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FIAT LUX

RESILIENT

Berkeley Library
UNIVERSITY OF CALIFORNIA

A LIGHT IN THE DARKNESS

Jeffrey MacKie-Mason
University Librarian

"Do we need libraries anymore?"

For the past 20 years or so, since the rise of the internet, some have raised that question — which we've largely answered through the work we do day in and day out. After all, sharing knowledge and providing our services and expertise is more important than ever in the Age of Information.

But in the face of a global health crisis, we're confronted with a new question: "Can you still serve the functions of a library when all the buildings are closed?"

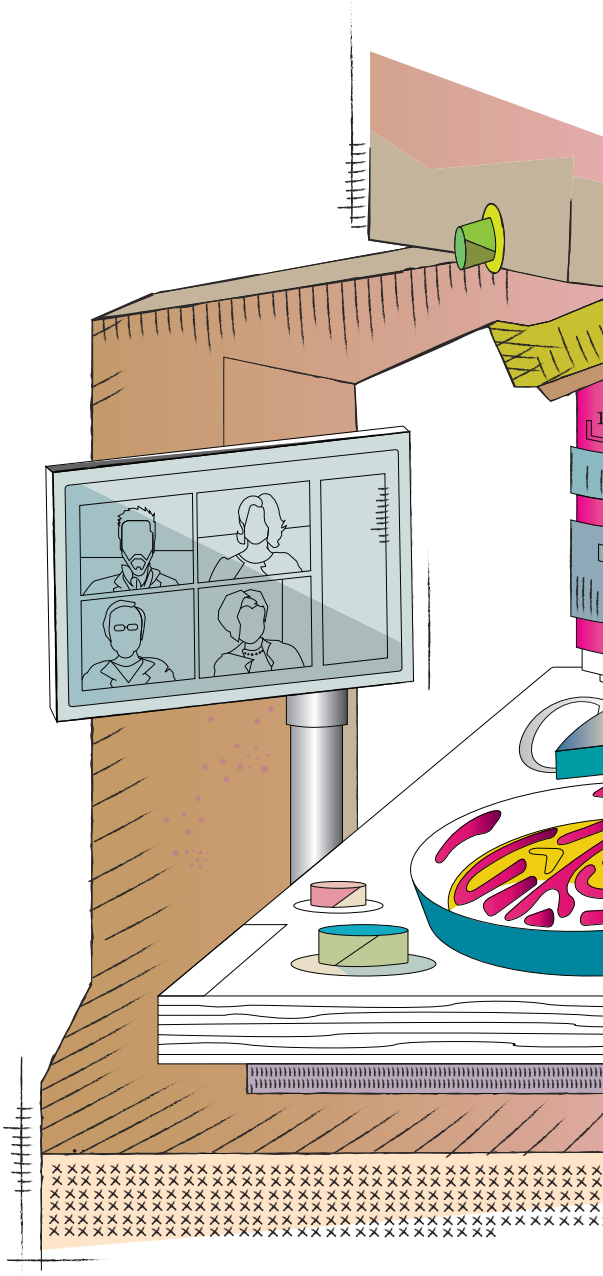
The answer is, resoundingly, yes.

As spring classes at Berkeley quickly went online, we provided electronic copies of students' course readings and taught our class sessions on information literacy remotely. We worked with the massive repository HathiTrust (of which we're a founding member) to make millions of print volumes in libraries across the University of California system available (in digital form) to Berkeley's faculty, students, and staff. And we answered mounds of reference questions, all online.

The pandemic has highlighted just how crucial our work has been. For example, our ongoing effort to set our treasures free — making digital copies of everything in our special collections available to all — has given researchers seamless access to many of our one-of-a-kind gems, even while our stacks are closed.

We've also served as leaders in a global effort to transform the scholarly publishing industry. Our goal is simple: to ensure that research, mostly paid for by public funds, is free to read online by everyone. So far in 2020, we have implemented open access agreements with four publishers, under which by default all UC research they publish will be freely available to the world. Among the deals is one with Springer Nature, the world's second largest scholarly publisher. This transformative agreement serves as a shining example of what is possible when we hold fast to our commitment of making knowledge available to everyone. Access to the latest discoveries can only help the worldwide effort to combat the pandemic, and manage its social and economic costs.

Throughout this time of uncertainty, the Library is serving as a light in the darkness by doing what we do best: enabling and enriching education and research, now and in the future, so Berkeley can continue to lead the world in pioneering solutions to our most pressing challenges. In the rest of this issue, you'll read stories of innovation and resourcefulness, of ingenuity and resiliency — all underscoring that our commitment to empowering people with knowledge, and making a difference in the world, is stronger than ever. ■



FIAT LUX, or LET THERE BE LIGHT, is the motto of the University of California, Berkeley.

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Your feedback and suggestions are warmly invited. You can reach us at librarycommunications@berkeley.edu.

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ABOUT THE COVER

Resiliency is the golden thread of this issue. For the cover, graphic designer Alison Wannamaker created this image of Doe Library using only fabric and embroidery supplies she could find around the house. At Doe's base is a bed of poppies — California's official state flower, associated with resilience and renewal. In the sky are Cal's youngest peregrine falcons, Sequoia, Poppy, and Redwood. The falcons hatched in their nest atop the Campanile in April. Already, they have learned to soar.

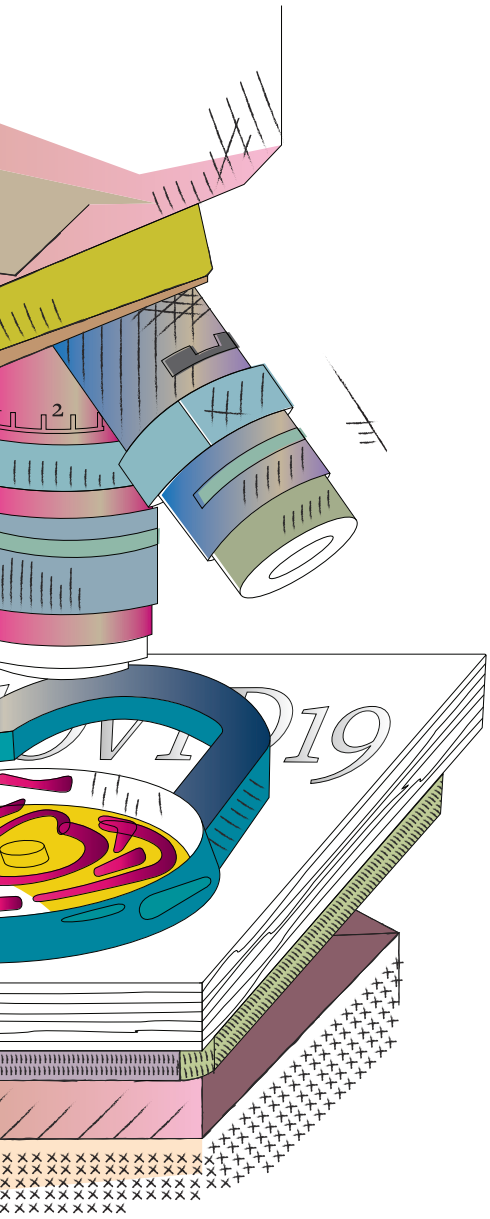
CORRECTION

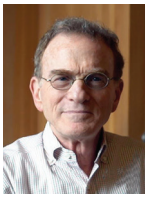
Reference numbers for three images on Pages 4-5 of the fall 2019 issue of *Fiat Lux* were inaccurate. Correct numbers are listed here: ucberk.li/fiat-lux-49.

‘THERE WILL BE A REVOLUTION’

With paywalls for COVID-19 research temporarily down, an explosion of scientific output puts the traditional publishing model under the microscope

STORY BY VIRGIE HOBAN





Schekman

Randy Schekman is getting tired of talking about this.

But then, this could be the last time he has to.

“The argument for open access is so obvious, it’s painful to have to repeat it,” says Schekman, a 2013 Nobel laureate and UC Berkeley biologist. “The public pays for the research, and yet they can’t read the research. Physicians don’t have access to the literature — startup biotech companies at the forefront of discovery can’t afford the licenses.

“It’s obvious that this is the way it has to be.”

Under the pressure of a global health crisis, the argument for open access has sunk in. Following calls from the World Health Organization and global leaders, more than a hundred publishers, companies, and research institutions have agreed to make all COVID-19 content free for everyone to read, ensuring efforts to understand the virus can go forth undeterred.

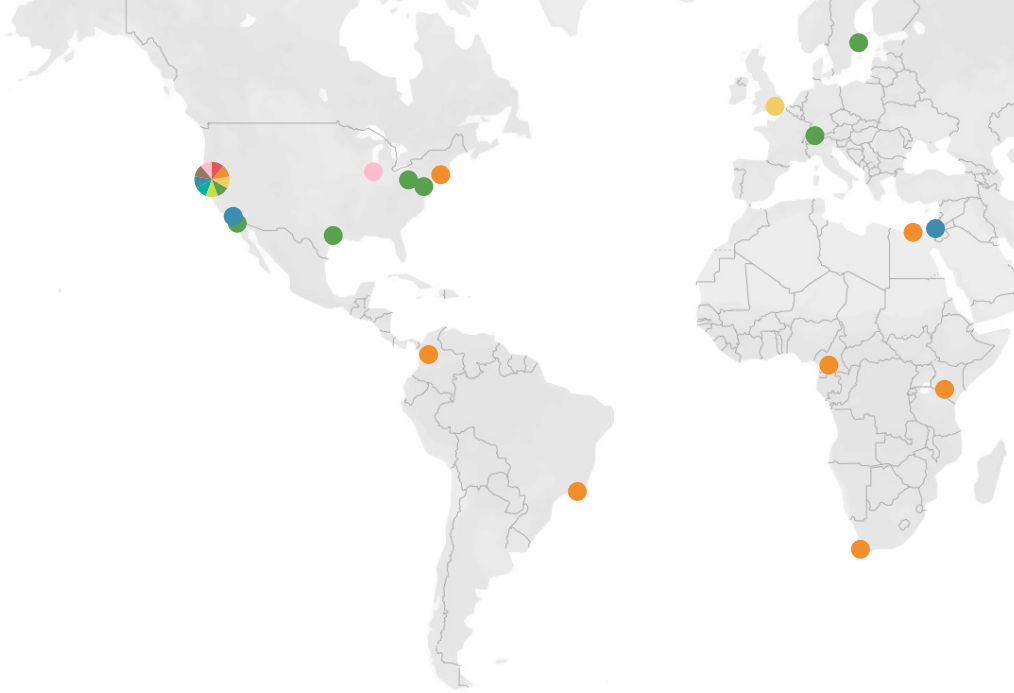
The result looks something like the most epic relay race in human history. Dozens, sometimes hundreds, of studies are posted daily, with tails of citations circling the globe. Genetic mutations of the virus — clues to its spread — fill databases by the thousands. And a newfound culture of data sharing has fueled scientific collaboration like never before.

So now, the question is: Can we ever go back to the way things were before? Or is this the catalyst that breaks up the bonds of an old publishing industry once and for all?

“This may be the last time we talk about having special access to papers because of a pandemic,” Schekman says. ▶


Benjamin-Chung


Glusker



Outside of public health emergencies, the speed with which research discoveries make their way around the world is not quite so revolutionary.

In fact, after a researcher submits a study to a journal, it can take several months, or even years, for it to actually see the light of day.

"It's often a very slow process," says Jade Benjamin-Chung, an epidemiologist and lecturer in UC Berkeley's School of Public Health.

Once published, the content is sealed off from much of the world — available through either hefty site licenses or fees of about $30 per article. Members of the public, whose taxes fund much of the nation's scientific output, cannot view the work until after an embargo period of six months to four years, depending on the journal.

"It's a racket," Schekman says.

Today, many journals are fast-tracking the publication of COVID-19 content. But as labs all over the world churn out studies on this disease, the journals can't quite move fast enough.

Instead, researchers are turning to preprints, open access versions of research papers shared ahead of official review or publication. Researchers post their manuscripts in repositories known as preprint servers. In recent months, the servers have exploded with content: By June, more than 5,000 articles on the virus had been shared on the two leading servers in biology and medicine, bioRxiv and medRxiv.

The appeal of preprints is clear: access and speed. But there is a catch. They have yet to go through peer review — the standard test of good science.

(Most preprint servers do have some quality-control measures, though. Preprints on bioRxiv and medRxiv are screened by volunteer subject experts and staff members, with additional precautions for COVID-19 content.)

"A huge advantage of rapid publication of information is that it can immediately inform other research," Benjamin-Chung says. "But what it means is that, if we're going to use a preprint to inform our study, we have to review it very carefully ourselves."

With her research team, Benjamin-Chung has been poring over data on COVID-19 testing in the U.S. and other countries, applying statistical models to estimate what the early case count in the U.S. might have been were testing more robust. Her team's estimate? About nine times more than what was reported, or roughly 6.3 million infections by April 18, according to the preprint.

The model was informed by many articles and preprints, including studies that randomly tested asymptomatic individuals for the virus and studies examining the accuracy of diagnostic tests.

"We're looking at studies from around the world," she says. "And if (other researchers) didn't post preprints, we couldn't have developed our model as rapidly."

In many ways, the rise of preprints has mirrored the slow but steady push for open access — with a fair amount of friction along the way.

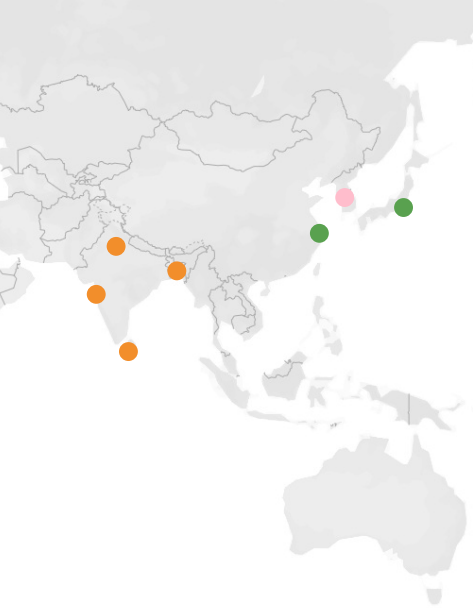
Nowadays, most major journals allow authors to post their manuscripts on the open servers. But this hasn't always been the case.

"Journals used to have a very strong embargo policy," says Schekman, the former editor-in-chief of the open access journal *eLife*. "Commercial journals like *Cell* used to tell their authors if you even talk about these results in a symposium, we may withdraw the paper from consideration. They were forced to relent on this."

(Some journals still prohibit researchers from posting their work as preprints. Others are ambiguous about their policies.)

And the messaging around preprints has been less than glowing. In 2016, Emilie Marcus, then editor-in-chief of *Cell* and CEO of Cell Press, discouraged researchers from citing preprints, saying it would prop up a "pseudo-article sneaking into credibility through a back door."

The effect of such sentiments has been clear — and, in some cases, crippling.



The ongoing pandemic has united researchers all over the world. This graphic, based on data gathered by Assessment Program Librarian Chan Li, illustrates the global nature of UC Berkeley research on COVID-19, with dots on the map showing the locations of researchers who collaborated with Berkeley authors on a set of nine studies published earlier this year. The studies — grouped by color — explore topics ranging from the role of robotics in managing infectious diseases to policies to protect low-income communities in urban areas. The Bay Area, heavily represented across all nine studies, is depicted with a color wheel.

According to a 2018 paper in *PLOS Medicine*, an open access journal, preprints ultimately sped up the dissemination of research during the 2015-16 Zika epidemic and the Ebola outbreak of 2013-16. But only 5 percent of articles on the two diseases were first posted as preprints.

Crucial data was also kept under wraps. According to a 2016 WHO bulletin, it was "deficiencies with existing data-sharing mechanisms" that ultimately stalled scientific progress on Ebola. WHO called for open access to research data in the public health emergencies to come.

"You can't sit on this stuff," says Ann Glusker, Berkeley's sociology, demography, and quantitative research librarian and a former epidemiologist. "If you put it out there, you're going to inform others about how to proceed, and you're going to save thousands, millions, of lives, potentially.

"Although you still have to keep a critical eye on preprints," she says, "they are all we have just now."

As it turns out, because preprints and research data are openly available online, a sort of ad hoc system of peer review has emerged, spearheaded by scientists around the world.

Smith

"If (the study) is of interest, people peer-review it themselves and start commenting straight away," says Martyn T. Smith, a UC Berkeley professor of toxicology.

Building off many recent studies, Smith and other researchers are working to identify natural compounds that may provide some relief against the coronavirus in the absence of a vaccine.

Earlier this year, two preprints (from Germany and China) revealed how the SARS-CoV-2 virus binds with an enzyme essential to its replication, fitting into the enzyme like a key in a lock. Equipped with that information, Smith's team tested 2,500 natural chemicals in a computer simulation to see if any of them could bind with the enzyme instead — stuffing the keyhole and blocking the virus.

Ultimately, the study (not yet peer-reviewed) found that foods rich in flavonoids, including many vegetables, fruits, and some teas, may help limit the spread of infection. (Several recent studies have reached similar conclusions.)

"We're very interested in the idea of: What explains people having some susceptibility to the virus and other people not?" Smith says. "And we think diet could play a big role."

Shortly after the study was posted, other researchers noted that overindulging in even natural compounds could be harmful, to which Smith quickly responded. (The study warns against the excessive intake of flavonoids.)

"The point of having studies posted like that is that the data are there for qualified people to evaluate," Schekman says. "It's not just a newspaper article — it's an article accompanied by data."

For Benjamin-Chung, the Berkeley epidemiologist, the hope is that the current surge in data sharing will expand in a post-pandemic world.

"Everybody recognizes that holding on to data right now is only going to prevent us from making progress on COVID-19," she says. "What I would love to see after this (pandemic) ends is that the way that we share data is a little more concrete.

"If you say that this article really has open data, I'd love for a link to access the data to be there."

For that to happen, a paradigm shift will be in order — from researchers accustomed to hoarding data to the commercial journals that have long given them reasons to do so.

And the pressure is on: The White House is now considering a policy to mandate that all federally funded research be published open access — not just during a global crisis.

Without such measures, publishers will inevitably pivot away from open access once skies begin to clear.

They will try to, at least.

"I hope there will be a revolution when (journals) start trying to get money for their content again," says Glusker, the librarian. "But that's a different discussion." ■

CREATIVITY OUT OF CHAOS

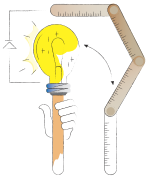
Here's how the Library is responding to the pandemic

STORY BY TOR HAUGAN

The UC Berkeley Library is more than a building. It is a community of thinkers and curious minds, a fountain of shared wisdom, and, yes, an archipelago of spaces where patrons can explore, contemplate, and learn. When its in-person operations were forced to close in response to an unprecedented global crisis, the Library flung its virtual doors wide open. The Library continues to serve its community, providing instruction, connecting researchers to much-needed materials, offering a slew of services, and gathering knowledge about the current moment in hopes of building our collective understanding. Here's a glimpse at how the Library has remained resilient in the face of the pandemic. (Learn how others in the Library are responding at **ucberk.li/solutions**.)

CAPTURING A CRISIS

Shortly after the coronavirus took hold, more than a dozen staff members at the C. V. Starr East Asian Library began working to collect important information in Chinese to document the fast-moving COVID-19 pandemic and the destruction it has sowed. Fearing the information might be lost due to government censorship or the lack of a unified effort to save it, staff members evaluated and captured valuable and at-risk materials from China, including government documents, information on the origin of the outbreak, reports about the impact of the virus, literary works about life during lockdown, and social media posts about the many facets of the health crisis. "We feel that if we do not do this, a lot of valuable information will be lost permanently," says Peter Zhou, director of the East Asian Library. "We hope that this special collection will be of tremendous value to scholars and the general public as documentation of this unprecedented experience in our lifetimes."



ENGINEERING SOLUTIONS

When a mechanical engineering lab at Berkeley needed to track down standards for ventilators and ventilator accessories so it could 3-D print materials to help the coronavirus relief effort, Lisa Ngo, a librarian in the Engineering & Physical Sciences Division, was quick to lend a hand. The American National Standards Institute made its requirements for medical equipment such as ventilators freely available in light of the pandemic, and Ngo directed the lab to its portal. But one standard the lab needed wasn't available there. Ngo tracked it down through another source and supplied it to the lab — all within a day of receiving the inquiry. "I think a lot of the work that we do can be invisible, but at times like these, people really notice the effort that we've put into building our digital collections and services," says Brian Quigley, head of the Engineering & Physical Sciences Division. "I also think the Library is seen as a reliable partner, a constant, a comfort."

AN EYE FOR DIY

With equipment from Moffitt Library's Makerspace, Annalise Phillips, maker education service lead, was able to set up a "mini mobile makerspace" in her living room. There, she's developing tutorials and projects that students and staff members can work on from anywhere. Phillips is also working with students remotely, using the video-conferencing service Zoom to consult with them from afar and to help them use the software they need for their projects. By creating a series of introductory videos on how to use the tools of the Makerspace, Phillips is helping students hit the ground running when the space opens up. "I think that the constraints imposed by having to work remotely will ultimately help broaden the reach and accessibility of the Makerspace," Phillips says.

SAFETY IN THE SPOTLIGHT

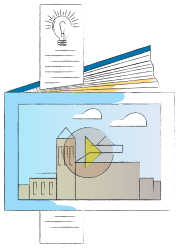
Now working from home, the preservation team has been looking into the possibility of preserving fragile books by making digital surrogates. Preservation Department staff members have been tracking down existing digital copies of brittle books and ensuring they are complete. The team is also staying on top of the virus — how it is transmitted and how long it remains viable on a variety of surfaces, in anticipation of restarting the circulation of print materials. "There is a wide range of materials represented in the Library's collections, including everything from paper and plastic to cloth and leather," says Hannah Tashjian, who leads the preservation team. "Our goals are to preserve the collections and make sure they can be safely handled for research."

INSTRUCTION, ANYWHERE

During the first week of sheltering in place, Nicole Brown, head of the Instruction Services Division, met with a student one morning only to discover she was in Seoul, South Korea, where it was 1:30 a.m. (Brown and the student, who had been at Berkeley but returned home because of the pandemic, successfully navigated the Library's e-book collections to find a travel narrative the student needed for her project.) The division has long offered virtual support to patrons, including chat and email reference services. But with the shelter-in-place order, the instruction services team had to rapidly shift to promote these services and add a virtual option for their appointments. The division teaches workshops that are integrated into courses and found ways to adapt them for an online environment. To help students navigate the library research process, even from afar, the team deployed an interactive digital library notebook created during the power outages last fall. "I believe that the constraints that accompany a closure of this scale push us to solve problems creatively," Brown says. "The value of our services is definitely highlighted now that we are remote. The closure also reminds our community that not everything is available online and that the Library plays a critical and unique role to support stewardship and access."

PRESERVING HISTORY

After the disruption of a bioengineering professor's internship program, with funding from the National Institutes of Health, The Bancroft Library's Oral History Center swooped in, teaching students in the program oral history methodology to help them conduct interviews that shine a light on the pandemic's impact on scientific research. The center is also engaging with the public through podcasts: The new season of *The Berkeley Remix*, the OHC's podcast, is aptly titled "Coronavirus Relief" and provides a respite for the soul while drawing on the center's vast collections, along with musings from the members of the OHC's staff themselves. (Listen at **ucberk.li/coronavirus-relief**.) Facing the challenge of not being able to have in-person conversations with subjects, members of the OHC have developed a new process for conducting interviews remotely. And through it all, they've exhibited grace and unrelenting dedication. "I remain impressed, sometimes in awe, of my amazing colleagues in the Oral History Center and the Library in general," says Martin Meeker, director of the OHC. "Dedication to their work, a spirit of optimism and flexibility, and a desire to continue to work have made it clear to me that this is no average group of people — and that, even in times of stress and worry, they inspire me to do better, too."



BRIDGING THE DIVIDE

The Library has expanded its focus to include purchasing electronic versions of print books on reserve for Berkeley courses. "Our efforts to acquire online versions of print reserve books is something we've done to immediately address the challenges students face in remote learning," says Mark Hemhauser, head of the Acquisitions Department. Although many of the books aren't readily available in electronic form, the department acquired digital versions of about 20 percent of the books on print reserves. Providing access to electronic versions of course materials is a boon to students adjusting to an online learning landscape and is a critical way to provide equal access to materials on both sides of the economic divide, which has been thrown into sharp relief during the pandemic.

A NEW CHAPTER

"(This pandemic) has taught us the importance of continually adjusting and adapting," says Elizabeth Dupuis, senior associate university librarian and director of Doe, Moffitt, and the subject specialty libraries. Dupuis is playing a leading role in the Library's response to the COVID-19 pandemic, rethinking the ways the Library can safely and effectively serve its patrons, from moving research consultations and instruction sessions online to extending due dates to give borrowers some relief. In the final hours before the buildings closed, the Library boosted its efforts to check out laptops to students who needed them, extending lending periods to ensure everyone could continue their studies remotely through the closure. The Library also worked with the massive digital repository HathiTrust to enact an emergency service providing UC Berkeley students, faculty, and staff access to digital versions of millions of physical volumes held by University of California libraries. When the Library's operations return to normal, things won't be the same, Dupuis predicts: "We'll be back on campus — different, wiser, and with a renewed sense of purpose."

KEEPING WATCH, EVEN DURING A CRISIS

A Q&A with Tony Ayala, head of Library Security at UC Berkeley

STORY BY TOR HAUGAN

If there's one thing Tony Ayala is used to, it's change.

"That's kind of how security works," says Ayala, head of Library Security at UC Berkeley. Say you're eating lunch. A call comes in: Someone in the library is disturbing patrons.

"You have to put your lunch away and respond," says Ayala, who began working in the security field in 2006 and became the head of Library Security in March, having started at the Library in 2016.

"When there's a change in your environment, you need to respond to it," he says. "This is something we're very used to."

It's hard to imagine a bigger change than the constellation of global disruptions set in motion by the COVID-19 pandemic. At Berkeley, the coronavirus crisis has forced classes online. And it has shuttered Berkeley's 24 libraries to the public.

But through it all, Library Security is still venturing to campus and faithfully keeping watch, even as most of the Library's employees are dispersed, adjusting to a new normal of working from home.

Library Security, too, is adapting. With its student employees no longer working, the team of nearly 60 has shrunk to a team of just seven. They've taken on new tasks, lending a hand to members of the Library staff who aren't in the office, helping people gather the belongings they need to work from home, and even going on a "little scavenger hunt" to collect personal protective equipment across the Library to be donated, bolstering the supply at critical University of California health care and medical facilities. ("They've been an awesome, excellent team," Ayala says.)

And, of course, they're providing around-the-clock security coverage, protecting the libraries and the countless treasures they hold.

We talked to Ayala about the work of Library Security during the pandemic, what he likes about the libraries, and the secret power of the words "Can I help you?"

PHOTO BY JAMI SMITH

Tony Ayala, seen in front of a closed Doe Library, leads the Library's security team. The team has taken on new tasks to support Library employees working from home, and is working around the clock to protect the libraries during the closure.

What does your work look like now?

Basically, we're doing the same stuff as usual, plus the additional little things, like making copies, scanning things — little stuff that Library employees would do normally but because of the shelter-in-place order they can't do. Sometimes it's just letting people in and giving them access to the building. We've turned on computers because people can get on those remotely, so we work with IT to help employees continue to work.

In terms of security, what is your team doing during this time?

We want to make sure everything is secure. We check doors, we want to make sure card reader doors are locked when they're supposed to be locked, and any secure doors that are locked all the time during the day — we check those types of things.

When the Library is open, we're looking for Library policy violations — food and those sorts of things. Now that it's closed, we're looking for anything unusual. That could be damage to the buildings, water leaks on the exterior, graffiti.

It's been a little bit different with social distancing, so we have to wear masks and gloves when we're going out and remember to keep a 6-foot distance, which, interestingly enough, is kind of a standard in security as a safety precaution. If someone wants to get violent, you have to keep a 6-foot distance, so it's almost like normal practice for us. We just have masks and gloves on.

You're ahead of the curve.

Well, it falls in line. I don't know if I'd say *ahead* (laughs).

We've checked for leaks in different libraries and have made sure they're secure. Us walking around and checking those things is a deterrent if someone's trying to break in. We might catch somebody in the act and simply go, "Oh, can I help you?" and get them to move along.

How has your staff stepped up to the challenge?

They've definitely been the feet on the ground, the eyes, and ears, and the physical presence. They've been very willing to help out, and that shows their excellent attitude and that they're great team players. Having a staff that wants to do a good job makes it easy for a manager — like 100 times easier.

Were you here for the power outage? (Earlier this year, a power outage closed some Library buildings.)

I believe that the power outage actually helped us prepare for this a little bit. You learn through communication. Having a staff of more than 50 can be a lot, so it's important to coordinate everything and make sure everyone knows what they need to be doing.

You work in Doe, but do you have a favorite library on campus?

I like libraries for different reasons. I like Moffitt. They just renovated the fourth and fifth floors — it reminds me of the tech companies I used to work for. It has that new feel.

Bancroft is a super friendly environment. If you sit at that desk over there at Bancroft, everyone is so welcoming, so friendly.

Doe Library is unique because on the outside you have the Memorial Glade, and if you're looking from the north entrance, it's really beautiful out there.

I've never thought about a favorite. I usually just come to work and just try to keep everyone safe. It's not always easy, but it's definitely an experience I enjoy. ■

THE DAILY CALIFORNIAN COLLECTION

‘FROM BOXES TO BYTES’

New online platform opens thousands of historical treasures and cultural relics to the world

STORY BY VIRGIE HOBAN

The year was 1918, and life looked eerily familiar. At UC Berkeley, face masks were mandatory, and public gatherings were banned. In the fall of that year, the peak of the influenza pandemic, hundreds on campus fell ill in a matter of weeks.

“Act intelligently, but do not become alarmed,” declared University of California President Benjamin Ide Wheeler on Oct. 24, 1918, in a front-page notice in *The Daily Californian*. “FEAR reduces your resistance. … KEEP AWAY FROM ALL CROWDS.” And, in bold: “INFLUENZA IS A PERSONAL CONTACT DISEASE.”

As the months rolled on, university notices, medical discoveries, and angry letters to “mask slackers” plastered the student newspaper. (“Gauze Flu Mask as a Preventative Measure Is Recognized by Doctors,” reads one particularly relevant headline from Jan. 21, 1919.)

These days, the paper’s archives feel something like a cosmic wormhole; they offer not only a portal into our past, but, between the lines, also the promise of the future. By spring of 1919, Berkeley’s hospital beds had emptied, and the mask order was lifted. Eventually, the *Daily Cal* filled with tales of athletic triumph and carefree jubilee.

We’ll be OK, the story goes.

Now — as good news and human connection feel more important than ever — the UC Berkeley Library has launched a new platform to share its countless stories with the world. Through the Digital Collections website, launched this spring, visitors can explore not only the rich archives of the *Daily Cal*, but also thousands of other digitized treasures — from records of the Black Panther Party to some of the earliest images of Cal.

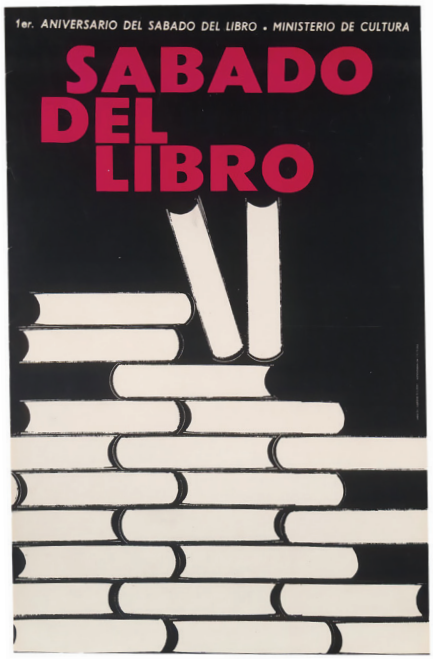
The online platform is fully searchable and free to all, ensuring the Library remains open for discovery even if its doors must largely, for now, stay closed.

“We own these materials on behalf of the citizens of California,” says University Librarian Jeffrey MacKie-Mason, “and we should make them as available as we can.” ▶

The Daily Californian archive is one of the UC Berkeley Library’s earliest collections. In 1875, Joseph C. Rowell, former editor-in-chief of The Berkeleyan (a predecessor of the Daily Cal) became the first university librarian. Rowell was known for collecting campus publications. In his annual reports, Rowell writes that staff members from The Berkeleyan would regularly donate copies of the paper to the Library.

Explore the Library’s Digital Collections site at digital.lib.berkeley.edu.

CONSTRUCTION PHOTOGRAPHS OF THE GOLDEN GATE BRIDGE, BANC PIC 1905.14258:013--PIC



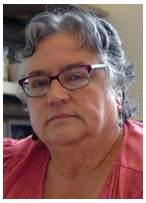
In the basement of Doe Library, an unassuming hallway opens up to the Newspapers & Microforms Library — a spectacular cave lined with endless rows of history. Among its gems are medieval manuscripts, Vatican papers, government records, underground newspapers, and more.

"There's everything under the sun down there," says Rebecca Darby, former operations manager of the Newspapers & Microforms Library. "You name it, it's there."

During her 10 years in that space, Darby helped students, scholars, and historians from around the world. One of the most heavily used collections has been the student newspaper, stored on reels of microfilm.

In particular, many researchers travel to Berkeley to comb through the *Daily Cal*'s extensive coverage of the 1960s and the civil rights movement, Darby says.

"If you think about it, when you're trying to research a city like Berkeley, there is no better place to find information about its history and culture ... than the paper that's been reporting



Grigsby

Ismail

on it since 1871," says Harini Shyamsundar '19, former editor-in-chief and president of the paper.

For Lynne Grigsby, head of Library IT, the newspaper serves as a cultural diary, granting glimpses of Berkeley's evolution across the ages.

"It's a slice of the times," says Grigsby, whose team managed the scanning of the *Daily Cal* archive. "Suddenly, women appear in the ads in 1919, and it's like, oh, something must have happened ... because up until then all the ads were aimed at men.

"There's just a whole different way to look at the life of the university than just (the campus's) documentation."

Under a permanent agreement between the student paper and the Library, the new Digital Collections platform will include all available issues of the *Daily Cal* printed since its inception, with a one-year embargo for the most current articles.

With thousands of newspaper issues available, the site will allow users to churn through the history of Berkeley like never before.

"Having easy access to information like that would just be terrific for any interested person — any researcher," says Peter S. Van Houten B.A. '56, M.A. '62, Ed.D. '73, Berkeley's former associate dean of students. "I did my doctoral dissertation and my master's thesis on topics related to the university, so I know the perils of weeding through tons of materials.

"Gosh, having all that stuff readily available would be such a godsend to anybody doing any kind of a study," he continues. "It's just amazing."

On the Library's new Digital Collections site, results can be filtered by collection, year, and format. Among the site's roughly 125,000 records are documents, photographs, audio recordings, artworks, sheet music, maps, and more.

CUBAN POSTER COLLECTION, 1960-2000

DAYS OF CAL COLLECTION, UARC PIC 4:309

From left: An image from the Library's collection of Golden Gate Bridge construction photographs made between 1933 and 1934 shows the budding floor structures of the bridge; selected works from the Cuban Poster Collection — 482 prints created between 1960 and 2000 — depict cultural events, social topics, and international solidarity; and a photograph from the Days of Cal collection, a virtual tour through UC Berkeley's history, shows the Class of 1914's senior pilgrimage at the base of the Campanile, completed the next year.

The materials have been treated with optical character recognition software, meaning users can scan the entire database for mentions of any keyword, like a Google search across a historical treasure chest.

"At the heart of this is freeing up our digital treasures from the boxes that they sit in — moving them from boxes to bytes, from shelves to screens — so they're available to researchers around the world," says Salwa Ismail, associate university librarian for digital initiatives and information technology.

Beyond the *Daily Cal*, the platform currently holds over 400 collections — with hundreds more to come, Ismail says.

Materials on the site span the globe — from a collection of writings by Russian women and a trove of historical Japanese maps to Latin American journals and Chinese political postcards. The site is also a love letter to the Bay Area, with portraits of its beloved bridges under construction; records of the 1868 earthquake on the Hayward Fault; and archives of the *San Quentin News*, written and produced by those who are incarcerated.

The majority of the site's content comes from collections in The Bancroft Library, which has spent over a quarter-century digitizing its archives and special collections, and aims to digitize about 300,000 images over the next year.

Throughout California's shelter-in-place order, Library staff members have continued to process newly digitized collections remotely and upload them to the site. Some recent Bancroft additions include images of World War II-era France and Germany by groundbreaking photographer (and Cal alum) Thérèse Bonney; iconic photos from the *San Francisco Examiner* archive; and images by Monterey area photographer Julian Graham, including scenes from Salvador Dalí's celebrity-studded "Night in a Surrealist Forest" bash.

"Especially at a time when in-person access is impossible, it is wonderful to be able to provide robust, centralized, and, most importantly, online access to these unique primary source research materials," says Mary Elings, Bancroft's assistant director and head of technical services.

Going forward, the Library will continue to build up its digitization program. Last year, the Library scanned about 1.5 million images.

For Grigsby, the digital platform "evens the research playing field," casting Berkeley's pearls before the world.

"It's equity, in a way," Ismail says. "If you're a high school student or a researcher without the financial means to come here, you can still use these resources online, at a public library — or anywhere with an internet connection." ■

THE MAKERSPACE OF THE FUTURE

In the face of adversity, student club helps the Library design a hub for collaboration and invention

STORY BY VIRGIE HOBAN

Chan

As normal life splintered and students scattered around the world, Courtnie Chan '20, an officer in the student club Invention Corps, told her comrades to take it easy. Drop your work, if needed — mental health comes first.

Nicole Brown and Annalise Phillips, staff members at the UC Berkeley Library and partners on one of the club's projects, echoed the call. Feel free to put this down, they said, and pick it up when life seems whole.

Thanks, but no thanks, the students responded.

Founded at Berkeley in 2017, Invention Corps is a dynamic group of around 40 students who combine diverse skills and backgrounds to tackle real-world problems — from building a mobile app to make museums feel more accessible to designing kiosks for fresh water in a rural part of Vietnam. This spring, club members turned their talents to Moffitt Library's Makerspace, where they helped design a space that can invite and ignite the creativity running through campus.

But, like the rest of the university, Moffitt has been closed for months. Inventive to its core, however, the student club persevered, dreaming up a new future even as the present lingers on.

"These projects are what is keeping people sane and connected to what was normal," says Chan, the club's chief project officer. "When something huge happened, our projects didn't fall apart. If anything, I feel they came closer together."

Each semester, students in Invention Corps partner with local organizations, researchers, and companies to inject their expertise into a range of budding innovations, all somehow related to health, poverty, society, or the environment.

"More than anything, our club is about wanting to make some kind of social impact," says Zulaika Zulkephli '20, the club's chief sustainability officer.

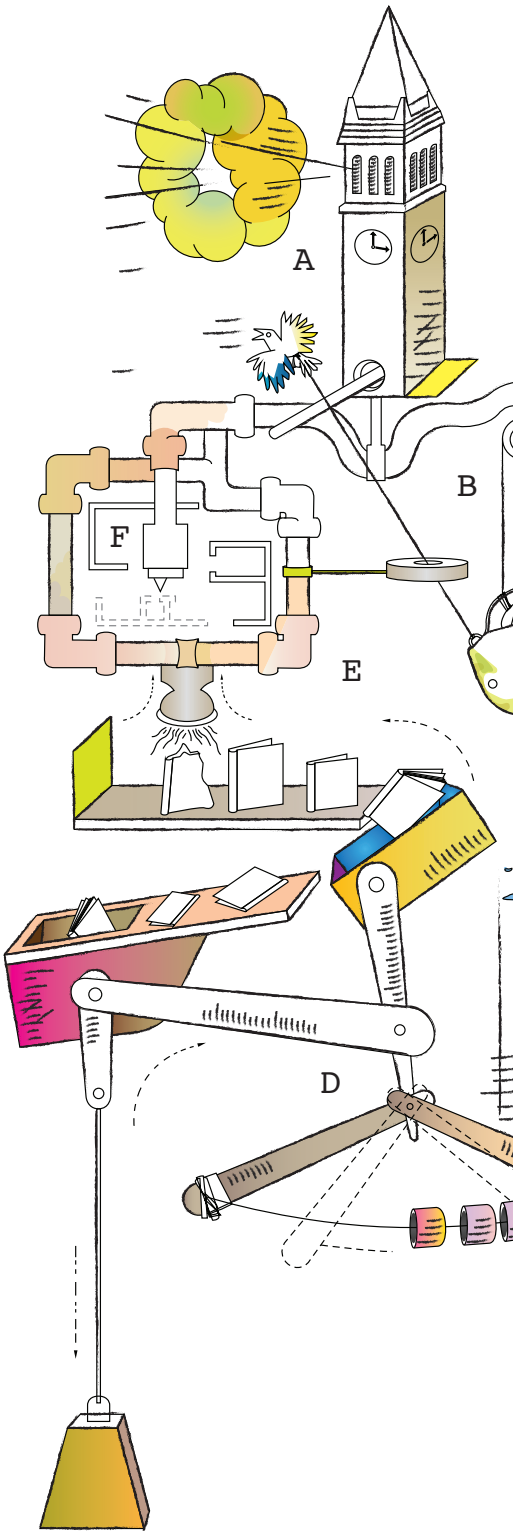
After an electric "pitch night," with presentations from potential partners, the club selects a batch of projects for the semester. Teams are crafted around the challenges, each a colorful cocktail of interests and work styles.

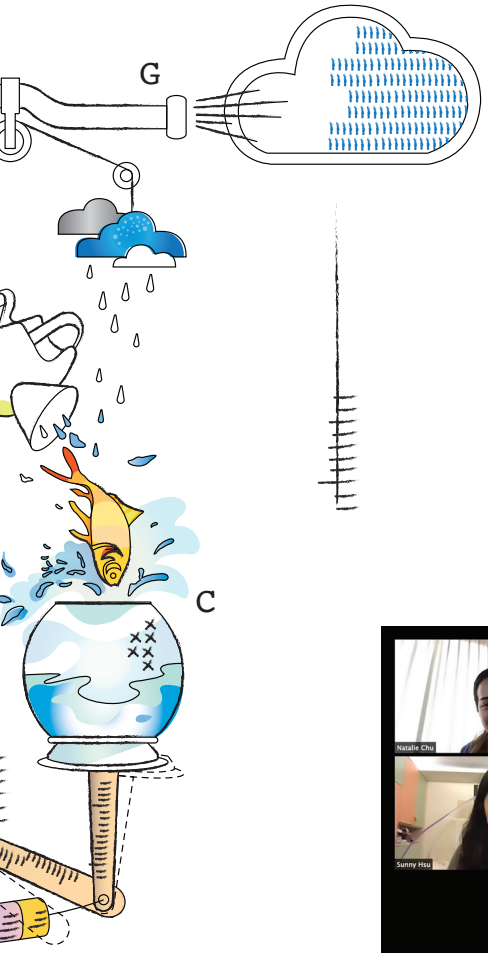
Last year, Zulkephli worked on a project with Pinpoint Science, a Bay Area biotech company. Her team designed a device to test biological samples, such as saliva or blood, for various pathogens and also built a corresponding mobile app. The device was originally made to diagnose influenza, among other diseases. But in April, the company reached out to the club for permission to apply its designs to a hand-held test for COVID-19.

"We could not imagine how lucky we were to be involved with that," Zulkephli says.

On the first floor of Moffitt, the Invention Corps team encountered an entirely new world of challenges — and opportunities to leave its mark.

Moffitt's Makerspace is filled with tools for invention: 3-D printers, button-makers, sewing machines, and more. It's a space for students to experiment with their creativity and bring their biggest ideas to life





— from repurposing old clothing to combat fast fashion to 3-D printing robotic parts and medical devices.

The space is straddled, however, by open study areas, along with a computer lab, classroom space, and storage. The challenge, Zulkephli says, was to create an identity for the Makerspace "so that even a space that doesn't have walls can have some kind of structure."

For Phillips and Brown, the Library mentors for the club, the goal was twofold: to build up the Makerspace, ensuring it meets the needs of current users, while also expanding its reach to bring in new ones.

To that end, Invention Corps' Makerspace team — with students from disciplines including bioengineering, psychology, architecture, and statistics — worked on a couple of things: a detailed map for Moffitt's first floor; graphic designs for postcards and signage; and an interview guide for librarians to survey members of the campus community on their desires for the space.

COURTESY OF ANNALISE PHILLIPS

Students in Invention Corps meet with Annalise Phillips, the Library's maker education service lead, on Zoom. Other teams in the club took on a variety of projects in the spring, including an app to help Alemany Farm, in San Francisco, track data about its fruit trees; product designs for Cal Dining's work to combat food insecurity; and an app that lets patients undergo physical therapy remotely.

The club's work will help the Library rethink not only the Makerspace, but also Moffitt's planned metamorphosis into the Center for Connected Learning, a revolutionary hub for students.

"The whole idea of the Center for Connected Learning and the Makerspace is that it's for students, by students," Brown says. "Annalise has expertise, I have expertise, but the students have the missing link. That's where the magic happens — having all those pieces together."

With none of the team actually allowed in the space, however, those pieces had to shift.

Before (you know what), Zulkephli would meet with Phillips once a week to discuss the project. That still happened via Zoom, the video-calling platform, though the entire team hopped on the calls.

And Phillips, lead mentor to the students, had to get creative. After setting up a mini-makerspace back home (more on Page 6), Phillips gave online tutorials on software and equipment to the students — such as how to work the vinyl cutter, used to print the Makerspace map — offering new skills and insights for their work.

Ultimately, the project was not just an alliance of talents and skills, but also a common wellspring of positivity and hope.

"It's been super helpful to have a cohort of students who are really engaged and invested in these projects," Phillips says. "It's good for me to think of the future — this is not forever; this is not how it will always be. One day I'll see your face in person again." ■

To learn more about how you can support the Center for Connected Learning at Moffitt Library, contact the Library Development Office at 510-642-9377 or give@library.berkeley.edu.

COURTESY OF BJORN LUSTIC

The project to re-create UC Berkeley in Minecraft began in March. Buildings across campus have been reimagined in stunning detail, including, from top, Doe Library, the C. V. Starr East Asian Library, and Moffitt Library. In May, Blockeley University hosted a virtual commencement, with speeches from Chancellor Carol Christ and others.

FIAT BLOCKS

An inside look at *Minecraft* versions of Berkeley's libraries

STORY BY TOR HAUGAN

Imagine a place where social distancing isn't necessary — where you can gather with friends and resume life as normal, as if COVID-19 and the chaos it has wrought were but a distant memory.

Enter Blockeley University, a student-led effort to build, one block at a time, the UC Berkeley campus in *Minecraft*, the wildly imaginative (and massively popular) video game. In the expertly crafted virtual world, you can walk through Sather Gate, gaze upon the iconic Campanile, encounter campus's ubiquitous Kiwibots, and spot Berkeley's famed peregrine falcons. And, even amid closures, you can soak in the architectural glory of the campus's libraries.

Inspired by a Facebook comment suggesting someone build a campus in *Minecraft* where students could receive their diplomas virtually, Bjorn Lustic, on a break from his studies at Berkeley, started the server and quickly got to work.

The effort humbly began in March as "a fun little thing to do," Lustic says, with a small team that included his friend Hunter Hall '20 (an astrophysics major) and their siblings. Just over a month later, the crew had expanded to some 100 builders, all working toward the same goal: to build campus in time for its graduation day debut.

At Blockeley University, campus landmarks, including the libraries, are reimagined in stunning detail.

Brian DeBisschop, a prolific builder on the team, constructed the exterior "shell" of Doe and Bancroft. Building Bancroft, DeBisschop says, was "surprisingly easy." But Doe was a different story. To re-create the neoclassical building, DeBisschop labored to make sure the north and south facades were proportional to each other, with a scale as close to real life as possible.

Hall, the astrophysics major, worked on Morrison Library with exacting detail. "I love this library because of its contrast to the rest of the libraries on campus," he says, citing its distinctive dark wood, seating, busts, and selection of books. Hall had to use plugins — or add-ons for *Minecraft* servers — for some of the finer touches. As a nod to one of his favorite books,

he laid *Out of My Later Years* by Albert Einstein on a table, its pages open, as if it were being read.

Building UC Berkeley required equal parts laserlike precision and out-of-the-box thinking. To replicate the look and feel of the campus, builders puzzled over which materials to use. Some building mediums were a no-brainer (in-game quartz is a good substitute for real-life marble, for example), but sometimes builders had to get creative. To bring to life the C. V. Starr East Asian Library, with its shimmering bronze-lattice facade, builders had to overlay two types of materials — brown concrete and iron fencing.

With the exteriors of buildings mostly finished, builders turned inward. Moffitt Library was among the very first buildings to get a completed interior, "probably because most people know it like the back of their hand," says Eli McAmis '21, a chemical biology major who worked on parts of the undergraduate library.

Against the backdrop of the coronavirus crisis, and all the uncertainty that has come with it, the project has provided some relief, and a sense of purpose. When visitors swing by the server to check things out, they often are taken aback by the work of the Blockeley University team — by a building that carries special meaning to them, perhaps, or a detail that was replicated *just* right.

"You can feel the amazement and happiness that people are experiencing because of it," says builder Christian Nisperos '23, a mechanical engineering major. "I was scrolling through some of the comments on Facebook that were like, 'I got a little teary-eyed looking at this building.' ...

"It's very fulfilling hearing all of that, and it helps motivate us to build even more." ■

PHOTO BY JAMI SMITH

THE ROAD TO RECOVERY

Supporters reflect on the power of information and the role of the Library in better days to come

"The Library is an invaluable resource for the whole university community, from the most naive freshman to professors and graduate students making groundbreaking discoveries. Supporting the Library means supporting the whole university."

— ANN JORGENSEN '62 (PICTURED ABOVE)

"Information and facts are our most powerful resources, no matter what we're studying or what we're trying to achieve. We need factual, evidence-based information, and we also need the wealth of history upon which that information is built. If you're going to dig deep into a subject, you need a library. People need each other right now — we need each other very badly. We need compassion and love, but we also need information, and we need to be sharing that in a really responsible way."

— MEGAN VERED THYGESON (NÉE HESTERMAN) '78

"Given the numbers that the state is facing now, there are very likely to be budget cuts. I think it's all the more important that people who understand the importance of the university — and the Library, as a core part of the university — step up as best they can and provide their support in any way, financial or otherwise. Let the Legislature know that we still consider that the public university is incredibly important to the state, and it's going to be important for the state to get out of this crisis."

— TOM KOSTER M.S. '71

"I support the Library because it is a physical manifestation of the university. You could spend your entire life in the stacks and not make a dent on the volumes stored. That's how I felt about Berkeley as a student — so much knowledge across so many fields, but no matter how much time I spent on campus, there was always more to learn."

— RISHI SHARMA '02, J.D. '05

"No investment is more valuable and cost-effective than putting in libraries that accumulate, preserve, disseminate, and pass on to the future generations our human legacies. Each book is a course, a class, or an inspiring world for readers. Currently, we are impressed by the East Asian Library's efforts to collect coronavirus information and postings in Chinese. This is extremely important for future research because these e-materials might disappear. This is not about China or the U.S. — it is a history of human efforts to fight against the pandemic."

— SONIA NG

"Contributing financially to this space for physical and mental gathering is an expression of gratitude and an investment in our collective futures. The libraries at UC Berkeley are a repository of the thoughts of others — thoughts that open our eyes to the past and the present and help us imagine and therefore create the future."

— JANET GREIG '66

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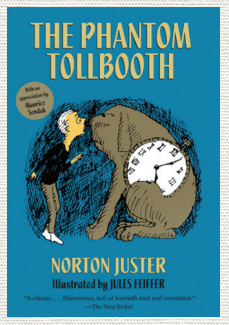
COVERS FOR THE STORM

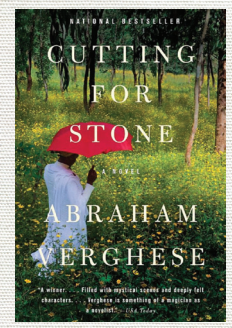
Librarians suggest books to read while stuck at home



The Phantom Tollbooth (1961)

A classic story that never fails to make me feel better! Almost always shelved in the kids section of the library, the availability of the e-book (via many public libraries) ensures that you, an Adult, no longer need to crash a storytime or fight small children to get your own copy. One of the rare books that can (and will) be read and re-read at any age.

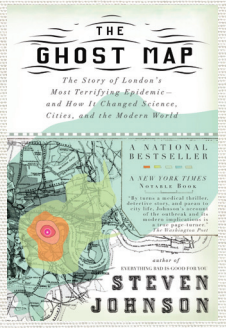
— Lisa Ngo, engineering librarian



Cutting for Stone (2009)

Cutting for Stone is an absorbing novel that transports the reader through time and space — from India to Ethiopia to New York. It's a sprawling and engrossing read, mixing adventure, romance, and social commentary. Author Abraham Verghese's fiction is grounded in his experience as an immigrant, a person of color, and a doctor well-versed in issues of pandemics and unequal access to health care.

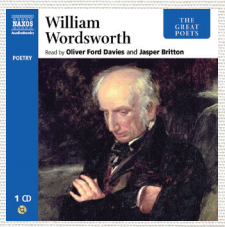
— Susan Edwards, social welfare librarian



The Ghost Map: The Story of London's Most Terrifying Epidemic — and How It Changed Science, Cities, and the Modern World (2006)

Before sophisticated data analysis methods, it was challenging to track population health patterns. Then came "the father of epidemiology," John Snow, who, in 1854, convinced a skeptical London medical establishment that cholera was spread by water, not noxious air, by making a map of cases that showed a cluster around the Broad Street water pump. Steven Johnson's gripping account shows how one person can help change the course of human health.

— Ann Glusker, sociology, demography, and quantitative research librarian



William Wordsworth (2008)

English poet William Wordsworth lived through much personal tragedy — both his parents passed away before he was fully grown, and two of his children died in their youth. Particularly when read aloud, the steady rhythm of the lines as the poet meditates on nature, the will, and the imagination — where he both understands our uncertainty and stands as a bulwark against despair — gives strength during uneasy times.

— Stacy Reardon, literatures and digital humanities librarian

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