

the CLARifier

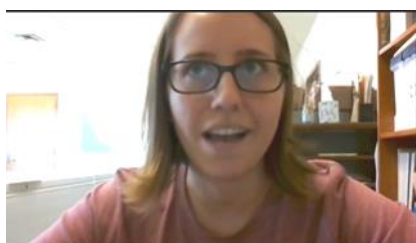
CLAREMONT ROTARY NEWSLETTER

IN SERVICE ABOVE SELF

Claremont Rotary Year 93 | Week 7 | August 20, 2021

PROGRAM: CALBG Seed Bank, Cheryl Birker

Submitted by Harry Sparrow



Lucinda McDade introduced our speaker, Cheryl Birker, the Director of the Seed Bank and the Seed Conservation Program Manager at California Botanic Garden (CalBG) where

Lucinda is the Executive Director. Cheryl is local to our area. She went to Cal State Fullerton where she graduated Summa Cum Laude with a degree in biology and a concentration in biodiversity. Shortly after college Cheryl joined the Seeds of Success program at the then named Rancho Santa Ana Botanic Garden. This led to the leadership level of Seed Bank Manager for several years.

Cheryl started with a short recap about the wonderful resource we all have so close at hand: The CalBG. It is 86 acres where we can visit and buy California native plants for our yards. It has a large herbarium and it houses the nationally recognized botany program for Claremont Graduate University. And, of course, given our program title, it is the home of the California Seed Bank. The seed bank is an essential part of the Seed Conservation Program at CalBG. The seed bank comprises over 5,000 accessions representing more than 2,000 California native plant species and cultivars. The geographic scope of the CalBG collection encompasses the entire state of California as



well as the Mexican portion of the California Floristic Province. Emphasis is placed on the rare plants of Southern California. These collections help protect our most threatened plants from extinction, conserve material for habitat restoration, and serve as source material for research as well as for living collections at botanic gardens for increased public education and appreciation.

Cheryl told us that there are many seed banks and seed conservation programs around the globe. One of the most significant is the Svalbard Seed Vault burrowed into the side of a mountain on a Norwegian island not far from the North Pole. It is massive. She said the role of this vault is to act as an insurance policy for the world in the event of some global catastrophe. It contains seed samples from the world's crop collection.



Continued, page 4

Watch it!!

You can hear this program at about **47 minutes into the meeting**. Here's a link to the [recording](#)
Passcode: Seeds!Aug20
It will be available until 9/30

Next Zoom Meeting

Join us!

[ZOOM LINK](#)

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ROTARY, THE (ZOOM) MEETING

submitted by Sean Harrison

After the initial small talk and experimentation with the new Zoom software update (See below), Mark announced they had a great board meeting last night. He was excited to announce that we have officially passed the budget. Now we have money and people to spend it on. There is much need out there, so we must do our part. After the announcement, the group went into the breakout rooms for discussion.

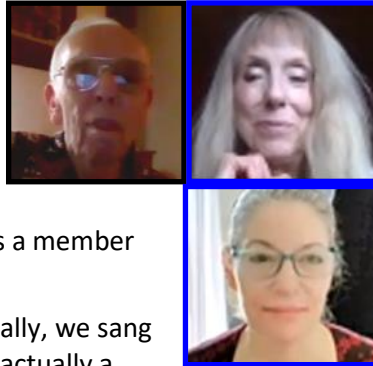
Following the breakout rooms, Susie Ilsley mentioned that they spoke about COVID in their breakout room. She mentioned it might be a good idea to get a booster shot after 8 months. Lyn mentioned they talked about COVID in their group as well, especially about traveling during COVID. But she also mentioned we should think about banning COVID talk, at least for a meeting, just because it's been on everyone's mind for so long.

New fun brought to you by Zoom illustrated at right. If you have the latest zoom version, you were placed in a special seat! (those without the newest version show up as a circle or a square. [For instructions to update click here.](#))



WELCOME GUEST & VISITING ROTARIANS!

Mark welcomed guest **Bill Gershon**, and visiting Rotarians Dr. **Sharon Douglas**, and **Em De Pillis**. Em recently moved to Claremont from Hawaii to be Business Dean at the Univ. of LaVerne. She is a member of the Hilo Bay club.



After the introductions, naturally, we sang another song. Since Rotary is actually a singing club. frequent visiting Rotarian **Biffy Dankwerts**, zooming from Cape Town, South Africa.

Smile was led by **Chris Hayes**. Welcome was a Cameron Troxell production

ANNOUNCEMENTS

Jim Marchant invited people to join in the Club's Fall Social on October 17 at 4:00. Jason Miranda's world-renowned BBQ will be on the menu! Make sure you don't miss out! There will also be an opportunity to buy BBQ on the weekend before and after. Proceeds will go towards the Club Foundation so it's a win-win!

Red Badger **Greg Mossman** attended the Board meeting last night — making progress toward his Blue Badge. Meetings are usually the third Tuesday of the month.

Sylvia Whitlock announced an upcoming event by the So Cal UN Chapter, including an event for youth to express their views about Climate Change on brief videos, showing how it impacts them as well as other people.

INSPIRATION OF THE DAY

Submitted by Jim Lehman

"The best and most beautiful things in the world cannot be seen or even touched, they must be felt through the heart."

Helen Keller



Susie Ilsley surveyed members to decide whether there was interest in in-person happy hours. Yes!

Polio News from our Zone

"In 2021, despite internal conflicts and a global pandemic, Afghanistan is seeing unprecedentedly low transmission of wild polio, with just one case reported this year. Not only has the country seen a drastic reduction in cases of wild polio, polio surveillance data confirms this progress and significantly less virus is being detected in the environment. As conflict in Afghanistan quickly evolves, we must advocate for the children of Afghanistan. The polio program must work and communicate with all stakeholders involved to ensure that polio immunization remains a priority so that the gains we have made against polio do not diminish. We look forward to working with our polio eradication partners and the Afghani people to completely eradicate polio."

SERGEANT JOHN TULAC

Finally, fine time with the Sergeant. John made **Buff Wright** the first target. She was thanked for setting up a model UN at the beginning of the meeting.

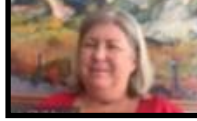
John congratulated **Kebokile Dengu-Zvobgo** for her award — well deserved, but then fined her for her good work because no good deed goes unpunished. He paid the pig himself to be fair to Kebokile.

John had it on excellent authority that **Lucinda McDade** is the one responsible for a very seedy program topic today. As the Program Chair, Lucinda told everybody that if they don't come up with program ideas, it's going to be all plants all the time.

Dr. Jeff Wilson had to pay the pig for working on the job for 56 days, and he was fined with an assignment — a presentation on the state of the school district and what his plans are.

On a more serious note, John noted that he was asked by RI to run background checks... What?? And proceeded to comment on our zoom backgrounds, and all were fined. (Sean: It's been a while since I've face palmed that hard.)

Bernadette Kendall was called out first for having a rhinoceros. Pay the other beast: the pig! **Kelly Carson**, who may be a social butterfly, had a background picture she took for herself in the back yard. **Mark Carson** and **Rich Laughton** evidently enjoyed a sunset together. Mark's was an Alaska inside passage sunrise. Rich's in California. **Jim Lehman's** is the entrance to Troll Fiord in Norway in March 2020. He was fined for his short inspirations. **Steve Shenck's** overwhelming grandson was posing for a Hewlett Packard Foundation ad. **Sean Gallagher** had a detailed diagram explaining how camera sensors work he has been working with student interns on an imaging project. **Jeff Wilson** changed his background to the Dodger's Stadium because he was celebrating their win streak. **Lyn Childress** is framed by a painting that her father-in-law did as a hobby in his retirement years. FINE!



ANNUAL CLUB AWARDS

The 2020-21 James Stickels New Member Award

recognizes a member of no more than 3 years standing who has been actively engaged in the club and shows good potential for club leadership, is enthusiastic, friendly and promotes fellowship among Rotarians. The Buff presented the award to **Kebokile Dengu Zvobgo**. Buff sponsored Kebokile for membership in August three years ago based on her enthusiasm for our mission and her generous experience with other area organizations that also serve. In these three years, Kebokile has been a particular influence with international projects — her understanding of what it takes to partner with others and of the need for projects that are sustainable abroad is profound. She also brings a formidable sense of humor and willingness to be candid in her thoughtful assessment of conventional wisdom, which Buff appreciated as President. We look forward to her future leadership and fellowship. Kebokile said she was almost embarrassed but also very grateful. She prided herself on her ability to color outside the lines. Buff said she colors outside the line with very colorful crayons.



The 2020-21 Nelson C. Bell Award

acknowledges a member of more than 5 years for exemplary club leadership and engagement in a sustained way, while maintaining a high attendance standard. Buff presented this year's award to **John Tulac**. John was president when she arrived on the scene in spring of 2011. Thus, his debunking was her first, and she was impressed then at his very tolerant sense of humor, which survives to this day. John has continued to be among the most actively engaged members in our Club at all levels, bringing his professional expertise (international law), his knowledge about Rotary, his willingness to do fill-in programs when necessary-- at the drop of a hat on any number of esoteric subjects, and his appreciation for the importance of social engagement by members -- sponsoring zoom happy hours, 4th of July parade celebrations, and scripting our annual debunkings — the ultimate payback. John said he is engaged because there is much yet to do!



There was a hearty round of applause for both awardees.

Seed Bank, cont'd from page 1

The California Seed Bank is a similar form of an insurance policy, but it is limited to California native taxa. It stores the seeds of these plants with special emphasis on California native plants that are considered rare.



Cheryl told us that properly stored seeds can remain viable for germination for hundreds of years, even thousands. To the latter point she showed us a picture of a Judean date palm grown from a 2000 years old seed that was recovered from a wall at Masada in Israel. (pictured below)

The key points to seed longevity are: minimal excess plant material (i.e. no mulch, soil); low/constant humidity; and low/constant temperature. CalBG Seed Bank addresses all of these. They store only pure seeds that have been cleaned. They then dry the seeds and place them in sealed, glass containers. These are then placed in chest freezers, like the one you might have in your garage.

They started an experiment in 1999 to assess the significance of the factors described above. They took a seed collection from the sunflower family and split it into two categories: those that would be maintained in a desk storage scenario and those that would be kept in a freezer. They planted from both categories at the beginning of the experiment to assure similar germination success. About 80 percent of all seeds successfully germinated. A year later they took seed from both categories. The frozen seeds experienced the same level of germination success as in 1999, but the seeds in desk storage dropped below 25 percent. By the year 2003, the desk storage seeds were at nearly 0 percent, while the frozen seeds continued at the same level of success as in 1999. The program is ongoing and the frozen seeds are holding up well.

Cheryl put up a picture of the cover of a February 1948 Life magazine with a copy of a story that talked about a project

dubbed the Went-Munz Study. The study was designed to create solid scientific information about seed longevity instead of the largely anecdotal information at the time. The study was led by Dr. Frits Went, a biologist at Cal Tech and Dr. Phillip Munz, director at Rancho Santa Ana Botanic Garden. The reason the program was featured in Life was because the project was designed to last 360 years. The project was initiated in 1947 using seeds from 91 native California taxa. These seeds were sealed in glass tubes; sets of 20 tubes in metal cans were stored in a low humidity, ambient temperature room. The program was designed to run germination tests at the 1-year mark and then a series of 10-year marks and then 20-year marks through 2307. Cheryl said that thus far that the seeds are generally holding up very well. Some of the species are still germinating as well as they did in 1947.

Side Bar: Your writer was curious about the Life Magazine. It had a picture of a young boy who the covered labeled as "Maine School Boy."

Google offered some, but not a lot of information. Unless you have a copy of the February 7, 1948 issue of Life, we will never know more than the boy's name, Bobby Lofman, and that the article was about "what he does on his walk home." That's Life!



Back to seed banking. Cheryl said it is a very cost-effective way to practice plant conservation. The seed bank's goal is to one day have all California plant species banked. That is a significant objective. California has more plant species than any other state and many of these exist only here. They are working at it by prioritizing the rare species. To date they have about 30 percent of the California plant species banked.

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Judean date palm grown from 2000 year old seed



Masada, Israel

Seed Bank, cont'd from page 4

Cheryl took us on a virtual tour of the seed bank. The tour started where the banking starts, seed processing. She showed us tools they used and described the initial process. Then she showed a picture of John McDonald, who started as a volunteer and now is a research associate, taking pictures of the seeds. (See photo to below.) Her passion for what she is doing truly showed here, because she spontaneously said, "seeds are amazing!" Next came the storage room which was filled with chest freezers "from Home Depot." She showed us that while all banked seeds are stored in these freezers, that have a different way of packaging the rare seeds than they do for the more common taxa. She then showed the actual types of containers they place the seeds in and the seed drying chambers they use before placing the seeds in the containers.



Threshing tools



Winnowing tools



If you are worried about what would happen to the seeds if we had a major power outage, don't. They have backup systems to their backup system; there is a generator that runs on natural gas and another that runs on propane. They are currently working on a solar project. And, as if that weren't enough, all the rare plant taxa seeds in the seed bank are also stored in the National Laboratory for Genetic Resources in Ft. Collins, Colorado.

Cheryl described their seed germination testing program.

The seeds are tested for germination before storage and then at the one, five and ten year marks after storage; they are tested every ten years thereafter. The objective is to assess each seed's viability and longevity. This also helps determine how best to grow native plants from seeds. Apparently, some wild plants can be challenging.

One of reasons some plants are challenging to grow is seed dormancy. This is a protection mechanism built into the plant's DNA that prevents germination during unsuitable ecological conditions (e.g. drought, after a fire). Cheryl showed a picture of the Tejon Ranch from 2014 when the drought was at it worst. She said that without seed dormancy many of the plant species there could have been wiped out. Thus, seed dormancy is a good thing, but it means that the folks at the California Seed Bank sometimes have to "trick" seeds into germinating.

One of the areas where tricks are needed is with seeds that are adapted to fire. Many California plant species are in this category. One of the tricks is that they soak seeds for 24 hours in Liquid Smoke; yes, the one we can buy at the store. They also can use a heat treatment where they bake the seeds at 200 degrees Fahrenheit for 20 to 30 minutes. Another major approach to overcoming seed dormancy is to burn plant material (e.g. pine needles) over the seeds. She said there are other techniques to try if these don't work.

Okay, but how do they get the seeds to bank them? CalBG has botanists that travel all over California making seed collections. It is often a challenging, arduous task involving hiking good distances, climbing to significant heights, dealing with extreme heat, etc. Cheryl stressed how important seed collection is despite the difficulties. She believes that some of the seeds she has collected are from plant species that will become extinct in her lifetime.

The good news is that CalBG is not in this alone. In 2014 the California Plant Rescue Group was founded. In addition to CalBG, there are 11 other organizations. The members

Continued, p. 6



Seed Bank, cont'd from page 5

of this group share resources and share information to avoid duplicate efforts. Their goal is to bank the seeds of the rest of California's rare plant taxa. The group has acquired funding from Kew Foundation America and the California Biodiversity Measure. The latter is a significant source of funding for their efforts. They now have enough funding to collect all of the remaining rarest plants, which are classified as 1B plants. Significant progress has been made in the collection of 1Bs since 2014. Then they had 345 species collected, but by the end of 2020 the number was about 750. This means they are 65 percent of the way to having met their goal relative to 1Bs.

Cheryl brought her presentation to a close by sharing a quote, which seed people love.

Though I do not believe that a plant will spring where no seed has been, I have great faith in a seed. Convince me that you have a seed there, and I am prepared to expect wonders. Henry David Thoreau

Q & A

Buff Wright asked how Cheryl's interest developed to such an extent that she is working at the country's pre-eminent seed bank. She said that it happened quite naturally. She was working as an intern on the Seeds of Success program at CalBG and found that "Seeds are beautiful; it's hard not to fall in love with them." And "How old were you when you first kissed a seed?" Cheryl replied that she started very young and attributed her interest to her father who was quite a gardener and had his own orchid collection, a plant with a very interesting seed. However, Cheryl said it wasn't until she was hired after college that the passion took full root.

Sylvia Whitlock has a large number of Scotch Bonnet Pepper seeds and wanted to know if Cheryl would like any. How could she say no, though she would very much like to have some just for her personal use. Buff chimed in that she too would like some.

Chris Hayes-Shaner said that all of the club members would like to know what it is like to work for Lucinda. Cheryl said Lucinda is "awesome" and that Cheryl has immense respect for her. One of the reasons is that as contrasted to rocky times in the past for CalBG, Lucinda is such a good leader and runs it so well that there is no longer any drama.

John Tulac asked what it would take in terms of money and resources to mount an expedition to one of the remote locations. Cheryl responded by talking about an expedition the California Plant Rescue Group is trying to

mount for the Modoc plateau. She said it first had funding challenges which were resolved, and then came the pandemic. They are still hoping to go. These expeditions do require a lot of resources. Each seed collection involves multiple trips. The information guiding them as to where to find one of these rare plants can be decades old which means the terrain may have changed, the plant may have suffered loss of territory, etc. All of this makes locating the plant difficult. Once they find the plant they then have to determine the population of the plant and what its germination status is. The cost of a single trip varies, but on average each seed collection costs about \$2500 including supplies, labor to get to the plant and then the processing of the collection.

John decided to continue the pandemic he had started as Sergeant. He said that, if they need additional funds, he suggested that our club could provide them with "seed money."

Moving right along... Mark thanked Cheryl for her excellent program.

CROSSROADS HOME RENOVATION PROJECT WITH SAN DIMAS ROTARY

President Mark noted that the final work days for the Crossroads home renovation project with the San Dimas Rotary Club were Saturday, August 21st and Sunday, August 22nd. He urged us to be Rotarians in Action!

Some photos from the event:



Supplies were donated by Home Depot



UPCOMING PROGRAMS & EVENTS

| | |
|---------|--|
| Aug 27 | Uncommon Good Dre'Shawn Frencher, Youth Coordinator |
| Sept 3 | No meeting. Dark for Labor Day |
| Sept 10 | Whither China? John Tulac |



Mark Carson

Claremont Rotary
President

2021-2022



SERVE TO CHANGE LIVES



Bike Shadows

Photo of the week by Steve Schenck

We've almost broken the Polio cycle.
Feed the virtual pig!
Send fines and donations [here](#) or mail
your check to
PO Box 357



Bacon Bits

Let's fill up the pig!

Website

Information about the club and back editions of this newsletter are always available on DACdb and www.claremontRotary.org

Join us on Facebook:

www.facebook.com/RotaryofClaremont

Club [Bylaws](#) and [Policies](#) are posted for member access on DACdb

August Birthdays

Bill Burrows 8/4
Brett O'Connor 8/5
Susie Ilsley 8/8
John Tulac 8/9
Don Ralls 8/11
Juli Minoves-Triquell 8/15
Jeff Bonhus 8/22
Ned Paniagua 8/23
Bob Siliciano and Peter Weinberger 8/25
Kelly Carson 8/26 Armando Armenta 8/27



Sergeants committee
gathers before each
meeting by email.
Anyone is welcome to
share information!!

Nona Tirre, chair

Clarifier Committee

Mike DeWees
Bill Burrows
Beatrice Casagran
Sean Harrison
Bobby Hyde
Jim Lehman
Steve Schenck
Chris Hayes Shaner
Harry Sparrow
Peter Weinberger
Buff Wright, editor

Notes by Sean Harrison and Harry Sparrow; Photos by Steve Schenck

The Claremont Rotary Club meets on Zoom at 12:00 on Friday until further notice