

# THE VORTEX

AMERICAN CHEMICAL SOCIETY  
VOLUME LXXXIII NUMBER 5

CALIFORNIA SECTION  
May 2021



Donald MacLean, new Editor of the Vortex, effective August 1 2021

WCC MEETING	PAGE 2
SEED & ELAINE YAMAGUCHI	PAGE 2
CHAIR'S MESSAGE	PAGE 3
ALL THAT GLITTERS...PART 3 (B. MOTZER)	PAGE 4
ACS NATIONAL MEETING REPORT (M. FRISHBERG)	PAGE 5
MILLS COLLAGE (A. FABRE)	PAGE 10
TRANSITION (L. RIGALI)	PAGE 15
ADDITIONAL SECTION EVENTS	PAGE 15

California Section  
American Chemical Society



All are welcome

Saturday, May 15, 2021

Title

From Water to Human Dynamics:  
Taking a Non-traditional path to make  
chemistry more inclusive

Time

10:30 – 11:00 a.m.

Chatting

11:00 a.m.

Talk and Discussion



Dr. Chrissy Stachl

About the Speaker

Dr. Chrissy Stachl (she/ella) graduated from the University of Washington in 2014 with dual B.S. degrees in Chemistry and Neuroscience. Prior to starting her Ph.D., she spent a post-bac research year at the Fritz Haber Institute in Berlin, where she was funded by the German Academic Exchange Service (DAAD) to study the structure of sugar polymers at ultracold temperatures. She began her graduate studies at the University of California, Berkeley in 2015 as a National Science Foundation and Ford Foundation Fellow, where she began using infrared photodissociation spectroscopy to probe the structure and energetics of hydrated

ion clusters in the gas phase. Her desire to improve the quality of mentoring interactions that are so critical to graduate student success led her launch a longitudinal study of the Berkeley Chemistry academic climate. Shortly after, she switched the focus of her research to chemistry education and spent the rest of her Ph.D. working to understand the issues that negatively affect diversity, inclusion, and belonging within graduate communities, and designing interventions to directly combat these disparities. Chrissy earned her Ph.D. in Chemistry in 2020 from UC Berkeley and is now the Director of Education, Outreach, and Diversity at the National Science Foundation Center for Genetically Encoded Materials (C-GENM). Outside of work, Chrissy loves spending time with her dog Rosie, indulging in photography, hiking, and camping. She recently also contributed to a Women in STEM all-ages coloring book, created by ColorMePhD (downloaded it here: <http://bit.ly/colormephdvols2> for free!)

*Award Symposium held on 4/16/21 in honor of Elaine Yamaguchi*

By Elaine Yamaguchi

During the Spring ACS National meeting, an award symposium was held in honor of Elaine Yamaguchi of the CA Section. She won the ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences, sponsored by the Camille and Henry Dreyfus Foundation. With co-organizers, Michael Cheng and Spencer Walse, a SEED symposium consisting of nine speakers was assembled.

Learning About and Practicing Social Justice through Project SEED and WCC: Elaine explained how her early childhood in de facto-segregated Fresno, CA, followed by her undergraduate education at Brandeis University, an institution named after a Supreme Court Judge involved in social justice issues, molded her. After studying organic chemistry at Yale for graduate school, she met Alan Nixon and Glenn Fuller, whose support helped the CA Section SEED program become the second largest in the country. The volunteers in the CA Section SEED Program are the stars of this effort, so Elaine asked volunteers of each necessary component to speak.

Encouraging Young Chemists into the Central Valley's Agriculture: Spencer Walse represents mentors who work in government labs, such as the USDA lab in Parlier, CA, which is at the southern end of our SEED territory in the agriculturally rich San Joaquin Valley. If it were not for SEED, high school students typically work in the fields during their summer break. Spencer started his journey in chemistry with K.L. Rinehart at the University of Illinois studying natural products. Today he is involved in scientific, political, and economic issues regarding agricultural trade. He is proud of his eight students who have received a BS degree in chemistry, five of whom went on to graduate school.

*(continued on page 4)*

# THE VORTEX

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## Chair's Message

Happy Summer! And a hearty congratulations to all our CalACS members that are graduating in June 2021 with their degrees! May is full of celebrations. A few that are noteworthy include National Space Day, the first Friday in May (May 7). Chemistry is a huge component of space exploration and with the Perseverance Rover landing on Mars recently, chemical analysis has been a major component of the mission and has been in the news. May is also Asian American and Pacific Islander Heritage Month. PBS has written an article highlighting Asian American and Pacific Islanders in STEM fields. May 22 is the International Day for Biological Diversity. We invite you to share your chemistry and science knowledge with your family, friends, colleagues, and communities and to celebrate these events.

On top of these chemistry-related holidays, in May, CalACS has a lot in store for its members. CalACS has invited Professor Angela Wilson and Dr. H.N. Cheng to speak to our section in two separate events. Angela Wilson is the President-Elect of the national ACS and her event on May 11 will focus on embracing diversity, inclusion, and equity within ACS. This event is sponsored by Cal ACS, Portland ACS, and Puget Sound ACS, and more details can be found on our website. H.N. Cheng, the current ACS President, will speak to us on May 25 regarding his life

experiences as a chemist and his outlook on the future of chemistry. This event is sponsored by Cal ACS, the Berkeley ACS student chapter, and the Southern Louisiana ACS student chapter, and more event details are on our website. I would also like to bring to your attention to the ACS Northwest Regional Meeting (NORM), this year hosted by the Puget Sound ACS section. Speakers include local California researchers, so be sure to check out the event. Two events Cal ACS is helping to advertise for NORM are the Senior Chemists Breakfast on May 10 and the Women Chemists Committee Rising Stars Symposium on May 11. Also in the spirit of collaboration, we have multiple events planned between Cal ACS and East Bay AWIS, with one event that just occurred in April and another upcoming event in July. We're proud to continue collaborating with ACS local sections and other organizations across the USA to bring you great programming.

As usual, the CalACS executive committee and *The Vortex* take the summer off. So please check out our website and LinkedIn page to stay up to date with summer events. I look forward to reconnecting with you all in September. Be safe and stay well.



### CORRECTION

The award for Dr. Atefeh Taheri announced last month is for 2021 not 2020.



# All That Glitters....?

## Part 3

by  
**Bill Motzer**

### Introduction

In Part 2 of “All That Glitters ?” (March 2021 Vortex), I discussed some of gold’s physical and chemical characteristics, including the fact that most naturally-occurring gold occurs as an alloy of gold, silver, and copper known as electrum. But where did all of that gold come from and is it really that abundant?

### Gold’s Formation

As indicated in the October 2020 Vortex (“Digital Dentistry Revisited – Part 2) elements heavier than lithium (Li;  $Z=3$ ) were and still are created by stellar nucleosynthesis (SN) in evolving and exploding stars or supernova. For elements beginning with and above niobium (Nb;  $Z=41$ ) through uranium (U;  $Z=92$ ), recent SN research now indicates that these elements are produced in both dying low mass stars and merging neutron stars. These heavier elements have been dispersed throughout the universe, incorporated in supernova remnants that eventually formed the planetary nebula and metal-rich stars such as our Sun, the rocky inner planets, and asteroid belt. Most of the heavy elements such as gold quickly combined with iron and sulfur that sank to the Earth’s core during its formation about 4.54 billion years ago (Ga). However, additional gold and other heavy precious metal elements such as platinum (Pt;  $Z=78$ ) were brought to Earth by the Late Heavy (asteroid) Bombardment (LHB) that occurred from about 3.7 to 4.3 Ga. Remnants of the LHB can be seen in Lunar and Martian impact basins (see Peter Olds’ June 2019 paper listed and linked in the November 2020 Vortex: Comment on “Prelude to a tentative idea”).

In the Earth’s crust, gold is a rather scarce metal and it’s much scarcer than the Rare Earth Elements (REE or Lanthanide series – see “How Rare is Rare” Parts 1 to 3 in the March to May 2011 Vortex). However, REE (e.g., cerium or Ce;  $Z=58$ ) are combined with silica and are more difficult to extract. Most gold is in its native form or combined with tellurium (Te;  $Z=52$ ) as gold tellurides, e.g., calaverite and krennerite ( $\text{AuTe}_2$ ) petzite ( $\text{Ag}_3\text{AuTe}_4$ ), and sylvanite ( $\text{AgAuTe}_4$ ). All gold mined to date from antiquity to the present would probably fill a modern day tennis court (23.77 m x 10.97 m) to a depth of 10m.

So how did this crustal scarce gold form the concentrated mineral deposits that are mined today? That answer will be addressed next in Part 4.



(SEED Continued from page 2)

All came back to work in the Central Valley’s ag chemistry efforts.

Project SEED at an Industrial Research Laboratory, a Win-Win-Win affair: Michael Cheng is a veteran mentor from Chevron. His unique approach with his many SEED students allowed for satisfying the student’s own curiosity, as well as completing important work for Chev-

ron. For example, one student worked on the problem of acid in crude oil; the more there is, the greater potential for corrosion issues in Chevron’s refineries. Another student’s personal curiosity led her to wonder about the different chemicals in Diet Coke vs. Coke. By hosting SEED students, Chevron is introduced to the surrounding community and its school district. Michael believes that each student can contribute to

*(continued on page 9)*

## REPORT FROM THE ACS NATIONAL MEETING

**“VIRTUAL” San Antonio, TX – March 22-25 and April 5-30, 2021**

### Highlights from the “Virtual” San Antonio Meeting

The COVID-19 pandemic that interrupted just about every area of life in the US, including the two ACS National Meetings in 2020, continued to be a factor in 2021. The Spring National meeting, which was scheduled to be held for the first time in San Antonio, TX, was turned into a virtual meeting, like the meeting last August. However, with more time to plan and take advantage of new technologies, the current meeting just ending had a lot to offer, including the submission of over 8400 abstracts and the greatly reduced registration fee to \$99 for members (\$29 for students), from \$250 for the Fall 2020 meeting, and otherwise \$475 had there been the in-person meeting. An interesting and successful innovation, that could really only be feasible for a virtual meeting, was the separation in time of the governance activities, which occurred in the two weeks prior to the technical sessions. In addition, the technical sessions were spread out over two weeks, instead of five days, followed by two weeks of “On Demand” viewing opportunities for many of the most popular sessions.

Some aspects of a normal in-person National meeting were attempted virtually with mixed success – “virtual” poster sessions, the ACS store and Exhibition, and Sci-Mix. Unfortunately, considering the current challenging job market, for the third meeting in a row, the ACS Career Fair with its attendant career counseling sessions was not held, although it was replaced by virtual presentations on April 24th and live, break-out career counseling sessions afterward, as well as similar hour-long sessions each Thursday morning for the past several months led by ACS Career Consultants.

active in attracting and hosting special Presidential symposia for this meeting, likely setting a record for the number that were held. In addition to the “kick-off” opening keynote talks on the meeting theme “Macromolecular Chemistry – the Second Century,” a second keynote session was held with the topic “Advancing Diversity, Equity, Inclusion, and Respect Across the Chemistry Enterprise.” Other Presidential Symposia were “Plastics and the Oceans – Chemistry for the Journey Ahead,” and “NSF Toward Sustainable Chemistry – Reinventing Catalysis.” There were nine different sessions related to the overall Presidential symposium title “Sustainability – Advances and Applications,” covering “Overview of Sustainability,” “Biobased Polymers,” “Biobased Molecules,” “By-Product Utilization,” “Water Product Utilization,” “Food-Energy-Water Nexus Part 1 and 2,” “Nanotech that Drive Sustainability,” “Food Safety and Security,” and “Sustainable Food Systems for Health.”

The ACS Committee on Community Activities and President H. N. Cheng hosted a virtual Kids Zone presidential outreach event as part of ACS Spring 2021 and Chemists Celebrate Earth Week (CCEW). The online educational event took place on Earth Day, Thursday, April 22, from 10am-noon PDT. Viewers were led through three activities by experienced science educators. Activities aligned with the CCEW and ACS meeting themes “Reducing Our Footprint with Macromolecular Chemistry” with the goal of educating students, parents, and teachers about the vital role green chemistry plays in bettering our lives. More info at [www.acs.org/kidszone](http://www.acs.org/kidszone).

Of special interest to CALACS members was the Project SEED symposium on April 16th honoring long time CALACS Project

ACS President, H. N. Cheng, was especially

continued on page 6)

SEED coordinator, Elaine Yamaguchi (retired Chevron and long-time CALACS Councilor) in recognition of her receiving the ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences, sponsored by the Camille and Henry Dreyfus Foundation. With co-organizers and speakers, Michael Cheng (Chevron) and Spencer Walse (UC-Merced), the nine-person symposium included Dr. Yamaguchi plus other speakers and Project SEED advisers from Chevron and UC-Merced, and from USDA Labs in Albany and Parlier, CA, Stagg High School in Stockton, CA, and one of the coordinators of the largest SEED group - in the North Jersey Local Section from Union City, NJ. Elaine shared how growing up in Fresno, CA followed by undergraduate school at Brandeis University and grad school at Yale primed her for joining with other CALACS members, Alan Nixon and Glenn Fuller, to grow the second largest SEED program in the country, after she returned to the CALACS area to work at Chevron.

Another local person winning a National ACS award, the Earle Barnes Award for Research Management, was Dr. Wendy Young of Genentech, whose award address was presented during the Division of Medicinal Chemistry awards symposium.

The popular Kavli Foundation Lecture series continued, this time split between Friday and Monday mornings instead of its normal Monday afternoon slot, with the Emerging Leader Lecture given by Professor Cesar de la Fuente, University of Pennsylvania entitled, "Marine Biology for Infectious Diseases," and the main Innovations in Chemistry lecture given by Dr. Omar Yaghi, University of California-Berkeley, entitled "Discovery and Reticular Chemistry of Covalent Organic Frameworks."

Considering the continuing threat of the coronavirus, even with high vaccination rates currently taking place, virtual technology may still be needed in August 2021 when the National meeting

is scheduled for Atlanta, GA, one of the hardest hit States. For now, plans are being put in place for a "hybrid" meeting that would have some in-person, on-site activities if possible, but the final decision is yet to be made. With the average age of the ACS Council probably being near 60 years of age, it would seem unlikely that the governance function would meet in person, even though there will be a strong will to do so after missing three meetings. Stay tuned!

Report from the Virtual Council Meeting and other Society governance activities

CALACS was represented at Council by our full contingent of eight Councilors or Alternate Councilors, our two Past ACS Presidents and current two Directors-At-Large to the ACS Board. Information on some of the activities of the committees to which they are affiliated can be found below.

All of the governance functions at this National meeting were held in March, ahead of and separated from the technical sessions that were held throughout April. Several petitions were up for discussion and vote:

### **Committee on Committees:**

Petition to Harmonize Committee Structures, Processes, and Terms, as amended. This was a most ambitious effort, brought to Council after years of study, and generated the most discussion before vote and approval. In essence, most ACS committees, other than the three elected committees, will now be open to non-Councilors and will be term limited to two, three-year terms. Exceptions to the term limits were built into an amendment to cover situations where it could be necessary to extend a term due to unique expertise of a member, at the discretion of the ACS President and Chair of the Committee on Committees. The petition's controversial discussion and passage (55%-45%) was likely due to its breadth,

*(continued on page 7)*



affect, and apparent limited multi-National meeting discussion and development with at least some of the committees that would be most negatively affected in the short term by the term limits, resulting from the recent modifications of the ACS Constitution and Bylaws and the disruption of this and the 2020 meetings due to the coronavirus.

**Membership Affairs Committee (MAC)** Petition on membership levels – the ongoing experiments by MAC to reverse the downward trend of ACS membership have resulted in a new hierarchy of membership categories which was discussed and passed (92.7% for). The dues for regular members will be reduced from \$175 to \$160/year and several new categories of membership will be established: one for students having a significantly lower dues structure, and one for interested parties who will receive limited benefits and not pay any dues. While appearing to be risky in terms of ACS dues dollars, the logic is that the new arrangement and dues schedule will attract considerably more members and recognizes that most of the ACS’ financial support comes from its publications’ income and not member dues.

**Local Section Activities Committee (LSAC)** Petition on Local Section assistance – Council was presented and passed ( 93% for) a petition giving LSAC the ability to intercede and reconstruct the Executive Committee of a Local Section that is having severe organizational challenges and is not functioning to the betterment of its members. Such actions are not expected to be needed very often.

**Divisional Activities Committee (DAC)** Allocation of Division Dues, a new divisor for the distribution of dues among ACS Divisions was presented by DAC and passed (85.5% for) by Council.  
**Affiliations/comments by : Councilors, Past ACS Presidents, and current Directors-At-Large**

Bryan Balazs – ACS Board of Directors (2020-2022), Budget and Finance Committee (B&F), Chair, Board of Trustees – ACS Member Insurance Program

The ACS Board of Directors received reports from the Chemical Abstracts Service (CAS), ACS Publications (Pubs), Membership and Society Services (M&SS), along with a summary of the ACS 2020 Budget. The Board considered new input on an increased emphasis on the Diversity, Equity, Inclusion and Respect initiative (DEIR), as these pertain to a new ACS Strategic Plan Goal 5 on this topic (adopted late in 2020). The Board reviewed compensation and performance metrics for the ACS Executive Leadership Team, the renewed Leadership Institute, and the situation for both regional and national meetings given the continuing concerns with regard to the Covid pandemic. The Society Committee on Budget and Finance (B&F) received detailed reports of the outcome of the ACS 2020 budget, the new 2021 budget, challenges arising from both new ACS and CAS Staff work-from-home arrangements, the national meetings under the pandemic, and the new Portfolio Evaluation and Optimization (PEVOP) mechanism for review of the Society’s programs. PEVOP was conceived in 2020 and will “roll out” starting in 2021. B&F discussed at length the “Membership 2.0” initiative that was contingent upon a petition before Council in late March (this petition passed). The ACS’ financial position continues to be strong, with the ACS ending 2020 with \$61M in “Net from Operations” (Revenues minus Expenses). ACS Member Insurance Program - Ongoing discussions have been held on the existing insurance offerings to ACS members, potential new offerings, and the challenges arising from the pandemic. Modifications were made to the Chemical Educators Legal Liability (CELL) policies in light of new definitions of “remote learning” and “virtual classrooms/laboratories.”

*(continued on page 8)*

Jenelle Ball – new Councilor in 2020 - appointed to the Committee on Environmental Improvement

Michael Cheng – Project SEED The Project Seed committee met virtually on March 13<sup>th</sup>. The 2021 SEED Summer Program will have two formats, a virtual summer camp and a virtual research pilot. Applications for students, cabin leaders, and camp managers are now open.

Mark Frishberg – Council Policy Committee (CPC); Chair, CPC Long Range Planning subcommittee and member CPC Constitution, By-Laws, and Petitions subcommittee, and, ACS Career Consultant and Workshop Presenter (not meeting)

The CPC Long Range Planning subcommittee held a well-attended orientation webinar for new Councilors and Alternate Councilors in mid-February and another just prior to Council (March 19), the latter comprised of presentations from the ACS President, HN Cheng, and the Chairs of the Nominations and Elections Committee, and the Committee on Committees, followed by informational break-out sessions with other ACS committee Chairs. A mentoring program was offered to new Councilors and Alternate Councilors to help them become integrated into ACS governance.

Sheila Kanodia – *Committee on Ethics (ETHXETHX)* is developing products (seminars, case studies, videos, etc.) for students and local sections to increase the awareness of ethics in our profession for the benefit of all; has developed a new website, [acsethics.org](http://acsethics.org), containing useful information and resources; and has established ChemLuminary awards.

Lee Latimer – ACS Board of Directors, Western Region Board

Patrick Lee – new Councilor in 2020 awaiting committee assignment

Alex Madonik – Committee on Community Affairs (CCA) Currently serving on the CCA theme teams, including Chemists Celebrate Earth Week 2021, whose theme is “Reducing our Footprint

with Chemistry.”

The theme for NCW 2021 will be, “Fast or Slow . . . Chemistry Makes It Go” with a focus on reaction rates, catalysis, etc. The potential rebranding of National Chemistry Week to better include the activities of our International Chapters was discussed.

Eileen Nottoli – Local Section Activities Committee (LSAC) Attended the virtual meetings of the LSAC Subcommittee on Grants to evaluate IPGs and MEET grants.

Attila Pavlath – ACS Past President, International Activities Committee (IAC)

James Postma – Committee on Constitution and By-Laws (C&B) C&B met virtually via zoom and discussed all petitions up for Council approval, although due to normal practice did not take a position on any of them.

Marinda Wu – ACS Past President, Committee on Budget and Finance (B&F), ACS Career Consultant (not meeting), Board Chair for Chinese American Chemical Society (CACS) The kick off for the CACS 40th Anniversary Celebrations was a great success with the CACS 2021 spring virtual program on 4/20 receiving positive comments from ACS Board members, Past ACS Presidents and many professionals and students. Stanford Dept Chair Professor Zhenan Bao gave an inspiring talk on “Skin-Inspired Organic Electronics” now posted on the CACS website at [www.cacshq.org](http://www.cacshq.org).

## Looking ahead to Atlanta – August 22-26, 2021

At this point it has not been decided whether or not the August meeting will operate as a normal in-person meeting, or whether it will be a hybrid or virtual meeting. Initial planning is for a hybrid meeting. The overall meeting theme will be “Resilience of Chemistry.”

## News you might use

Do not forget that ACS offers dues

(Continued on page 9)



waivers upon request for any unemployed or laid-off members.

Abstracts of the papers and posters presented at the meeting are archived at [www.acs.org](http://www.acs.org), and those plenary and symposium presentations that were recorded, with sequenced slides, can be found at [www.acs.org/meetingcontent](http://www.acs.org/meetingcontent). Selected On-demand talks from the 2021 Spring technical meeting will be available for attendees for 30 days following the end of the meeting.

Any members interested in the latest ACS financial performance can look at [www.acs.org](http://www.acs.org), click on the "About ACS" tab and then "ACS Financial Information." Information regarding grants offered by all ACS committees can be found at [www.acs.org/getinvolved](http://www.acs.org/getinvolved).

### Interesting Statistics

The Committee on Economic and Professional Affairs (CEPA) reported that ACS Career Consultants held over 700 hours of member counseling sessions and

six on-line virtual career events so far in 2021 reached 900 members. Several new Career Consultants were approved, including one in India for the first time.

The 84th Awards Ceremony recognized 75 recipients of 59 national awards and sponsor representatives. The 2020 Priestley Medalist, Dr. JoAnne Stubbe, Professor Emerita, MIT, gave the keynote presentation "The Road Less Traveled -- for Love of Detection, Discovery and All things Radical in Nature."

The Division of Petroleum Chemistry is celebrating its 100th anniversary.

Submitted by Mark Frishberg, CALACS Councilor, with input from our other Councilors, Past ACS Presidents, current Directors-At-Large, and other National Committee members – April, 23, 2021



*(SEED continued from page 4)*

the technical work of his lab and has even joined the National SEED committee in his retirement.

Experiences with the ACS SEED Program at UC Merced (UCM), in California's Central Valley: Patti LiWang, a professor at UCM for several years, explained that 80% of high school students in Merced County are considered low income. Clearly this is an ideal community from which to find SEED students. She wants to give opportunities to the local students to learn and earn; thus, she volunteers each summer to mentor SEED students in her lab, which studies HIV inhibition by a protein, Griffithsin, that binds HIV gp 120. It is delivered by colorful self-inserted birth control devices made with silk fibroin. SEED students weighed in on what is acceptable to young women: what will they use? The technology aims to encourage young women in sub-Saharan Africa to control their own bodies with vaginally or rectally in-

serted devices. Patti is thrilled to see the upward academic progress of her SEED students.

Initiation and Growth of Project SEED at UC Merced: Andy LiWang, also a UCM professor, detailed the growth of SEED at his campus over about a decade. Starting with two students, SEED grew to twelve in 2019, the year before the pandemic shut down all in-lab activities. He noted two important outcomes for SEED students: 1. They wanted to pursue more science courses, and 2. Their confidence level had risen. He listed 'lessons learned' to achieve growth: 1. SEED needs enthusiastic SEED Coordinators; 2. SEED needs high school chemistry teachers who promote SEED in their classrooms; 3. SEED needs the faculty at the hosting institution to value the program; and 4. SEED needs

continued on page14)

## *Mills College Closing*

By Angel Fabre On March 22,

The Mills community reacts to the announcement of the Mills College transition to Mills Institute.

On Wednesday, March 17, the President's office announced that Mills College will begin transitioning from a degree-granting institution to a Mills Institute due to the "economic burdens of the COVID-19 pandemic, structural changes across higher education, and Mills' declining enrollment and budget deficits." After Fall '21, the college will no longer admit or recruit first-year undergraduates. This decision was made by the Mills College Board of Trustees, and it is likely that Mills will grant its final degrees in 2023, pending further consideration by board members.

"While Mills' role as a degree-granting college will end, its mission will endure. Mills intends to continue to foster women's leadership and student success, advance gender and racial equity, and cultivate innovative pedagogy, research, and critical thinking by creating a Mills Institute housed here on campus," President Hillman wrote, "Over the next few months, Mills faculty, trustees, staff, students, alumnae, and other stakeholders across our community will consider potential structures and programming for a Mills Institute."

In a follow-up to the announcement, the Provost and Dean of Faculty Dr. Julia Chinyere Oparah sent an email to the student body about efforts to support continuing undergraduate and graduate students.

"Graduate students will continue to be enrolled after fall 2021, depending on individual circumstances and degree programs, with the expectation that their programs will be completed by the end of spring 2023," she wrote.

Guided by Mills' accrediting agency, Western Association of Schools and Colleges (WASC), the Provost's Office plans to create new systems for all degree programs where continuing students will be able to complete their degrees through "a

combination of Mills, partner institution and online consortium courses." Students who won't graduate before Spring 2023, such as the incoming Class of '24, may have other options to transfer as Mills develops new relationships with other small colleges, local independent colleges, and historical black colleges and universities (HBCUs). Starting September 2021, the Office of Admissions will start to help students with their individual transfer plans "by providing streamlined applications and advising." These transfer opportunities will become available as soon as Spring 2022.

There are conversations with historically black women's colleges, such as Bennett College located in Greensboro, North Carolina and Spelman College based in Atlanta, Georgia.

Amid feelings of sadness and anguish, students were initially concerned about the validity of their degrees, tuition changes, support for staff and faculty and what a Mills Institute was going to look like. During a town hall held the afternoon of the announcement, senior administrators held a virtual question-and-answer session to share more details and reasoning behind the decision.

"The financial challenges that Mills faces, makes it impossible for us to continue to grant the kind of high quality education that Mills wants to offer to its students," President Hillman said.

This year, Mills College has an overall budget of about \$50 million with a deficit of \$3 million. The deficit had been decreased from \$14 million through several financial efforts to cover operating costs. Mills sold William Shakespeare's First Folio, a treasure in the collection, received donations from generous alumni and was authorized by the Board of Trustees to use more of the endowment funds to cover operating costs. College endowment funds are typically restricted to supporting such issues as fi-

(continued on page 11)

(Mills continued from page 10)

nancial support for teaching, research and public service. Even with a large decrease in the budget deficit, Mills

is unable to financially sustain itself. President Hillman expects there to be several educational partnerships in the future.

At this time, there have been no defined plans for a Mills Institute other than a commitment to ensure a continuation of the College's mission.

"It means that Mills won't indefinitely continue to grant degrees, but we'll continue to pursue its mission in a different forum, not by being an accredited degree-granting college, but instead, by being a place that supports student success, gender, racial equity, and women's leadership through programs and co-curricular efforts: other initiatives are yet to be designed," President Hillman said. "... We anticipate a co-design process that will involve many stakeholders to build a Mills Institute."

While there have been conversations regarding a potential transfer for students to UC Berkeley, there have been no final decisions regarding the expanded partnership introduced to students in October.

Upon receiving the news, students, staff and alumni shared their shock, sadness and frustration via Twitter and MillsGo. For decades, the Mills community has created safe spaces for students and since 2014, Mills has been a pioneer in its admissions process, being the first historical women's college to admit transgender students. For many, Mills is a place to call home.

Sonja Piper Dosti, Class of '92, came to Mills from Dallas, Texas and expressed her appreciation for how the college challenged her as a student and her desire for the space to be maintained for students.

"Mills meant opening my world and my viewpoints and my preconceived notions, challenging me and a lot of things that I believed in. And what I loved about Mills was just the diversity of our student body, our passion for human rights, women's rights, for people of color, for people from around the world. And, you know, being there, obviously, we were there during the strike, too," she said. "Mills just taught me

to find my voice and to make sure that I never backed down from the things that I was passionate about."

A year ago, Piper Dosti and other alumna learned more about the recent financial struggles and declining enrollment during the Class of 1992 luncheon with President Hillman. The president outlined several initiatives being considered such as conversations with UC Berkeley and potentially selling land or assets for additional income.

"So a lot of the ideas she was sharing, felt encouraging, and we thought, 'Well, Mills is in good hands with President Hillman because she had a passion for Mills', as an institution for equity and for women and dealing with the issues of gender and race," Piper Dosti said.

Piper Dosti plans to continue to support Mills but she and many alumni have questions about what a Mills Institute will look like.

"I don't want to think 'Oh, I'm going to withdraw my money now and I'm going to send it to another women's college' ... I'd rather it still be at Mills, but I need to know what that's going to look like, and how it will continue to preserve the identity of what Mills has been since 1852. And I know it's different today than what it was back then but there has still been a heritage of it ... just breaking ground in so many different ways," Piper Dosti said. "... We need to know what we alums need to do. Do we need to mobilize and do something to preserve aspects of Mills? What can we do? And I know there's already alums that want to be sure that every student who's there can still get their degree."

Meredyth Cohen, Judicial Chair of the Associated Students of Mills College (ASMC), felt similarly in regards to the announcement. With conversations around partnerships with other colleges and budget deficits, she understood that there was a strong chance of changes within the institution. She reflects on her time so far in ASMC and having a comfortable space on-campus.

"I felt very comfortable there around hav-

(continued on page 12)

(Mills continued from page 11)

ing leaders, especially my predecessors ... acknowledge me as a leader there. I think ASMC really felt like it was a space where I wasn't always the person that had to stand up for disabled people and neurodivergent people and things like that," Cohen said.

However, she understands students' reactions to wanting to transfer in response to a Mills transition.

"I know a lot of students who want to transfer because one, I think a lot of people feel like their degree won't hold as much value ... that's definitely a concern. And then I think people also [are] just worried about professors leaving and just like the school not really being able to offer everything," Cohen said. "And then I think a lot of people just want to transfer because even if they're in Class of 2023, but let's say they were on a five-year plan, then they [have] to change."

Paloma Silva-Navarro is a first-year at Mills whose initial college experience was completely remote. She and many other students in her class are expecting to transfer by or before Spring 2023 as their graduation date is set for 2024. She received the announcement from the President's Office during her English class.

"We were all full of questions and disbelief at first," Silva-Navarro said. "... I am still anxious to see how Mills will be able to provide us the support during this rough transition."

As a high school student, she had visited Mills for the Swim a Mile for Breast Cancer event and found that the college was a space for people from diverse backgrounds.

"I really enjoyed seeing the women's leadership and encouragement firsthand. Now that I am able to attend Mills College, it feels different," Silva-Navarro said. "Due to the pandemic, I felt like many other freshmen across California, a disconnect from the community that I thought I would have [been close to]. But I also was able to look out for extracurricular activities such as Latino Heritage Month and my job as an Eco rep. They made me feel closer to Mills' missions to foster growth and learn-

ing."

After hearing dialogue amongst her peers about what should be done in the aftermath of Mills closing, she believes Mills should consider returning the land to the Indigenous community it was historically stolen from, the Chochenyo Muwekma Ohlone people.

The Sogorea Te' Land Trust, an indigenous women-led land trust based in the San Francisco Bay Area and Huichin, Ohlone land, shared a post on their Instagram on the day of the announcement. They encouraged Mills to use the opportunity to return the land through the trust.

"Every end could be a new beginning... Mills campus was founded on a former Ohlone village site in 1852 after the Indigenous people who lived there were forcibly removed and enslaved," the post read. "Actually, every school in this territory is built on stolen land and has benefitted from the displacement of and state sponsored genocide against California Native people. Maybe now is a good time to begin healing a small piece of that history? Hi Mills! We are a land trust, hit us up."

The futures of faculty and staff are also uncertain. They were aware of the history of financial challenges at Mills but knew that President Hillman had been working to establish revenues to alleviate the college's deficits. Even with the anticipation of change due to conversations regarding expansion, it was unclear what Mills was planning for the future.

On March 10, The Mills Staff Union Organizing Committee submitted questions to President Hillman during a faculty and staff town hall meeting to learn more about what steps were being taken to support staff, faculty and students in an expansion and what decisions were being made with UC Berkeley.

The Mills Staff Union has scheduled a bargaining session with President Hillman to discuss new concerns staff have regarding plans for an institutional change.

"We're looking forward to it, we're grateful for her taking the time to do that," Kallie Caetano, a member of the Mills Staff Union Organizing Committee and Bar-

continued on page 13)

continued from page 12

gaining Team, said. "We had been trying to advocate for greater involvement for staff in particular, because that's who we as the union represent, to have some involvement in these decision making processes. And unfortunately, that just didn't come to fruition. So, we're still kind of hoping that we might be able to change this dynamic a little bit and create opportunities for there to be more democratic decision making happening at Mills."

In a survey conducted by the Mills Staff Union amongst its' members, they learned that one of the main concerns was job security. The survey was shared to identify staff concerns, what they wanted for Mills' future and their desires for a possibility of a partnership with UC Berkeley.

Amongst the surveyed members of the Mills Staff Union, 65% identified as "the sole breadwinner in their household" and 85% rely on health care benefits for themselves and/or their dependents.

But it's really not what drives a lot of people to come and work at Mills. What drives people to come to Mills are the students, the culture, the mission, the vision, and the values."

Over the years dealing with budget deficits, staff at Mills have felt that these financial strains have fallen on them. According to Caetano, all workers lost their retirement matching benefits at the start of the pandemic. Retirement matching is when an employer matches the amount the employee puts towards their retirement by a certain amount.

"I think that there's good intentions at the executive level of the college," Caetano said. "And I think that without specific and concrete commitments to how those good intentions will be carried out, it leaves key constituencies, staff and students, I'm sure also, and faculty concerned about the future."

In February, the Adjunct Faculty Union surveyed its' members and according to Professor David Buuck, Chief Steward of the union, "a vast majority" rely on Mills

as their primary source of income and wanted a guarantee of future employment and clarity regarding partnering with another institution.

"Not just because of the wages, I want to make clear it's also because of the commitment to a certain kind of educational vision," The Adjunct Faculty Union shares similar concerns regarding job security, the futures of students, faculty and staff, and an expanded partnership with UC Berkeley. While nothing has been finalized between the university and Mills, the union has questions regarding support for students who want to complete their degree at Mills and those who want to transfer to a similar institution.

According to Professor Buuck, in the beginning, there was hope that UC Berkeley would hire tenured and tenure-track professors in the event that there was an acquisition of Mills. The adjunct faculty union had to put pressure on the administration to be offered a similar opportunity as tenured and tenure-track professors, who were being offered workshops to put together professional portfolios for hiring consideration at UC Berkeley.

"Providing a workshop on how to improve your CV and give good interviews is very different than 'We will work to make sure that you are given two years commensurate salary and healthcare ... as severance to weather the storm of unemployment as a result of this,'" Professor Buuck said. "And now it seems like Berkeley is saying, 'We are not going to guarantee ... who we're going to take, it's going to depend on our needs, is going to depend on individual departments, etc.'"

Students and alumni have begun to organize through a Facebook group and Slack channel called "Save Mills". Members of the organization have continued to share information and create plans for a new future for Mills in order to reverse the Board of Trustee's decision.

This article is a summary that was Published in the Campanil, by Angel Fabre the editor-in-chief. Contact her at [eic@thecampanil.com](mailto:eic@thecampanil.com)





(SEED continued from page 4)

the upper administration to value the program. All these needs are more than satisfied in the UCM SEED program.

Project SEED and My First Steps in Exploring the Scientific Career Path: A beneficiary of the SEED program is Cindy Ho, who worked in both 2017 and 2018 at the USDA lab in Albany, CA. She studied alternatives to natural rubber, concentrating on guayule. In particular, she examined alternatives to the normal carbon black fillers used in tire manufacture. Her 2018 project involved research on lignocellulosic biomass, where she learned totally different experimental techniques. She won a National ACS Project SEED scholarship for her freshman year (2019-2020) at UC Davis. In the summer of 2020, she became a paid Cabin Leader in the Virtual SEED Summer Camp sponsored by ACS.

Administrative Support for SEED Coordinator Tasks and Deliverables: Liz Miller is a retired technical writer from Chevron, but before she retired, she wondered if she could continue as a volunteer. I was thrilled!! Every large program needs someone like Liz who initially worked with me in a reactive mode, but later unleashed her skills to make all aspects of the program easily manageable. Examples of her creativity are: 1. A 40-page How-To Guide (for Chevron contractors who assumed her role), filled with tasks, dates, and who is responsible; 2. A master contact list (static) and a current-year participants list (dynamic), to which Liz can apply filters for finding specific data, such as all teachers at Richmond High School; 3. Student certificates of completion generated by Word Mail Merge; 4. Gmail ACS templates for sending notes to teach-

ers, for example; and 5. The collaboration between ACS and the Society for Technical Communication (STC), resulting in a former SEED student winning a SEED scholarship.

SEEDs at Stagg High School: This high school is in Stockton, CA, the city where the “Living Wage” experiment is now happening, so this is another area teeming with potential SEED students. Bill Lorentz is a career chemistry teacher, having nominated close to 80 students over the years. SEED has led to a working relationship between Stagg and the University of the Pacific (UOP). Prior to SEED, UOP was viewed as an inaccessible college campus. Thus, SEED has had an impact on the whole Stagg campus, opening students’ eyes to what is possible, even for economically disadvantaged students from Stockton. UOP mentors look forward to participating in the CA Section SEED Program, even though they are officially in the Sacramento Section.

Leveraging Project SEED to Promote Careers in the Chemical Fields: Luckily, Nadia Makar, a master chemistry teacher from Union City, NJ, and a coordinator for a large SEED program, agreed to speak at this symposium. Before her participation in SEED, no student from her school ever went to Ivy League colleges; she changed that. Amazingly, the school board listened to her and agreed to provide buses to transport the students to their worksites (many educational institutions nearby). Transportation is a thorny issue for SEED coordinators because most of the students do not drive or have cars if they do. She played a video where two former SEED students expressed their gratitude to her and the SEED program. Both young adults work in the pharmaceutical industry.





## *New Editor, Don MacLean, will start with the September 2021 issue*

I will be transitioning out of the position of Editor of The Vortex. June 2021 will be my last issue. Donald Maclean will be in charge in August, putting his team together for the September issue. I am not planning to go anywhere, and plan in contributing articles for the Vortex even as I continue with several of my projects.

It is always a good time for reflection but particularly at times of change. I had four objectives when I started with the Vortex:

1. Be timely; meaning having the issue out and on the website by the first of the month so that announcements of meetings and events would be relevant for the month.

2. Content of the Vortex should focus on some aspect of Science.

3. Selection of Information and articles would not typically be on most members' reading list.

4. Continue with the tradition of collaborating with section members in publishing the Vortex

I am very appreciative of the long term consistent help and advice from Evaldo Kothny with his many technical inorganic articles, followed by Bill Motzer with a focus on both chemical safety and interesting inorganic applications.

Linda Wraxall, Greti Sequin, and Wally Yokoyama were super important help proofreaders over more than 10-15 years.

Alex Madonik's outreach announcements, descriptions, and photos were almost in every issue. One always looked forward to those important community

events.

Each month we announced a Section meeting, many times arranged with graphics headed by the WCC with the help of Elaine Yamaguchi and her cohorts in the section and at Chevron. Congratulations on her National award award for Project SEED.

Recently we welcomed back Al Verstuyft who does a last look before he puts the issue on the website.

Each month Julie Mason mails a physical copy of the Vortex to those members who so requested. She then sends an email announcing the presence of the current issue to the entire membership.

Each new Chair-Elect arranges one or more events every month which is no small feat.

Each year Eileen Nottoli reminds us of the number of local talented school children as they compete for local and international prizes under the Chemistry Olympiad program.

Even though Mark Frishberg has moved out of California he is still active in the Section. He provides a summary of the topics covered at the National ACS Council meeting, summarizing each of the attending member's report for the Vortex to publish as a resource for all members. Thank you all who have contributed directly and indirectly, you have all helped to support the Vortex. With that level of support, I am sure this tradition will continue with the new editor.

Lou

### *Additional section meetings and Events in May*

May 6 - Dr. Saman Alavi studies clathrate hydrate materials using molecular dynamics simulations. Thursday 5:00 to 6:00 PM PDT

May 11 - Professor Angela K. Wilson, PhD President-Elect of the American Chemical Society, Tuesday – May 11, 2021 – 5:00 to 6:00 PM (PDT)

May 25 H. N. Cheng 2021 ACS President, Tuesday, 3:00 PM to 5:00 PM (PDT)

All events are remote on-line and free.  
Please visit the Section website [www.calacs.org](http://www.calacs.org) or email [aliciaataylor@gmail.com](mailto:aliciaataylor@gmail.com) for registration or other information.

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