 1 day old as a straight run (SR = 50% roosters 50% hens) or sexed. Some chicks are sex-linked, meaning their color indicates their gender, but most are not sex-linked. Egg layers may be sold as SR or sexed. Buy the sexed females as these are 90% female on average. Meat birds are sold SR. Show birds and less common varieties are usually sold SR.

2. In person sold chicks are 2 days old or older as described in mail order description line above. They traditionally arrive at the feed store on Thursday and Friday and have a 1-day quarantine before sale.
3. Young chickens' gender will be evident at 2 months as roosters will be more aggressive than hens, and will show bigger tails, combs, and bibs.
4. Goslings are hard to find in person, and will most likely be mail ordered. Goslings can be sold sexed, but there is no advantage in doing so as geese need male-female pairs. Geese eat a lot of grass and only lay eggs January through April. They are water mess makers and noisy.
5. Ducklings are sold occasionally at the feed store, mail order, and surprisingly after a fair with 4H participation. Ducks are extremely messy.
6. Guinea fowl are also sold at feed store and on-line. They are noisy.
7. Turkeys are sold at the feed store and on-line.
8. Quail eggs can be bought for incubation on-line. I do not recommend buying eggs for incubation as there are too many things that can go wrong.

Feed:

1. Grain physical appearance: Mash is grain that has water added so mash (think cream of wheat) is easier to eat. The main issue with mash is that you have to clean the container each day. Crumbles and pellets are dry forms, so water has to be available. 50 pounds for 6 to 10 chicks over the first 4 weeks.
2. Chicks need chick starter, as this feed contains lysine and methionine and high protein. The non medicated version does not contain amprolium (Figure 2). Feed presentation can be mash, crumbles, or pellets. Watch for slip wing as that is a sign of a diet that is too high in protein.

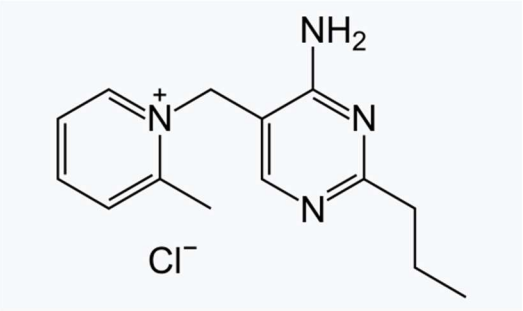


Figure 2. Chemical Structure of Amprolium. – Source Wikipedia

3. Chickens about to lay eggs need egg layer (crumbles or pellets). This contains 4% calcium for the good shells. Do not feed this to chicks as the high calcium level will destroy the kidneys. The protein level is NLT 16%. Some feed adds xanthophyll to darken the yolk. Green grass is a much better source for that orange color yolk and it also gives it an oily appearance.
4. Meat birds need meat bird grower as the high calcium in egg layer is too high.
5. Goslings need grass so scour the neighborhood for grass that can be thrown in twice a day. A diet without grass will create a watery poop. They also will need more niacin than chicks as this will be evident with bent legs, pigeon toes, or legs that unable to support the bird.

Table 1. Comparison of Feed by Growth Stage and End Desire			
	Protein	Other item of interest	
Chick Starter / Grower medicated or Chick Starter / Grower non medicated	18% - 20% protein and has been enhanced with lysine and methionine	Medicated version has amprolium used against **coccidiosis, nonmedicated does not.** 0.2 – 0.4% calcium	10 pound bag minimum
Egg layer	NLT 16%	3 - 4% calcium, magnesium, and vitamin D; May contain xanthophyll, a coloring agent derived from marigolds, produces deep yellow egg yolks	Feed no earlier than at 20 weeks if egg layer.
Meat Bird Grower	18%	0.8 – 1.1% calcium	Male and meat Birds
Scratch	NLT 8%	Starch grains like corn	High energy treat not regular feed
Green grass	NA		Yolks turn orange and is oily.
Food waste	Variable		
Oyster shell / limestone	NA	Calcium	Supplement to egg layer feed if shells are soft or not present

Sources: Farmers Best Feeds, Keyes, CA; Purina Animal Nutrition, Arden Hills, MN;

Supplies:

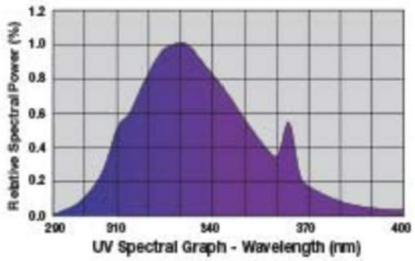
Feeder preferably with a reservoir. Elevate the feeder as chickens will want to kick out the feed.

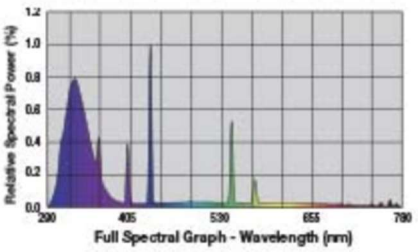
Water containers. Use another bowl to elevate this off the ground.

3 foot and later 5 foot diameter Kiddy pool for goslings and ducks. Tub or large area box for chicks that is at least 18 inches tall. Store will sell the chicks from raised metal 150 gal. planters, 4-sided plywood boxes, or poultry brooders. These are unsuitable at home.

Wire fence to cover the container containing chicks as the chicks will jump out. For gosling you will need a 2 foot high wire fence to surround the kiddy pool.

Heater for the first month. Get a 75 / 125 Watt minimum lamp bulb with red light, not clear or blue. Get one with high IR output, not UV meant for reptiles and amphibians (Figure 3).





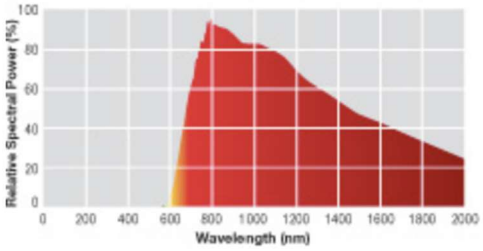


Figure 3. Spectrum for UV and IR Heating lamps. Left: UV heating lamps are for reptile and amphibian basking. Bottom: IR lamps are the ones for chicks. [3, 4]

Figure 4. Small Housing can be bought at the feed store. Note there is no wire flooring on the outside portion. I recommend putting in a wire grid on the ground or put in a perimeter barrier that goes into the ground. The roof on the side can be lifted to collect eggs. I recommend adding another layer of wire around the cage as racoons are tenuous and smart predators.

Wood flakes from pine or fir. Cedar is also available, but the shaving can be too thick and meant for hamsters. For ducks and goslings do not use straw as it mats. Do not use saw dust.

Plastic bags to deal with waste. Need a small broom and dustpan. Chicks waste the feed so the bulk of the clean up is actually feed.

Housing. Figure 4 shows a ready to use small housing that can be locked up at night, egg collection and a small yard that the chickens can scratch the ground. Get an automatic chicken door installed.

Chick Varieties:

See references for egg shell color, size, temperament, number of eggs expected. Do not get chicken with leg feathers like the Brahma as mud makes dirty feathers. Silkies are blue skin / black meat bird with feathers that lack the barbicels which keep feathers in that neat, smooth appearance so their feathers appear frizzled. One thing to look for is sex-links chickens as these are crossbred chickens whose color at hatching is differentiated by sex, thus making chick sexing an easier process (Figure 5).

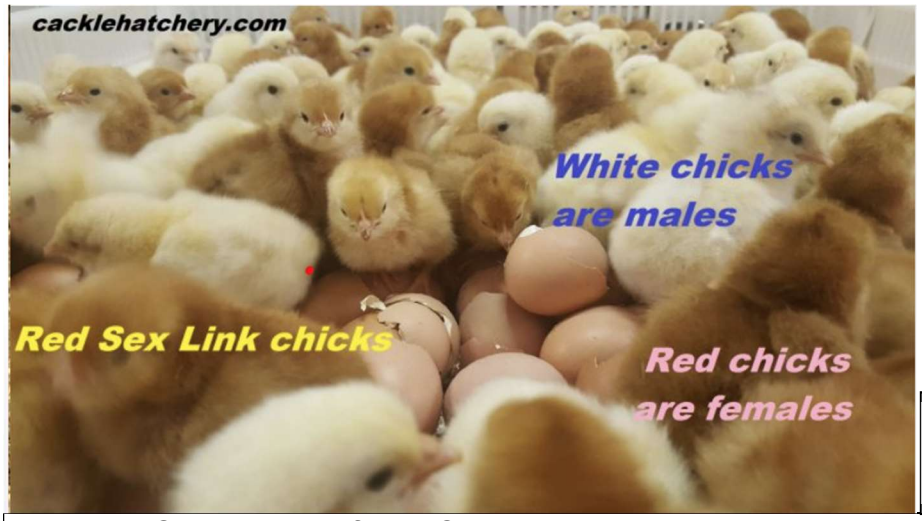


Figure 5. Sex-link chicks.

Table 2. Comparison of Egg Color

Breed	Color egg (outer shell only, the inside is white)	Comment
Rhode Island Red, New Hampshire Red, Delaware, Buff Orpington, Dominque, Turken (Naked Neck)	Brown	
Cuckoo Muran, Welsummer	Dark Brown / Reddish	Recommend Welsummer for egg production, Cuckoo Muran for feather appearance
Cornish Cross	Not know for eggs	Meat bird
Leghorn	White	Industry standard as the egg is white, thus can be candled.
Ameraucana	Green and blue throughout shell not just on the outside	This has become a favorite especially around Easter. Very hard to clearly see inside the egg by candling.
Easter Egger	blue, pink, green, sage, and yellow	

Note: wood flakes make lousy fertilizer as it uses up nitrogen as it degrades. Poop and feed make good fertilizer. The bulk of the waste is feed (maybe 70%).

Petaluma area has an abundant number of places that sell chicks in person. A list of mail order locations is listed in the reference section.

Up and Down Emotions:

Highlights are obtaining the birds and 6 months later the first eggs. Some of the first eggs will not have yolks, and others will be double yolks, most likely one type will follow the other the next day. Single yolk eggs will be the norm within 4 weeks. However, with each predator loss you realize what you should have done more. If you can lock them up at night, you are going to avoid the disaster that will come when a predator breaks into your housing for chicken dinner. Feel lucky if they only take the eggs.

Figure 6. Picture showing the variety of egg colors.
Source: http://pysanky.info/Eggs/Colors.html

Location: Feed Stores and Farm / Ranch stores
Cost: variable but expect $5 per chick, $20 per gosling, turkey; electricity for the first month $40, feed about $40 / month for 10 chickens, and initial housing that has sky as the limit.

References:

1 https://www.omlet.us/guide/chickens/laws_about_keeping_chickens/california_colorado_connecticut/
2 https://eastbayexpress.com/the-rules-of-husbandry-1/
3 http://www.exo-terra.com/en/products/reptile_uvb200-linear.php
4 http://www.exo-terra.com/en/products/infrared_basking_spot_lighting.php
5 Metzer Farms 2023 catalog: https://www.metzerfarms.com/geese-for-sale.html
6 https://www.mcmurrayhatchery.com
7 https://www.idealpoultry.com/item_group_products/1
8 https://www.privetthatchery.com/home
9 https://www.cacklehatchery.com/product/red-sex-links/

Chemistry on the Rocks Report

by Romit Chakraborty

The Chemistry on the Rocks Happy Hour, organized by Alex Bruefach from the Young Chemist's Committee for the California Section of the American Chemical Society, was a blast! The event was a perfect blend of chemistry-themed fun and tasty food and drinks that left attendees wanting more. The event was advertised with cool and quirky-themed flyers that caught the attention of chemists and scientists from all over Berkeley, and even beyond! From biotechnologists to chemical engineers, the diverse group of attendees had a blast mingling over the periodic table-inspired cocktails and munching on delicious tacos.

Event attendees enjoying food, drinks, and conversations!

As the drinks flowed, so did the conversation. Attendees shared stories about their latest lab experiments, discussed the latest research trends in their fields, and even debated the best way to balance chemical equations! The night was truly a celebration of all things chemistry and science, and it was great to see so many chemists having a fun and relaxed time outside of the lab. It's safe to say that the Chemistry on the Rocks Happy Hour was a hit, and we can't wait for the next one!

Alex Bruefach (Councilor, left) and Atefeh Taheri (Chair/Alternate Councilor, right).

Spring 2023 National Meeting Summary of Councilor and Other Committees Report

By Jim Postma

The following are notes from the Spring 2023 Indianapolis ACS National Meeting that took place in Indianapolis between March 26 to 30, 2023.

Candidates for President-Elect, 2024

The Council selected Dorothy J. Phillips and Florian J. Schattenmann as **candidates for 2024 President-Elect.** These two candidates, along with any candidates selected via petitions, will stand for election in the Fall 2023 National Election.

Candidates for District III and VI

The Committee on Nominations and Elections (N&E) announced the results of the election held prior to the hybrid Council meeting to select candidates from the list of nominees for Directors from District III and District VI on the Board of Directors for the term 2024-2026. (The California Section is in District VI.) Janet L. Bryant and Jeanette M. Van Emon were chosen as District VI candidates. Ballots will be distributed to members residing in District III and District VI around October 1, 2023, for these elections.

Candidates for Directors-at-Large

N&E also announced the selection of the following **candidates for Directors-at-Large** for the 2024-2026 term: Wayne E. Jones, Jr., Daniel Rabinovich, Carolyn Ribes, and Joseph P. Stoner. The election of two Directors-at-Large from among these four candidates and any selected via petition will be conducted in the fall. (Editor note: Directors-at-Large are elected by Councilors).

Highlights from Committee Reports and Key Actions

On the recommendation of the Council Policy Committee (CPC), Council approved the Petition to Amend the Duties of the Council Policy Committee to authorize CPC to review the conduct of Councilors.

As required by the ACS Governing Documents, CPC has set the divisor for Local Section and Division representation at Council for the period 2024-2027. The formula is based on membership numbers as of December 31, 2022. Notification will be sent by the Society Secretary to all affected units by May 1, with details on how they will be impacted.

On the recommendation of the Committee on Committees (ConC), and with the concurrence of the CPC, Council approved the Petition to Amend the Duties of the Committee on Environmental Improvement to change the name of the committee to the Committee on Environment and Sustainability.

ConC announced that the opening of the online preference form for ACS committees to all members begins on April 3 and will run through July 3.

On the recommendation of N&E, and with the concurrence of the CPC, Council approved the Petition to Add Plan B to Council Meetings, which authorizes the postponement of voting at Council in case of technology failures or natural disasters.

On the recommendation of the Committee on Membership Affairs (MAC), Council approved the 2024 Schedule of Membership which includes no change in regular member dues ($160 annually) as well as more options for membership.

Our Councilor, Alex Bruefach added that The Membership Affairs Committee (MAC) met on Sunday, March 26th. MAC has initiated 2 new working groups, the first focusing on community associates, and the second focused on students and transition to careers. Alex is leading the students and transitions to careers working group, which is focusing on developing benefits and material to better recruit, engage, and retain students and early career professionals. One of these initiatives will focus on building collaborations between student chapters, local sections, and divisions. Alex hopes that our local Section will continue to drive this initiative to help increase recruitment and retention of young ACS members in our Section. She looks forward to sharing more updates about these efforts in the coming months.

In addition, MAC introduced the 2024 Schedule of Membership which passed at Council. The changes include updates to the disability waiver, allowing individuals with a long-term disability who have paid one year of membership to get a full waiver of membership dues. In addition, the emeritus membership status has changed to allow any member who has paid a full 35 years of membership and is retired to hold this status, removing entirely the age restriction of emeritus members needing to be 70 years of age.

Another of our Section Councilors, Bryan Balazs, is a new Associate on MAC. He reported that:

- In addition to the items noted by Alex regarding the 2024 Schedule of Membership (SoM), this new schedule allows Society Affiliates to choose the “Standard” membership package, whereas previously the only choices for Society Affiliates were the “Premium” or “Basic” packages. This change makes the membership options for Society Affiliates the same as those for regular Members.

- MAC devoted a large part of its discussion to understanding the trends in ACS membership, but this analysis is complicated by the fact that much has changed in recent years regarding the introduction of Community Associates, the three membership “packages”, and the fate of those members who do not pay their dues. What is clear is that membership by chemists working in industry continues to decline, while at the same time the lower cost options of ACS membership are becoming more appealing to many individuals. The Board of Directors has formed an Advisory Board to study the former issue and make recommendations to reverse the decline in industrial member participation.

- MAC also discussed the results from surveys that assessed the value to membership of the various ACS Programs, Products, and Services (PPS). The items that consistently rank very high are C&EN, the national and regional meetings, ACS information services such as CAS and the Publications, information pertaining to careers, and opportunities for networking.

Bryan also reported that newly appointed ACS CEO Al Horvath visited MAC at the beginning of its meeting. Assisted by the new interim CFO Neil Pal (Mr. Horvath had been the CFO/Treasurer

until his appointment to CEO on Jan. 1, 2023.) they spoke on the importance of the initiatives to grow and sustain membership in the ACS.

The Committee on Local Section Activities (LSAC) announced the launch of the ACS Speaker Directory, a new resource for our component group leaders to access a wide range of speakers for their in-person, hybrid, and asynchronous events.

The Committee on Meetings and Expositions (M&E) is actively engaged in collaborative efforts to re-imagine ACS meetings, targeting increased value and relevancy. Councilors can expect to receive more information on the Future of Meetings project in the coming weeks, starting next month with the M&E Chair comment in C&EN.

Another of our councilors, Alex Madonik, reported that two of our members, Vanessa Marx and Alex Bruefach, spoke at the Council Meeting on issues related to graduate student employment as instructors and researchers.

Patrick Lee attended the meeting in person due to attendance of a Committee on Chemistry and Public Affairs (CCPA) meeting as an associate member. A few guest speakers presented, including Judy Giordan (ACS President), Victor McCrary (National Science Board) and Bernat Navarro Serer (ACS Congressional Fellow).

CCPA went over the results from the strategic plan. From this, 3 subcommittees were defined related to Member Engagement (interaction with policymakers), Policy (identifying/harnessing ACS experts for policy), and the ACS Fellowship program. Patrick has decided to join the Member Engagement subcommittee led by Heidi Vollmer-Snarr and consulted by Bonnie Charpentier. CCPA Chair, Mick Hurrey, specifically requested Patrick's membership on this committee.

Alex Bruefach at ACS Council Meeting.

Specific actionable items for the local section - we should identify a champion to interact with our local representatives. We should also encourage members to sign up for Act4Chemistry - a resource to forward prepared statements to our local legislators: https://www.acs.org/policy/memberadvocacy.html

The Senior Chemists Committee voted to oppose the petition to create an International Director position on the ACS Board of Directors. At the same time, it urges an action to be brought to Council to develop representation of the International Chapters on Council. When this process is established and its success is measured, then can be the time to establish the representation of our foreign members in some type of form on the Board of Directors

The California Section will be co-hosting the fall ACS meeting in San Francisco, August 13-17.