

STANFORD



March
2021

LESSONS LEARNED?

The kids are not all right.
But their socially distanced year
could put school on a new path.



**FIXING
FOOD
ALLERGY**

**THE
BARBECUE
CHRONICLES**

**FROSH
IN A
PANDEMIC**



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PAUL MILLER

34 The Bard of Barbecue

Drawing on decades of research, soul food scholar Adrian Miller reveals how Black cooks have transformed the ways America eats.

40 Schoolhouse Rocked

The shake-up in K–12 education wrought by the pandemic has forced educators to adopt technology, and new methods, with fervor. Some of the hurried change—and the lessons it has taught—may be worth keeping.

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Professor of medicine Kari Nadeau takes common food allergens ground into a powder and doles them out in tiny servings. Her microdosing technique is bringing eggs and nuts back to the plates of allergy patients.

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ILLUSTRATION BY DAVIDRO

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A musician-producer
turned tinkerer



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makes a background in improv, singing
and symbolic systems all make sense.



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The Pulse of LGBTQ Health

A long-range study, the first of its
kind, seeks to chronicle all the ways
that sexual and gender identities
can affect well-being.

Digital

NEW
AT STANFORDMAG.ORG

How to improve
your memory

A collection of stories
on work

Video of musician Bradley Immel, '21,
at alu.ms/bradleyimmel



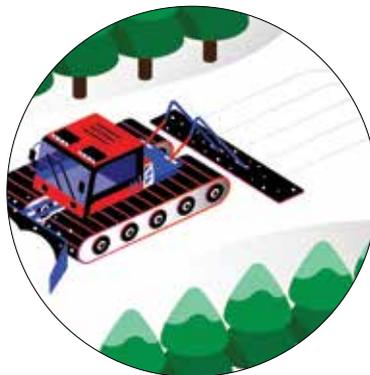
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CLOCKWISE FROM LEFT: TONI BIRD; COURTESY GREG CHUN; DAVIDRO; MENGXIN LI

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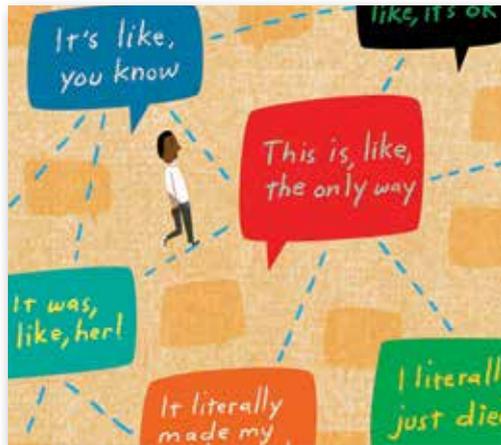
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Dialogue



@STANFORDMAG

That Was, Like, Awesome

In December, we featured linguist and cultural critic John McWhorter.

‘Wow! @stanfordmag did a profile of me (I did my doctoral work there) that precisely gets what I am and am not. That’s understandably been rare for me in pieces like this. I am, dammit, touched!’

—John McWhorter, PhD '93
@JohnHMcWhorter

No. 22

Our December cover story postulated 21 ways your life might (or might not) be different in 2021. We asked you what we missed.

You invited suggestions for No. 22. This should have been No. 1:

Newly aware of the inequities in our society, and how harmful they are not only for those disadvantaged but for our nation as a whole, you will commit to working so that everyone has access to health care and all workers are entitled to paid sick leave.

Esther Portnoy, '66, MS '68, PhD '69
Hillsboro, Oregon

The world will finally get real data on how lower carbon emissions affect global warming. The pandemic has created a natural experiment.

David Heckerman, MS '85, PhD '90, MD '92
Bellevue, Washington

Not only will you get offered a vaccination that many Americans will decline, but many activities (and returning to work) will require you to show proof of vaccination.

Pete Bevelacqua, MS '05
Sunnyvale, California

It seems 2020 has been a horrible year not just for the tragic human toll, but also for the demise of favorite businesses—restaurants, bars, theaters and so on—and publications.

Given that, all I wanted to say is that I appreciated your December 2020 issue and all the work that went into it during these trying times. Like most people these days, I'm online via one device or another during pretty much every waking hour. But that just makes it all the more precious to spend lunchtime sitting in the sun and skimming the magazine. In this context, print is irreplaceable.

Jonathan Angel, '78
Salinas, California

For some years now, STANFORD has gradually reduced its offerings of in-depth, analytical journalism, moving towards noticeably short, lightweight articles and massive amounts of photographs/photojournalism and artwork ornamentation. The recent December issue is an example of this trend. If modern intellectualism no longer tolerates depth and complexity, is it still intellectual, or are we just pretending?

Frederick James Crowe, '71
Dayton, Washington

The Owl's Wisdom

In December, we talked with Juan Gonzales, MA '77, about the weekly newspaper he founded 50 years ago, *El Tecolote*.

Juanito and the paper are amazing institutions in the Mission. I'm one of the few Latino Stanford grads to have been a member of the *Teco* collective, and probably its first paid employee. I wrote, translated, illustrated, set

type, produced halftones, sold ads, delivered papers and kept the books, among other jobs. I'm happy that there is a bit of me in that STANFORD layout: I took the uncredited photo of César Chávez and designed the *El Tecolote* masthead on the paper in his hands. I went on to spend 25 years as a reporter at California dailies and now write speeches for the speaker of the California Assembly.

Carlos Alcalá, '79
Sacramento, California

Glimpses into the ways Juan Gonzales has recruited, mentored, motivated and guided numerous staff and volunteers have lessons for all of us who aspire to meaningful lives.

Congrats to *Tecolote* and all those who have contributed to it. Imagine our democracy if similar efforts were replicated all over the country!

Karen Christensen Hollweg, '64, MA '66
Boulder, Colorado

‘Choosing Teams’

A 2019 article on that year's Cardinal congressional freshmen included Sen. Josh Hawley, '02. The January 13 and 26 editions of our Loop newsletter contained Stanford scholars' and lawmakers' reactions to the events of January 6, including Hawley's objections to certification of the presidential election.

With great dismay I watched the un-American and tawdry events in our nation's capital on



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Unbreakable Bubble

In the last issue, we learned how Leroy Sims, '01, MS '02, MD '07, kept 1,500 NBA players, staff and families COVID-free. He has since been named the league's senior vice president of medical affairs.

This profile made me tear up. Thank you, Leroy Sims, for all that you do to give back and help others.

Jean Chow Cripps, '04

Reading this made my heart swell with pride! Well done, Leroy!

Afua Ofofu-Barko, '02

The NBA Bubble has been a Beautiful Experiment! Congrats to medical director and @Stanford Alum Dr. Leroy Sims. 3 Months and ZERO Cases!!

Jesse Pruitt, Stanford assistant men's basketball coach

January 6. Your hagiographic article featuring Josh Hawley came to mind. His blatantly opportunistic actions in Washington were clearly fueled by blind ambition. From now on, please limit Hawley's coverage to hard news. He doesn't deserve to be mentioned in the company of other distinguished Stanford family members such as Sally Ride, Dianne Feinstein, Sandra Day O'Connor or Cory Booker.

William Yost, MS '83

Seattle, Washington

McCarthyism is raising its ugly head. After fraud charges in several states, Sens. Hawley and Cruz were asking for a committee to investigate. This was a very reasonable request, and our Constitution gave them the right to make it. Shame on those who are shaming them.

Sally Randall Swanson, '58

Boyer, Michigan

With regard to the attack on the Capitol, it was wrong and unacceptable and is universally condemned. Shouldn't Stanford have both lenses on what is going on in the United States—not just a left-leaning lens? America needs both sides to be well represented and communicated.

If, for example, a form of totalitarianism is currently creeping into America from the left (see the warnings of Alexander Solzhenitsyn in his writings, in part from the Hoover Institution), should Stanford be complicit, wary, on guard or at least aware?

Americans seem to be choosing teams and going with their teams' ultimate conclusions, instead of critically thinking and observing where the reaction to these events may be taking us. Is this precisely what Solzhenitsyn warned against?

Jack Connelly, '78

Tacoma, Washington

I am concerned that there were not more commentaries from other Hoover Institution scholars, who could provide their unique insights on the events of that day.

Brian Ferrilla, MS '86

Detroit, Michigan

Where is the response from the current faculty at Stanford to Hawley's actions? I'm unclear why Hoover Institution viewpoints are being elevated for alumni over current professors, or even current students.

Collin Christner, '17

Ann Arbor, Michigan

American Tune

In his December column, Stanford president Marc Tessier-Lavigne discussed what the university is doing to mitigate the challenges faced by its international students, faculty and staff.

I dreamt of coming to the U.S. as a high school student living in the suburbs of Sydney, Australia. Arriving on campus, I was in awe of the diversity of thought and race, and the richness of academic and social opportunities. At Stanford, I studied U.S. history to better understand this country that had captured my imagination. After graduate school in the U.K. and starting my career in Hong Kong, I returned to the U.S. because I love this country and what

it represents. I applaud the university's efforts in supporting the international community.

Shelley Gao, '11

New York, New York

Taxonomy Season

In December, we collected flora and fauna named for the Farm.

Stanford by any other name is still as sweet. But you left out *Hennediella stanfordensis*, aka Stanford screw moss (it twists when drying). Until recently, no one had seen it on campus since it was found at the corner of Mayfield Avenue and Frenchman's Road and described (as *Tortula stanfordensis*) in 1951 by professor W.C. Steere. On October 7, 2020, it was found again in cracks of the drying Searsville lakebed mud during a survey by members of the Oakmead Herbarium team at Jasper Ridge Biological Preserve. Rarities are still to be found!

Rebecca Reynolds, '71

Portola Valley, California

Slip-Sliding Away

December's Postscript essay explored change as a survival mechanism, as taught by a sea cucumber.

Thank you, thank you, thank you. The essay was a perfect lesson at an important juncture.

Charles "Chip" Storey, JD '88

St. Augustine, Florida

CORRECTION

A letter in the December issue contained incorrect dates for the founding of two overseas programs. Stanford in Germany was established in 1958 and the British program in 1965.

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Letters may be edited for length, clarity and civility, and may appear in print, online or both.

Editor's Note

KATHY ZONANA, '93, JD '96

Telling Tales Out of School

What the profound disruption of distance learning has to teach us.

► **ON THE MORNING** I sat down to write this column, a headline caught my eye. It was about increased teen suicides in Las Vegas and the worry that they could be linked to school shutdowns.

I understand the fear. Last March, my son lost access to both of his social lifelines—high school and wheelchair sports—in a single afternoon. As the school district scrambled to cobble together a distance-learning plan, days of isolation turned into weeks.

So many of us parents spent last spring commiserating over our kids' schooling, noticing differences between public and private, richer and poorer, wriggly preschooler and lonely preteen.

It's easy to second-guess the decision to shut down most schools 12 months ago, and localities' varying choices to return fully in person, as a hybrid or not at all since then. It's harder to remedy the situation.

But that's what professors in the Graduate School of Education are working to do. In our cover story, which begins on page 40, they explain that it's too soon to assess the full effects of the pandemic on learning, child development or mental health. That said, they are acutely aware that the past year has exposed and exacerbated inequities: Not every student has a screen, can connect to the internet from their screen or feels comfortable turning on the camera on their

screen. In a particularly poignant vignette, special education professor Christopher Lemons recounts working with a 7-year-old who kept walking around his computer, expecting to find Lemons behind it.

When a system has been as disrupted as K–12 education has been over the past year, it provides an opportunity to examine and rebuild it. Schools of the future may do less teaching to the test, as distance learning has demonstrated the merits of techniques education scholars have been recommending for years, including project-based learning and assessments that demonstrate understanding rather than rote recall. And while no one would recommend videoconferencing as a primary mode of educating children, teachers say some of the other tech tools they've adopted give them a better handle on which students are keeping up and which ones need extra support.

As for the bedroom/classroom down the hall, the single pupil in attendance has been in much better spirits lately, largely because online school has been richer this year than last. "The teachers are working really hard," he says. "I wonder if they know that it's not as good."

After reading our story, I can tell him for certain: They do. ■

Email Kathy at kathyz@stanford.edu.

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Training a Generation of Active Citizens

Stanford renews its focus on civic engagement.

► **OVER THE PAST** 12 months at Stanford, we've adapted our operations to respond to the pandemic, accelerated our work to advance racial justice, and advanced our plans for a school focused on climate change and sustainability. As we reflect on the challenges of the past year and prepare to return our community to campus when it's safe to do so, we've also been thinking about the future of undergraduate education at Stanford. Two areas we're prioritizing are community and civic responsibility.

The January attack on the U.S. Capitol made clear how vulnerable our democracy is. For those of us in higher education, it was also a reminder of our responsibility to educate the next generation not only for personal success, but also for a life of active citizenship. This academic year, we launched pilot courses for a new first-year Stanford requirement: Civic, Liberal, and Global Education. The goal of this requirement, which comes into effect in fall 2021, is to ensure that all Stanford students have the opportunity to engage deeply and intellectually with ethics and civic responsibility. Courses under

this requirement aim to promote constructive disagreement and discourse that informs rather than polarizes.

When faculty conceived of and developed the new requirement during our long-range planning process, it was with the goal of providing all first-years, regardless of major, a shared intellectual experience. By focusing on civic responsibility, we hope to inspire students across all fields to consider the ethical and societal effects of their actions, now and in the future.

Whether their careers involve developing new technology, making business decisions, creating art or literature, or one of the countless other paths our students may take, they will all face ethical questions in their professional lives. We hope this course will give students a firm foundation from which to navigate those questions.

Beyond the first-year experience, there are numerous ways for Stanford students to participate in active citizenship. The Stanford in Washington program introduces students to public service through internships in Washington, D.C. Likewise, Stanford in Government, a student-led organization, has a long tradition of raising political awareness and connecting students with public service opportunities.

Stanford in Government also runs the StanfordVotes campaign, which last year dedicated hundreds of hours to providing nonpartisan voting information and registering members of the Stanford community to vote. Due largely to their efforts, Stanford went from consistently underperforming the national average in undergraduate voter turnout to becoming a leader among colleges and universities in registering new voters.

As we work to promote civic responsibility among our students, we're also focused on advancing the public mission of Stanford itself. In 2018, we established the Office of External Relations, with the goal of organizing and amplifying the university's engagement with our region, nation and world. The office is working to deepen relationships with the communities we touch, promote the value of science and scholarship, and communicate the role that research universities can play in solving the great challenges society faces—from health disparities to climate change to educational access. This work will help realize Stanford's Long-Range Vision, which is inextricably tied to how we collaborate with others to address the pressing problems of our time.

The crises of the past year have made it clear that this work is more important than ever. As we look to the future, universities will play vital roles in preparing our world to address the great challenges we face. We can begin by ensuring that the next generation has the skills and knowledge to navigate ethical and societal dilemmas, and that the research and education conducted within our walls benefit the communities beyond them. ■



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The Winningest

Tara VanDerveer, the Cardinal women's basketball head coach since 1985, won her 1,099th collegiate game on December 15, surpassing the previous record held by the late Pat Summitt of the University of Tennessee. VanDerveer was given the game ball from Stanford's 104–61 win over the University of Pacific and, from her players, a wearable blanket emblazoned with the nickname T-Dawg.

PHOTOGRAPH BY JOHN TODD/ISI PHOTOS





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WHO WE ARE

Meet Bradley Immel

In the shop or on the stage, a senior mixes it up. ▶

“The No. 1 thing I miss most about pre-pandemic times: I was in three bands playing three gigs a week.”



▶ **THE PANDEMIC TURNED DOWN THE VOLUME** in many of our lives, but the decibels really dropped for Bradley Immel. One moment, he was playing bass guitar in front of a crowd of hundreds at Full Moon on the Quad. A blink of the eye later, he was strumming for a max audience of seven, the social bubble he formed in the fall when rules allowed it. He's spending his senior year as a resident assistant in EVGR-A, where all undergrads on campus lived in the fall and some upperclassmen are staying in the winter.

Music has long been a passion for Immel, who plays everything from saxophone to steelpan and embraces genres from rap to rock. But it was never his only focus growing up in Dixon, Calif., a Central Valley farm town where, he says, you know everyone you see at the grocery store. He came to Stanford with notions of becoming a doctor.

Instead, a mechanical engineering course captured his imagination freshman year, spurring a love of creating that Immel soon married with his musical interests. The engineering major has a fondness for finding old gadgets at Goodwill and turning them into musical gizmos—from the drum machine he created out of a printing calculator to a toaster he turned into a talk box, a device that lets you reshape an instrument's sound with your mouth.



MUSIC, MAKER: Immel, a mechanical engineering major, hand-painted the guitar at left.

"I really enjoy starting something from scratch and finishing it to the end. That's what draws me to music—creating a song from start to finish—and to mechanical engineering.

"In my frosh dorm, I would just play the piano every day, and then one day somebody else in the dorm came up and started singing. We started playing together, and I started producing music for him. He's a rapper and a singer. Producing music has been one of the biggest things I have done at Stanford. I've produced songs for five artists.

"A band I play with, Reptile Room, won Battle of the Bands in 2019, so we got to play Full Moon on the Quad. At the performance, I was jumping up and down for an hour and a half straight. I just played way too aggressively. Both my fingers had huge blood blisters from playing bass. We were playing loud and people were dancing—it felt like we were a real band.



"Last year I staffed an all-frosh dorm. I had a great team, and we had great residents, and we had a really good time. This fall was a very different situation. We really tried having [dorm] events, but of course people don't want to show up to another Zoom meeting. We don't have it figured out. It was a really tough quarter to be an RA and to be a student.

"The one thing we relied on for interacting with residents was going on walks—just asking them to go on a walk with a mask.

"With your registered household, which was up to eight people, you could do anything—you could go into each other's rooms, and you didn't have to wear masks. I started teaching my roommate to play bass, and I was teaching guitar to another friend in our household. We made our own little band. My other friend sometimes played the egg shakers, and I was on drums. It was for an audience of none, for jamming's sake. I've been playing as much music as ever."



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A Cut Above

Ana Ziadeh celebrates 50 years with Stanford Dining.

AS DINING HALL WORKER ANA ZIADEH remembers it, about 25 years ago, she walked into the office of Shirley Everett, senior associate vice provost for Residential & Dining Enterprises at Stanford, unannounced, and declared: “I don’t want to be the little helper anymore.”

Everett, she recalls, liked her style, and connected her with the study materials and the test to become a Level IV food service worker, a step up that meant more money and more responsibility. Ziadeh studied two hours a day for a week and passed the test.

In the context of that moment, Ziadeh’s life journey looks a lot more like gumption than serendipity: A friendship with a priest in her coastal Colombian hometown led to a job opportunity at a medical clinic in the big city, Barranquilla. Good rapport with a patient earned her a nanny position with an art professor and, later, a similar job

with an oil executive’s family in San Francisco. Then, at a Stanford bus stop in 1970, Ziadeh made a friend who became her entrée to the student-dining world.

In 2020, she celebrated 50 years of employment at Stanford—the longest of all 250 dining employees—in a role she says she gained with the help of supportive managers and her can-do attitude (she calls it, with a glint in her eye, “the Colombian way”). Over the years, her specialty at Wilbur Hall has become salads. One fall, a student from Hong Kong hunted her down to report that he’d been craving her Caesar salad all summer. “It was so nice that he said he thought about my food the whole time he was back home,” Ziadeh says. She shared the recipe for the dish, as well as two other faves, with STANFORD. (Quantities are omitted because, as you might imagine, she cooks in volume.) ■



Jicama Salad with Fruit

- FRESH JICAMA
- FRESH PINEAPPLE
- CILANTRO
- DRIED CRANBERRIES
- RED BELL PEPPER
- GREEN BELL PEPPER
- RED ONIONS

DRESSING

- RICE VINEGAR
- OLIVE OIL
- RED PEPPER FLAKES
- WHITE SUGAR



ZIADEH'S FAVORITE RECIPE

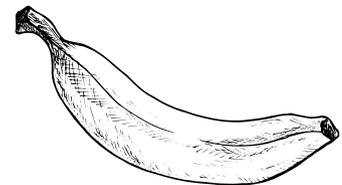
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Chicken Caesar Salad

- ROMAINE LETTUCE
- CROUTONS
- CHERRY TOMATOES, HALVED
- GRILLED CHICKEN STRIPS
- PARMESAN CHEESE

DRESSING

- MAYONNAISE
- GARLIC
- LEMON JUICE
- SALT AND PEPPER TO TASTE



Patacones, Colombian-Style

- GREEN PLANTAINS
- SALT
- GARLIC
- OIL

INSTRUCTIONS

- PEEL THE PLANTAINS, CUT THEM ON THE BIAS AND FRY THEM.
- REMOVE FROM OIL, SMASH THEM AND SOAK THEM IN SALT WATER WITH THE GARLIC.
- DEEP-FRY THEM AGAIN UNTIL THEY ARE CRISPY.

COUNTERCLOCKWISE FROM TOP: ERIN ATKISSON; IANNEE/GETTY IMAGES; SEAMARTINI/GETTY IMAGES (2)

Introduction to the Dark Arts

The culinary education that suddenly seems vital.

TODD MASONIS, '01, started making chocolate as a hobby with his business partner, Cameron Ring, '01, MS '03, in 2008, after they sold their company Plaxo to Comcast.

Between jobs in solar energy, Jonas Ketterle, '08, MS '11, traveled to Oaxaca, Mexico, where he tasted drinking chocolate made from a traditional method of roasting and grinding beans, and was hooked.

None of them expected—while making bars in a garage or building cooling tunnels—to start a chocolate factory and stumble right into the third wave of chocolate. Like beer and coffee before it, chocolate is having a moment. In recent years, the number of bean-to-bar chocolate makers in the United States has grown from a handful to more than 200.

“When you have really good beans, they can have more flavor complexity than wine or coffee,” says Masonis, co-founder of Dandelion Chocolate. Masonis calls his dark chocolate bars minimalist—nothing but beans and sugar. But it gets darker. Ketterle’s Firefly Chocolate creates disks of 100 percent cacao. Many might find them bitter, but learning to love chocolate for more than its

sweetness can be a hobby in itself.

So how can an average chocolate fan refine his or her palate? Masonis and Ketterle, whose companies offer tastings and courses on chocolate, offer some pointers.

- **Start with a maker.** By controlling for processes used to create the bars, you can detect nuances that originate from the regions where the beans were grown.
- **Conversely, start with an origin.** If you taste a selection of bars from Madagascar, for example, “you actually see the skill or the opinion of the maker shine through,” Masonis says.
- **Make it hot.** Some of Ketterle’s customers want to drop their coffee habit and try a milder stimulant, or find drinking chocolate to be a mood booster. Others are ceremonial cacao drinkers, “folks primarily interested in the use of chocolate for ritual and spiritual purposes,” Ketterle says.
- **Wean yourself off the sugar.** Ketterle doesn’t expect anyone to tip back a mug filled with 100 percent cacao right off the bat. But working up to it can maximize the health benefits that dark chocolate offers, such as boosts in heart and brain function. ■



THE TICKER



Xavier Becerra, '80, JD '84, has been nominated to lead the Department of Health and Human Services (confirmation was pending at press time), while **Susan Rice**, '86, is serving as director of the Domestic Policy Council.... **Nicole Mann**, MS '01, **Kate Rubins**, PhD '06, and **Jessica Watkins**, '10, have been named to NASA's Artemis Team, which plans to put a woman on the moon in 2024.... **Jaden Redhair**, '22, created the Monument Valley image on Nalgene's Tó éi iná (water is life) bottle; a portion of proceeds will be used to improve water access for Navajo communities. Meanwhile, a five-story mural honoring Ruth Bader Ginsburg by **Chuba Oyolu**, MS '07, PhD '11, is watching over downtown San Jose.... **Nicholas Thompson**, '97, has stepped down as editor in chief of *Wired* to become chief executive of the *Atlantic*, filling a seat vacated in 2019 by **Bob Cohn**, '85, who is now president of the *Economist*. Cohn was also an editor at *Wired* once upon a time—oh, and of STANFORD—in case you're keeping track of magazine musical chairs.... **Allison Otto**, '98, MA '99, co-produced and co-directed *The Love Bugs*, a documentary on PBS POV Shorts about a couple who love insects and each other in equal measure.... **Lianna Holston**, '18, and **Siena Jeakle**, '19, share their candid opinions of classic movies in *Frankly, My Dear*, named iHeartRadio's Next Great Podcast.



Red Planet Road Trip

A new rover digs into Mars.

THERE WASN'T MUCH MYSTERY about where young Phillip Hargrove, '14, was headed in life. He obsessed about planets in grade school, attended Space Camp in summers, and even had a Lego version of the Mars rover *Opportunity*. Which is all to say that July 30, 2020, was a personal date with destiny. That's when NASA launched its Mars 2020 mission, complete with a new rover, an unprecedented helicopter, and a scope of experiments focused not only on finding signs of life on Mars but also on enabling human visits someday. It was Hargrove's first launch at NASA as a member of the mission. As a trajectory analyst, he helped set the rover on its 293-million-mile voyage. "It's just super exciting to know like, hey, I had a tiny piece in that," says Hargrove, one of several Stanford-affiliated scientists and engineers working on different aspects of the mission.

Mars landings are notoriously difficult. As of this writing, *Perseverance* (aka Percy) was due to reach the red planet in mid-February, touching down on its six wheels before embarking on a martian year of activity, about 687 Earth days.



AIR CARE

To enable human exploration, Percy contains an experiment for converting Mars's abundant carbon dioxide into oxygen, much as a tree does. An Earth-bound rocket would need 40 tons of oxygen propellant to get home, says principal investigator Michael Hecht, PhD '83. Better to make it there than to lug it.

FIRST FLIGHT

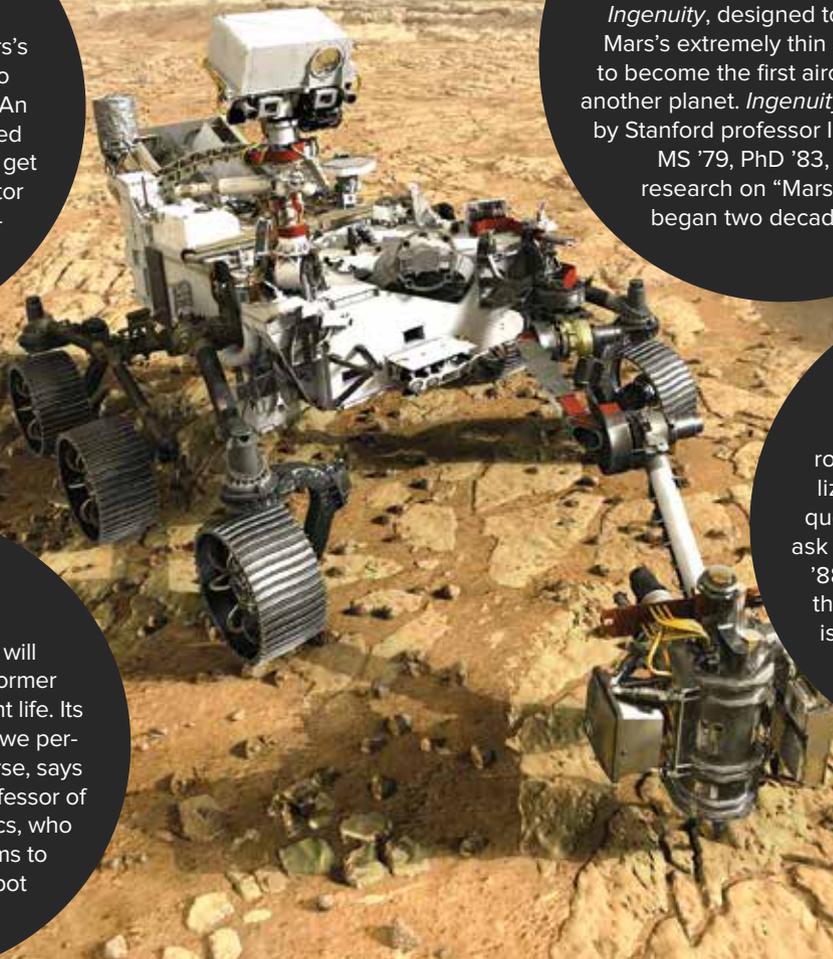
Tucked under Percy's belly is its trailblazing cargo—a four-pound drone called *Ingenuity*, designed to overcome Mars's extremely thin atmosphere to become the first aircraft to fly on another planet. *Ingenuity* was inspired by Stanford professor Ilan Kroo, '78, MS '79, PhD '83, whose research on "Marscopters" began two decades ago.

ROCK QUERIES

Percy will sample martian rock for return to Earth, a tantalizing prospect that will answer questions we don't even know to ask yet, says Janice Bishop, '87, MS '88, senior research scientist for the SETI Institute. Alas, retrieval is at least a decade away. "We will have to be patient," she says.

MARTIAN HUNT

The 2,260-pound rover will explore Jezero Crater, a former lake, for signatures of ancient life. Its findings could change how we perceive our place in the universe, says Marco Pavone, assistant professor of aeronautics and astronautics, who helped develop algorithms to optimize the landing spot on Mars.





For Top Speed, Look No Further Than Happy Hour

Olympic swimmers are faster in the evening. Specifically, at 5 p.m. Circadian biologist Renske Lok, a postdoctoral fellow in psychiatry and behavioral sciences, analyzed the race times of swimmers from the past four Olympic Games and found that evening times were about .39 second speedier than morning times. For those playing along at home, that's about the amount of time it takes you to blink your eyes; but for world-class swimmers, it's enough time to grab coffee and a bagel. An elite athlete could harness these findings to modify her sleep habits: Nudging her circadian rhythm by waking earlier or later to adapt to the hour of the upcoming competition might make the difference between silver and gold. For those of you whose athletic aspirations tend more toward summing the sofa, feel free to use this as an excuse to sleep in before a Netflix marathon. You want to be at your peak.



Financial Help in a Pandemic

How the Stanford community has rallied to bridge the gap.

CLOSE TO HALF of Stanford's 7,000 undergrads receive need-based financial aid, and in normal times, nearly all of them would be living on campus. The costs of their room and board would be obvious months in advance, says Karen Cooper, Stanford's director of financial aid.

These aren't normal times. In fall quarter, only about 700 students with approved special circumstances were on campus. Two-thirds of students who receive aid were living with their families. And the remaining fifth were elsewhere, many in short-term rentals, whose costs may be reimbursed by the university up to what the students would have received for campus room and board.

The renters included international students who returned to their home countries but needed outside accommodations to secure things such as high-speed internet and reliable electricity, Cooper says. They also included students trying to extract a smidge of lemonade from COVID-19's ample lemons. "Miami, San Diego—there's a bunch of students in Honolulu this quarter," she says.

There has, however, been no getting away from the headaches COVID-19 has caused for student finances. Aid packages are established using the estimated cost of attendance, a number that requires knowing where a student will be. That moving target slowed the award process in 2020. "I have no idea how much money I need to pay for school and how much money I have left to pay for other things," one sophomore told the *Stanford Daily* in September.

The process has sped up each quarter, Cooper

says. And the university has taken other steps to help those on aid, such as replacing student contributions from employment with grants. The Financial Aid Office also provides funds for internet access and food, even for those living at home. It's only fair, says Cooper. When budgeting, "those parents didn't plan to feed those kids."

For items that financial aid doesn't cover—those beyond tuition, fees, room and board, travel, books and a personal-expenses allowance—there are additional safety nets. The Stanford FLI (First-Generation and/or Low-Income) Office's Opportunity Fund provides help for low-income students who face an unexpected cost, be it a replacement computer or a medical expense not covered by financial aid.

Some in the greater Stanford community—including students on leaves of absence and recent grads—fall outside the purview of traditional financial aid. Helping those people, as well as students' family members, has been a rallying cry of the Basic Needs Coalition, a student group that formed in July.

As of late January, the coalition had raised about \$142,000 and distributed \$121,000 toward the \$277,000 in aid requests it received, says Lizzie Avila, a sophomore organizer. Eighty-five percent of requests came from FLI students, while nearly 60 percent were from students of color. Demand isn't going away, Avila says, but it has been moving in the right direction. "January does not look as hectic as September," she says. ■



ADVICE

In Case of Emergency, Be Kind

An empathy scholar on the radical act we all need right now.

BY CHARITY FERREIRA

Being a psychologist studying empathy is like being a climate scientist studying the polar ice, Jamil Zaki writes in his 2019 book, *The War for Kindness: Building Empathy in a Fractured World*. “Each year we discover more about how valuable it is, just as it recedes all around us.”

Empathy, the experience of connection with someone else’s emotions, is a key source of kind behavior, and surveys show that it has

been declining for decades. Zaki, a psychology professor who heads the Stanford Social Neuroscience Lab and teaches an undergraduate seminar called *Becoming Kinder*, has spent his career documenting the many ways in which empathy benefits individual well-being and strengthens the social fabric.

Americans were experiencing an epidemic of loneliness even before the emergence of COVID-19, he says, and younger generations in particular are suffering an increase in

MICHELE MCCAMMON (2)

depression and anxiety. Being kind to other people is a well-documented—if not always intuitive—antidote.

“A lot of people think about kindness as a transfer where one person sacrifices and someone else benefits. But happiness and well-being are not zero-sum. It turns out that when people act kindly, they benefit too,” he says. “So people who give away money are happier than those who spend it on themselves. People who give away time feel like they have more time. Older adults who volunteer have lower mortality rates. There are just all of these ways that kindness and empathy help us thrive.”

Collectively experienced crises, including the current global pandemic, Zaki says, throw our interdependence into sharp relief. “They’re obviously horrifying and we wish they wouldn’t happen, but they also sort of shock us out of the sense that we are independent free agents. And they just make us see how much we have in common with each other and how much we need each other.”

Here are four ways to increase your capacity for empathy and become kinder.

Reverse the golden rule.

Whether you call it Duck Syndrome or toxic perfectionism, that feeling that you need to be constantly succeeding is a deeply isolating perspective, Zaki says. Compassion for yourself is, in many ways, the starting point for connecting with others. The first “kindness challenge” Zaki assigns to his students is to reverse the golden rule: Treat yourself the way you’d treat other people.

Think back on a time you disappointed yourself. Now imagine that a loved one tells you they’re feeling bad about a similar failure. How would you respond to them? Chances are you’d see their misstep as a mistake rather than a defining moment. Try to offer yourself that same grace and compassion. But don’t feel bad if it takes a while to learn to treat yourself better. “The first tip to becoming a kinder person is to not make this another thing that you beat yourself up over,” Zaki says.

Bring curiosity to your disagreements.

Politics, Zaki says, is like a black hole for empathy, because we may feel we share little to no common ground with those who oppose our views. Reflexively dividing people

into “us and them” inspires empathy’s opposite—it reduces those you disagree with to whatever divides them from you. Instead, he says, make it about “you and I.”

Remind yourself that there’s a real person behind that opinion you find abhorrent—one whose fears, hopes and experiences have shaped what they believe. The next time you encounter someone who disagrees with you, instead of writing them off or debating them, see if you can tell each other the story of how you came to have the views you do. “Try to cultivate—and display—curiosity about this person, rather than judging them immediately,” Zaki says. The goal is not to relinquish your own beliefs or to change theirs. It’s just



to understand the other person a little better. “When we dig into our personal stories, we can stumble onto surprising common ground,” Zaki says. “Even if we still disagree, we can do so with greater respect and understanding.”

Choose your own normal.

According to Zaki, conformity gets a bad rap. “In fact, I think it represents something beautiful, which is the fundamental desire to be a part of something greater than ourselves, to be part of a group.” Research confirms that humans are a conformist species; social norms affect whether people litter and whether they vote, as well as how kindly or indifferently they behave. The lesson here, Zaki says, is twofold: First, you determine your social

reality by what you choose to pay attention to. “You can spend all day looking at people who are on spring break on crowded beaches in Miami or fighting each other in a grocery store over toilet paper,” he says. “You can also look up #covidkindness and see countless examples of people using this opportunity to be kind and to connect with each other.” While the former might inspire you to run out and stock up on supplies before someone else gets them, the latter might suggest a way you can help others.

And the second lesson? You are someone else’s social reality. “The behavior that you choose to elevate and make most visible in your community will also become a social norm, and will become magnetic and sticky,” he says. Loud voices dominate, so amplify the good. “Make it top-of-mind for the people around you, because by doing so, you can change the narrative that people have in their minds about what is ‘normal,’ and that, in turn, will sway their behavior.”

When the real world is too hard, practice on fictional friends.

Studies have found that avid readers are more empathetic than those who read less, and that theater training—learning to inhabit a character for the stage—increases would-be actors’ empathy. Other people’s stories, even fictional ones, are a low-stress way to explore the inner lives of those outside your social circle in a way that paves the way for caring about real outsiders, explains Zaki. “Fiction is empathy’s gateway drug. It helps us feel for others when real-world caring is too difficult, complicated, or painful,” he writes in a chapter about the power of narrative to untear you from your current reality and allow you to imagine another experience.

One of Zaki’s “kindness challenges” for his students is to engage with a piece of narrative art, such as fiction, drama or film, that involves characters or situations outside their comfort zone. “Maybe it’s a play about bigotry or loss, or a romantic comedy set in a country you have little knowledge about. While watching or reading or listening, and after, reflect on how it feels to connect with these characters. Do their stories deepen your understanding of real people?” ■

CHARITY FERREIRA is a contributing editor at STANFORD. Email her at stanford.magazine@stanford.edu.

CLASS OF 2024

Stanford, Home Edition

In which we commence telling the tale of seven frosh.

BY CHRISTINE FOSTER

The

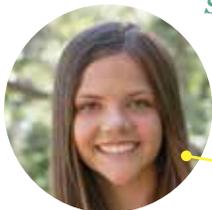
first members of Stanford's Class of 2024 won admission in the before times—back in December 2019, before COVID-19 upended the world. The rest received their acceptances as the United States shuttered schools and stores during the first wave of infections in March 2020. A small group of freshmen will be sharing stories from their unusual start to college with STANFORD throughout this year and beyond.

Students who were accepted through early action in

December 2019 had no idea what was to come when they opened that confetti-sprinkled email.

JENNA REED (Menlo Park):

I was in the car with my entire family [parents Mark, '90, and Linda (Schwartz), '87, and sister, Kelsey, '20], and they are all Stanford people, so there was definitely a lot of pressure. I kind of distracted them; I pulled up my phone and



then kind of very numbly said, "I got in"; and then I cried.

But for most, the news came at the end of March, interspersed between reports of rising cases and shutdowns.

EVA OROZCO (Los Angeles): I was on a Zoom call with my school counselor, and she said, "Did you open your Stanford thing?" I opened it and I was starstruck. I had a tear streaming down my face, and then I ran into the other room of my dad's apartment and hugged him. Having an immigrant family—my mother's side immigrated from Russia, and my father immigrated from Mexico—you always hear of Harvard and Stanford. When your family talks to your relatives back in your home country, those are the ones that they can recognize.



were going to be locked down, and there was a lot of anxiety. Then we got a call from my sister that somebody at her college had already gotten COVID and so they had to send everybody back home. We are low-income, so we don't have a car, so we were nervous about having to drive all the way to the airport and pick her up because it would be expensive for us to do that. I feel like getting into Stanford was the one good thing that canceled out all of the chaos that was going on.

By summer, it had become clear that fall quarter would be different than usual. On August 13, Stanford announced that most undergraduates would take classes remotely, from home.

JENNA: When my mom got me these Stanford- or dorm-themed items, I was like, "What if we don't get to move in?" I'd become something of a skeptic, just because everything in my life had been canceled at that point.



STACEY LUBAG (Las Vegas):

I remember that day being very chaotic. [Nevada] Gov. Sisolak had pretty much announced that we



FRANZISKA BARCZYK



SALA BA (Loudoun County, Va.): I had all my stuff laid out in the basement ready to go into my bag, and then . . . I was so devastated. It's in the back of your head—you're like, "We're probably going to be online. That's the more responsible decision." But there's always a tiny part of your brain that's like, "No, maybe it will just magically get better," and so that kind of died when we got the email.

Undergraduates with special circumstances, such as visa issues or impracticability of remote learning, lived in Escondido Village Graduate Residences in a socially distanced fashion. Students on athletic teams approved for practice and play were required by Santa Clara County to live in a separate group, and were housed in Mirrielees.

KEVIN THOR (Fresno, Calif.): I did apply for special-circumstance housing on campus. I am the youngest of eight—a really big family. At home I would say [I babysit for nieces and nephews] maybe 20 hours per week. It was really tough leaving my family knowing they were also struggling with babysitting and parents working. I think in that moment I really had to be selfish, because I had to choose what was best for me at the expense of my family. I feel like that's something a lot of FLI [first-generation and/or low-income] kids go through, or especially immigrant families.



Then, after that, you have to be in groups of five, groups of 10, until slowly integrating into the full team. And daily testing. Sometimes two types of testing, but it was all to make the best and most out of the football season.

The dining-hall experience was not typical, but it had its upsides.

KEVIN: You scan your card and—it was pretty cool—there is a camera thing that monitors your face. It would take your temperature, and it would also check if you were wearing a mask. If you were normal, the machine would be like, "Temperature is normal," and then you would wash your hands for 20 seconds and go get your food. As long as they fit into your brown paper bag, you could take multiple entrées. I was eating really well.

Classes generally went smoothly, although navigating time differences to attend synchronous classes—those that met in real time—could be rough.

ELENA RECALDINI (Tokyo): I signed up for 20 units [fall] quarter, and all of them were synchronous. I was pretty ambitious, and I thought I could do it. I took Chinese, and so that's every day from 3:30 a.m. to 4:30 a.m. I showed up to all my classes; I didn't skip any, but definitely the first two weeks were very challenging. I felt nauseated a lot of the time, and I think my body was just having a really hard time adjusting to the schedule.

LOGAN: Zoom has made it a lot easier to get your work done, especially for me, because I've got [team] meetings starting at 12. It's been nice to have asynchronous classes and classes for which I can do the work far ahead of when it's due.

STACEY: I try my best to wake up early because I have a lot of things to do for my mom. When quarantine started, she started making face masks as a hobby, but then people started wanting to buy them, and so now we run this small face-masks business from home. From the moment I wake up, I'll help her with all the fabric stuff, and then I have an alarm on my phone that goes off five minutes before class so I'll have enough time to run upstairs. It's hard when your house is

so small and there are four people. There's just a lot of stuff going on, like the sound of a sewing machine constantly buzzing and the TV and my dogs, but I feel like I wouldn't have it any other way.

And then there were the challenges of joining the Stanford community virtually.

EVA: I joined the Stanford group chats on GroupMe—they have the LGBT group chat, they have Hispanic/Latino group chat, and now we even have group chats for whichever dorm we've been assigned to. I was just talking to as many people as I could.

JENNA: The week of [New Student Orientation] came, and I'm sitting on my bed in my sweatshirt and pajama pants, and I'm like, "OK, I guess this is welcome to Stanford."

It probably didn't hit me until the IntroSem called Identity Politics 101. It was amazing; I loved the course. And I think in that class, with those people, I was like, "OK, this is Stanford." Zoom University, Stanford Edition.

I couldn't figure out how to do the Zoom Virtual Activities Fair, and so I ended up barely joining any student organizations, which was kind of frustrating to me. I was also so Zoom fatigued, I was like, "Do I even want to join any? Right now, do I have the mental capacity to do so?"



ELENA: I'm dead all the time because I'm sleep-deprived. So this [fall] quarter, I've honestly not made any kind of lasting friendships. I know there are some frosh events that the Frosh Council organized. I attended one,

but it was a bad time for me, and then I was like, "I can't do this anymore," so I kind of gave up. But, yeah, friends—that's something I definitely want to work on, and it's a big stressor for me, to be honest, because I feel like I'm really not living the life that I idealized.

SALA: I watched *Gaieties* with my friends, and I did not understand what was happening. The upperclassmen were like, "*Gaieties* is so funny. Check it out," and I don't want to be mean, but I just didn't think it was great.

And one thing I was talking to my adviser about that I still need to learn is the Stanford language where they just kind of shorten words and make the syllables "-o." FloMo . . . I don't know what that is.



LOGAN BERZINS (San Diego): COVID is a terrible thing. It's been a miserable experience for most people in 2020, but [for me] it's kind of been a blessing. Usually, the [football] preferred walk-ons [arrive on campus] at the beginning of fall camp, which is way later than the scholarship players, but because of the uncertainty of the season and just the difficulty of isolating and quarantining, everyone [came] in at the same time. I've been here as long as anyone else, which has been really, really cool.

In other aspects it has not been as cool, especially because Santa Clara [County] is a pretty strict area. So we had to isolate for two weeks, just sitting in our rooms by ourselves.

FROM TOP: SALA BA; MAXEE LEE; '24; COURTESY ELENA RECALDINI; CHASE LINDGREN

The students tapped into reserves of resilience as they navigated fall quarter.

SALA: I definitely cried weeks one through four. I would come downstairs to make my lunch, and my dad would be in the kitchen making his lunch, and I would just get mad at him. I would just be sad because, in my head, I'd be like, 'If I were on campus, I could just go to the dining hall.' I'm really used to being in control and planning things out. Then you're just in a situation where it's like, hey, there is absolutely nothing you can do to change it. That was the first time that had happened to me for something that was a really big deal, and so that was definitely hard to get over. But this by itself is not that bad. Maybe it is not as cool as what could have been, but it's actually not that bad.

Elena decided to spend winter quarter on campus, and was assigned special-circumstances housing in Kimball Hall.

Sala, Eva and Jenna made plans to arrive at the end of January for a limited on-campus experience. Then, on January 9, they learned that that, too, would not be possible. (Public-health conditions permitting, freshmen and sophomores will be welcomed onto campus for summer quarter, with juniors and seniors preceding them in spring.)

JENNA: I understand that the pandemic is at its worst right now, especially in California. It is just really disappointing to get a dorm assignment, buy items for your dorm room, pick a move-in date, all for it to be canceled—again. I'm feeling sad and worried about what another quarter at home with limited friends will mean for my already suffering mental health.

ELENA: The main reason I wanted to come to campus this quarter was obviously the time difference, because it was really tough for me first quarter, but also I was just really excited to meet a lot of new people. I was expecting to be able to see almost everyone

in my [class year]. It was really shocking when that news came out.

Stacey, who has severe asthma, plans to stay home until COVID is less prevalent.

STACEY: I actually just feel it in my bones that the moment I step on campus, it's going to be pivotal and life-changing, and it's going to be amazing. I remember when I was applying, I watched a bunch of videos of how Stanford welcomes the new students on campus. It looks so fun, and I was thinking to myself that I hope that I get to have that experience, and I feel that despite the world being so dark and despite there being a big COVID problem, that when we all do get a chance to move in on campus, it's going to be just as fun and everyone's going to be 10 times more welcoming because we have been apart for so long. ■

CHRISTINE FOSTER is a writer in Connecticut. Email her at stanford.magazine@stanford.edu.



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Improving lives through learning

SPOTLIGHT

Making His Voice Heard

Playing characters in video games and animations transformed Greg Chun from singer to storyteller.

BY CORINNE PURTILL

YOU HAVE HEARD Don LaFontaine, even if you think you have never heard of him. LaFontaine, who died in 2008, was the king of the Hollywood voice-over, the man who turned the sonorous utterance “in a world . . .” into the “once upon a time” of movie trailers.

By the time Greg Chun, '93, met LaFontaine, Chun had been writing music cues and commercial jingles in Hollywood for more than a decade, looking for his next big break. A promising one came in 2004, when he joined the musical crew of *The Ten Commandments: The Musical*, featuring Val Kilmer as Moses and a supporting cast that included LaFontaine's wife, the singer and actor Nita Whitaker.

The musical was a bit of a mess—if you

have to ask why, go back and reread that sentence about Val Kilmer as a singing Moses—but the friendships forged were solid. Which is how, one day, Chun found himself hanging out in LaFontaine's home studio, listening to him record the trailer for the DVD release of the Vince Vaughn flick *DodgeBall*.

“Grab life by the ball,” LaFontaine intoned majestically, as a captivated Chun listened nearby. “Grab *life*. By the *ball*.”

And so Chun did.

In a world where a chance encounter can reshape the course of a life, Chun's meeting with LaFontaine opened a door into a parallel career as a voice actor.

If you've turned on a children's cartoon series in the past few years—*The Lion Guard*,

say, or *Barbie Dreamhouse Adventures*—or picked up a controller to play a game in the *World of Warcraft* or *Yakuza* series, you've heard Chun's voice coming through your speakers. He has brought to life more than 150 characters in ads, animations and, notably, video games—the last of these being a childhood passion that has unexpectedly become a calling.

As a kid growing up in the Chicago suburb of Riverwoods, Ill., Chun found the arcade a welcome break from the burdens of being a person of color in a predominantly white community. “Being a minority in the Midwest in the '70s was not the best place to be,” Chun said recently over Zoom from his home in Los Angeles. When his older brother, Toby, '92, MA '93, moved to the



FROM LEFT: COURTESY GREG CHUN; JEFF FASANO

TAKE TWO: When recording a video game, Chun tries out two or three interpretations of each line.

West Coast to attend Stanford, Chun decided to follow. He arrived on campus in the fall of 1989 to find the sense of belonging he'd been looking for.

"Stanford was this period of blissfulness. I felt like I could breathe," he recalls. "It was an incredible, incredible feeling of hope. A huge weight had been lifted off my shoulders, and the possibilities were endless."

Though he hadn't done much with music since getting booted from piano school at age 11 by a teacher unimpressed with his lackadaisical practice schedule, Chun installed himself at the grand piano in Donner's lounge, playing songs he remembered from childhood and pop hits he picked out by ear. When he overheard a brand-new student improv troupe improvising plans to put on a musical, Chun offered on the spot to play piano, and that's how he became the first musical improviser for the Stanford Improvisors, or SImps.

"He sat down and he was brilliant," says Dan Klein, '90, an original SImp who now coaches the troupe and teaches improvisation as a Stanford lecturer. "It was so fundamental to the success of the group."

The performing bug had bitten. Soon came Ram's Head Theatrical Society, where Chun appeared as Action in *West Side Story*, and, naturally, Stanford Fleet Street Singers, the bowtie-clad men's comedy a cappella group. "What I loved was the audience energy—to say a line, to do a bit. It made your body feel like you were coming alive with all kinds of emotions," Chun says of life in Fleet Street, which he directed during his senior year.

As graduation loomed and his performer friends began to plan moves to Los Angeles, he didn't quite feel ready to commit to life as an artist. Symbolic systems degree in hand, he stuck around the Bay Area for jobs at Stanford's Center for the Study of Language and Information and, later, at Oracle. One gig—providing technical support on the DreamWorks animated musical film *The Prince of Egypt*—blended his interests, but he hewed close to the techie path. In 2001, Chun enrolled in a computer science doctoral program at UC San Diego, making it as far as a master's degree before deciding to give music a real shot.

Plan A was to become a professional singer, a dream that would necessitate a lot of day jobs. A Fleet Street connection helped

find him a gig as a note taker for Patrick Leonard, composer of the lavishly financed *The Ten Commandments*.

This American reinterpretation of a popular French musical would (eventually) open at L.A.'s Kodak Theater to decidedly mixed reviews. "[A]fter 2 1/2 hours of cheesy stagecraft and innocuous, blaring upbeat music, we don't just understand Moses, don't

'Stanford was this period of blissfulness. I felt like I could breathe. It was an incredible, incredible feeling of hope. A huge weight had been lifted off my shoulders, and the possibilities were endless.'

just aspire to be Moses, we actually become Moses," the *Los Angeles Times* critic wrote, adding that the musical "has the power to leave [an] epiphany-seeking theatergoer speechless."

Yet the production's chaotic nature ended up working in Chun's favor: Every time someone quit in frustration, Chun was promoted, rising from assistant to rehearsal pianist to conductor and musical director. It was an exhilarating introduction to show business, yielding friendships and connections that would lead him to voice acting.

He first read for a part in *Mists of Pandaria*, an expansion pack of the blockbuster video game *World of Warcraft* that featured an all-panda cast of characters (Chun voiced several of them, including the venerable Emperor Shaohao). One job led to another, and as the credits began to pile up, Chun found that he had a niche that drew on everything he loved about performing.

"It takes a while to find your path, and now that I've settled into this, I can't imagine this part of me going away," he says. "Storytelling is inspiring and empowering. I never

really got that before. As I'm working more and more in this business, I'm realizing how much I care about that." Video games in particular are an opportunity to create something that is beloved by its audience, transporting players to a different world and connecting them to a community beyond their immediate surroundings.

Unlike their colleagues on feature film sets, video game actors don't get weeks or even days to immerse themselves in character research. Enter the improviser. On a typical job, Chun walks into a recording booth (or these days, checks email in his home studio),



COURTESY GREG CHUN

where he receives a script and, if he's lucky, a picture of the character he's about to voice. A producer offers a few notes on the character's background, and then Chun gets a few minutes to digest that and try out different interpretations of the character's voice: its octaves, signature inflections and precise accent. Once he and the voice director agree on a sound, it's go time.

Chun will read two or three different versions of a line, switching up the emphasis in his sentences or the emotional tone in his voice, depending on the director's cues. If his character's line is "I don't know why he does that," he'll deliver the first take in a voice that sounds confused and slightly hurt by the subject's actions. The next may be in a tone of frustration—"I don't know *why* he does that!"—and the next in a breezy, upbeat take, as if the character were dismissing the subject and his baffling behavior entirely.

"He's ridiculously smart and creative," says L.A.-based voice actor G.K. Bowes. "He has a really good ear for voices and characters and subtleties to bring to the table." Bowes and Chun met roughly a decade ago in a voice acting class and bonded instantly. (As two former techies from families of Asian descent, "we just hit it off talking about disappointing our parents," deadpans Bowes, who majored in microbiology at UCLA.) They've worked on several of the same projects since, though because of the solo nature of voice recording, they rarely realize they've worked together until the project's final credits come out.

These days, voice actors benefit from having one of the few performing roles in show business that can be done from home. Even prior to the pandemic, Chun recorded a lot of his work from the studio in his Burbank home, which he shares with his wife, Shelley Tadaki, '00, MA '03, an honors academic and career counselor, and their 4-year-old son, Anthony. He does a weekly livestream for fans and is continuing to work on his own music. He hasn't totally given up on that solo career just yet. In the meantime, he has found his voice. ■

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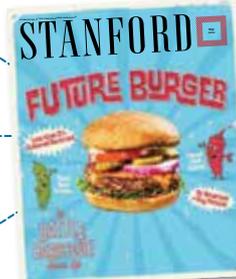
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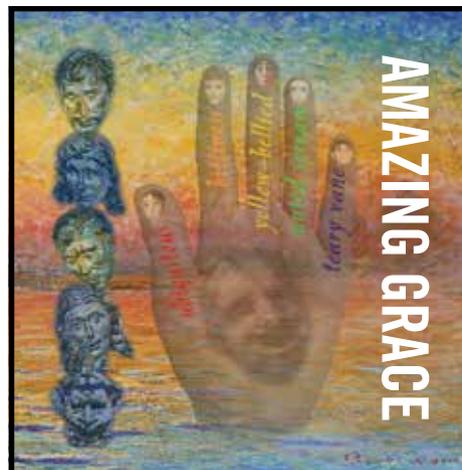
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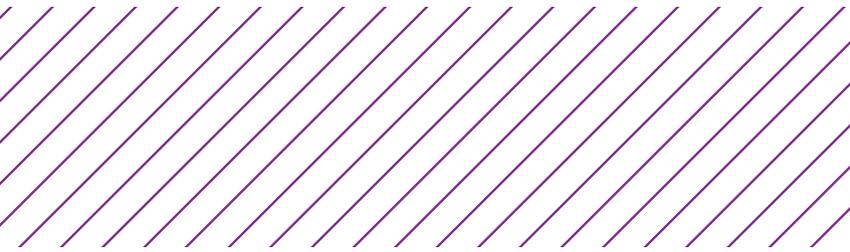


RESEARCH

The Pulse of LGBTQ Health

Two School of Medicine researchers know that better care begins with data.

BY CHARITY FERREIRA



i **N 2005**, Juno Obedin-Maliver was a medical student with no plans to focus her career on LGBTQ health. As her medical training progressed, Obedin-Maliver, who is lesbian, noted a troubling gap: Topics related to the health of LGBTQ people weren't being covered in a way that would prepare her and her classmates to take informed care of the people in her community. "I had lesbian friends who developed cervical cancer even though they 'weren't supposed to.' I had trans friends who were having kids even though medical science said they 'couldn't.' And I had gay friends who were more worried about their risk of heart disease than HIV but couldn't get the information they needed." She began to research and advocate for LGBTQ health beyond her circle of friends. "But the more I looked, the more I found a lot of dangerous

misinformation and unanswered questions."

Today, Obedin-Maliver and her classmate Mitchell Lunn, both MD '10, are Stanford faculty members and co-founders of the Population Research in Identity and Disparities for Equality (PRIDE) Study. It is the first large-scale, longitudinal national health study of people who identify as lesbian, gay, bisexual, transgender, queer, or another sexual or gender minority (researcher-speak for anyone who is not straight and cisgender). The PRIDE Study seeks to document, over time, every aspect of how being a sexual or gender minority affects a person's health, including the resiliencies and strengths specific to those communities.

Prior to the AIDS epidemic in the 1980s and '90s, which galvanized research around the transmission and treatment of HIV and AIDS, primarily in gay men, there was little

health research on topics related to LGBTQ health. Since then, interest in other aspects of LGBTQ health has increased, as have the number of LGBTQ health studies unrelated to AIDS. But in 2011, a report by the Institute of Medicine called out a lack of basic demographic data on sexual and gender minorities as a significant barrier to understanding their health needs. "There was just very little precision health about the LGBTQ+ population," says Leslee Subak, MD '91, professor and chair of obstetrics and gynecology. "And sexual and gender minority health research is still really in its infancy."

Despite the relative scarcity of population-based data, what researchers did know was that sexual and gender minority groups faced significant health disparities and barriers to care: Compared to their straight, cisgender counterparts, LGBTQ people have higher rates



of smoking, substance abuse, asthma, diabetes, eating disorders, anxiety and depression; bisexual women are more likely to experience intimate partner violence; LGBTQ youth are more likely to be homeless; and transgender people are more likely to attempt suicide. Older LGBTQ adults are more likely to have health problems related to economic insecurity, in large part because access to health insurance and retirement benefits through marriage have, until recently, been unavailable to those who have same-sex partners.

In order to address those disparities, researchers need data. That was a call to action for Obedin-Maliver, an assistant professor of obstetrics and gynecology, and Lunn, an assistant professor of nephrology. “To start making changes to the health-care system broadly, it needs to be entered into the education of providers, and things in medical school don’t get taught unless there’s data to back them up,” Lunn says. After finishing their residencies—Obedin-Maliver’s at UCSF and Lunn’s at Harvard—both became fellows at UCSF, where they applied for and were awarded a grant from the Patient-Centered Outcomes Research Institute to study LGBTQ health. In the pilot phase of the PRIDE Study, which launched in 2015, 16,000 participants answered demographic and health surveys using an iPhone app. The second phase of the study launched in 2017 with a secure online portal. In 2019, Lunn and Obedin-Maliver returned to Stanford as faculty members, bringing the PRIDE Study with them.

THE PRIDE STUDY’S design follows what its founders call “community-engaged research”—a partnership between researchers and community members that shifts the balance so that researchers serve the needs of the people they’re studying rather than the reverse. Input from members of the LGBTQ community informs not just what Obedin-Maliver and Lunn study, but everything from the images on recruitment fliers to the language used in surveys to the infographics that depict the results. The approach inspires feelings of trust and investment among participants. “It felt good to help answer those questions,” says Claude Baudoin, MS ’74, a study participant and a board member of the alumni club Stanford Pride. “It felt like the questions really related to who I am and to other people I know. Since we have researchers who are dedicated

enough to undertake this study, they deserve to have the rest of us participate.”

That feeling of personal commitment may help with one of the biggest challenges of a longitudinal cohort study, which is getting participants to keep coming back. “Retaining the people is really hard. We lose a lot to follow-up,” says Marcia Stefanick, PhD ’82, a research professor of medicine and principal investigator of the Women’s Health Initiative, which followed an initial cohort of about 162,000 women for 25 years. Longitudinal studies are notoriously difficult and expensive to do, Stefanick says, but the data they generate are crucial for addressing disparities and inequities in public health. “What you can never see with a cross-sectional study is change,” she says.

‘It’s going to open the avenue for core research and medical care for generations.’

“And change is the most interesting part. What do I need to do to change your behavior so you go from being unhealthy to healthy? What do I need to do so you go from feeling discriminated against or unsafe or traumatized to feeling safe and in a community?”

A 2010 SURVEY found that more than half of LGBTQ people have experienced discrimination in health care. That number is higher for transgender and gender nonconforming people, and for those who are also people of color. “Things like refusing to touch them, using harsh language, blaming people for their experiences—we see these things over and over when we poll our communities,” Lunn says. Avoiding health care is a known contributor to poorer health outcomes, and negative experiences in health care are particularly fraught, says Obedin-Maliver, because the relationship between provider and patient is one that’s built on trust in a very short time. “The example I give is that when you see me as a primary-care doctor, I talk to you for five or 10 minutes, and then I tell you to take all your clothes off and you do, and you let me touch you. That’s effectively what happens in a doctor’s visit, right? That’s a very crude way

to explain it, but that doesn’t happen in any other—well, it happens in only one other professional interaction.”

Going to the doctor may involve, if not an overtly negative experience, at least a moment of uncertainty about when, what or how much to share. For Laura Potter, ’14, a first-year School of Medicine student and a PRIDE Study participant, filling out her family health history at a new doctor’s office serves as a litmus test for how much to reveal about her own sexual orientation during the appointment; on the form, she’ll explain that her parents are lesbians and her biological father is not in their lives. “He was a sperm donor and that’s it. So that kind of begins it. And usually we get to that before we get to anything about my own identity, so I kind of get a feel for the provider based on how that goes. And based on that, I’ve now changed how I approach the rest of the medical interview and what I divulge,” says Potter, who identifies as bisexual or pansexual and says she’s had providers tell her she didn’t need a routine Pap smear or screening for STIs because of the gender of her sexual partner. “I think this is true of a lot of people—they put a little out there, and see how people respond, and then they may choose to hide a lot of really important information and the encounter is no longer as beneficial as it could have been.”

For LGBTQ patients, culturally competent health care means having a doctor who knows that cisgender, heterosexual women aren’t the only people who get ovarian and cervical cancer, that gay men need to be vaccinated for hepatitis A, that transgender women may need screening for prostate cancer and that transgender men may need care that’s offered under the umbrella of “women’s health services.” In a recent study, a team including Lunn and Obedin-Maliver surveyed transgender people about their sexual and reproductive health experiences and found that many transgender men had been pregnant. “That is surprising to some people, but at the core of it, that says that all of these services that have been labeled as women’s health services don’t necessarily meet the needs of transgender men,” says Obedin-Maliver. “So if a man comes in and his name is John Smith, and he has a full beard, and he’s pregnant, and he wants to talk to a doctor about what his options are, whether to continue the pregnancy, [whether it’s a healthy]

pregnancy—there’s almost nothing out there to guide those clinical conversations. And so these data, even just these simple, descriptive data saying there are hundreds of people who are trans and gender-expansive who have had pregnancies, start to say, ‘Gosh, this pamphlet about women’s experiences and what to do with pregnancy isn’t really going to work for our friend John Smith here.’”

The PRIDE Study is really thousands of studies, with the potential to answer more questions than Lunn and Obedin-Maliver’s team could ask in a lifetime of investigation. The data collected by the extensive annual survey is an infrastructure upon which other researchers are invited to build. Any researcher can propose a study using that data or request to design their own survey, subject to approval by a participant advisory committee. Every study’s design includes a plan for reporting the results to participants and a network of community partners, which

include health-care providers serving the LGBTQ community. Because each initial of the LGBTQ abbreviation represents a group with distinctly different health-care needs, being able to identify who is most likely to smoke or suffer from disordered eating means being able to tailor interventions specifically for the people who need them. “It’s going to open the avenue for core research and medical care for generations,” says Subak, the ob-gyn chair. “The opportunities for impactful investigation are enormous because there’s so little known.”

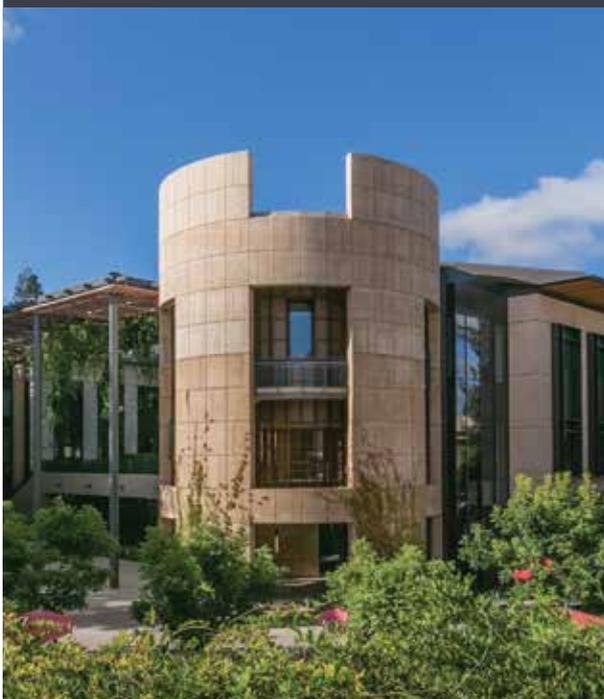
Meanwhile, the data accrue. The 2020 U.S. Census was the first to include an option to identify a relationship as same-sex. In September, Gov. Gavin Newsom signed a measure making California the first state to require counties to ask people diagnosed with COVID-19 and other infectious diseases about their sexual orientation and gender identity, a milestone that Lunn applauds.

“Only by collecting this data can we actually start to see if communities—not just LGBTQ communities, but racial and ethnic communities and others—are experiencing disparities related to coronavirus and coronavirus care. Because it’s not just the test, right?” Lunn also wants to know how people’s particular combination of community identifiers affect their health outcome.

“If you don’t have data, you can’t even figure out who has disparities,” Lunn says. “And then the next layer is why a particular group is experiencing this. Does being a racial or ethnic minority along with a sexual or gender minority have an additive or multiplicative effect on disparity? All of this is going to help us better understand what care people are or are not getting.” ■

CHARITY FERREIRA is a contributing editor at *STANFORD*. Email her at stanford.magazine@stanford.edu.

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THE BARD OF BARBECUE

ADRIAN MILLER IS A LAWYER BY TRAINING, A CHURCH COUNCIL DIRECTOR BY PROFESSION AND A SOUL FOOD SCHOLAR BY AVOCATION. AND WHAT PEOPLE MOST WANT TO TALK TO HIM ABOUT IS A PERFECTLY COOKED SPARERIB.

BLACK-EYED PEAS. Fried catfish. Lemon icebox pie. Turnip and mustard greens cooked with ham hock, red pepper, garlic and onion. These were foods Adrian Miller ate as a child, unaware of their history. “It was,” he says, “just dinner.”

That history, it turns out, is complex and controversial, and was poorly documented until Miller, '91, spent decades researching it. Coined during the 1960s, *soul food* entered the popular lexicon when the Black Power movement identified the cuisine as heritage and “a line of demarcation between white Southern culture and Black culture,” Miller says. But whereas Black students of that era protested to demand soul food at universities, recent years have seen a reversal, with Black students protesting against being served it, saying it is unhealthy and a vestige of slavery—a way of cooking leftovers from slaveholder kitchens. “They’ll tell you that it’s the master’s garbage,” Miller says, “that you’re digesting white supremacy.”

Miller’s mission has been to counter such critiques by preserving and sharing the culinary tradition’s history. In 2013, he published *Soul Food: The Surprising Story of an American Cuisine, One Plate at a Time*. And in 2017, he followed up with *The President’s Kitchen Cabinet:*

The Story of the African Americans Who Have Fed Our First Families, from the Washingtons to the Obamas, a book to which he brought the unusual qualification of having worked in the White House on President Clinton’s racial-reconciliation initiative. His most recent project, *Black Smoke: African Americans and the United States of Barbecue*, explores one of the most celebrated soul foods and asks why Black barbeque—who created barbecue as we know it today and still practice their culinary art across America—have been overshadowed by white barbeque since the 1990s. “The media coverage of these white guys is so intense, comprehensive, and constant,” Miller writes, “that one could easily wonder if black people barbecue at all.” But don’t be mistaken. Miller doesn’t deny that anyone can master the art. “Some of my best friends are articulate white people who,” he quips in *Black Smoke*, “happen to make fantastic barbecue.” Rather, his books not only explore the conditions that have allowed whites to profit from African American culinary traditions, but also celebrate the creativity of a marginalized people who, restricted from most professions and limited in resources, transformed how Americans eat.

A lawyer by training, a former political operative and currently the executive director of the Colorado Council of



BY
DENI ELLIS BÉCHARD



'IT'S REALLY MY FAMILY HISTORY THAT GIVES ME STREET CRED, BECAUSE I LOSE ALL STREET CRED WHEN PEOPLE HEAR I'M FROM DENVER.'



Churches, Miller has worn many hats—even that of certified barbecue judge. And true to human nature, it's the food people care about most. In *Black Smoke*, he writes, "More than one person has said to me, 'You worked in the White House? Well, that's interesting, but you're a barbecue judge? I want to talk to you about that!'"

FOR MILLER, FOOD IS HISTORY. "It's really my family history that gives me street cred," he says, "because I lose all street cred when people hear I'm from Denver." Though Miller's father, Hyman, grew up on a tenant farm outside Helena, Ark., the Air Force relocated him to Denver, where he later became a lab tech. He met Miller's mother, Johnetta, at church shortly after she moved from Chattanooga, Tenn., to distance herself from a failed marriage. The family's culinary legacy came with her, learned from her father, John Solomon, a cook for the Southern Railway. "A lot of the Southern dishes that people know now got passed down to my mom," Miller says. "And then when it came time to barbecue—I mean, contrary to the narrative of barbecue being this all-guys thing—my mom was the one running the show."

Miller—one of six children—started cooking at age 11, after his mother switched from working at a dining club to pulling night shifts at a Wonder Bread factory. He,

his twin sister and his brother took over breakfast, and by high school, he had taken charge of weekend dinners and was avidly watching cooking shows. He was also a standout on the speech and debate team, qualifying for nationals twice. He applied to Stanford on the recommendation of his social studies teacher, Nancy Vanness, MS '66, and though he also received offers from Harvard and Princeton, he didn't feel at home at either. "There was something about the idea of an excellent education in California that was calling to me," he says. "But there's one more shallow reason why I ultimately decided to go to Stanford. I was a teenage boy. I thought the women would be hotter." He recalls not being disappointed—at least not immediately: "It was a whole new class of women who told me they just wanted to be friends."

Miller majored in international relations, a decision rooted in a childhood fixation on French refinement. His parents hadn't been able to afford the high school field trip to Paris, so at Stanford he chose a major that justified a quarter abroad. He finally set foot on French soil his junior year and had an experience that transformed how he saw his future. On a train, a young French Canadian asked him what it was like to be a Black man in America. "That was the first time I really had to explain race in a nuanced way to somebody who had no context," Miller says. "That he understood what

I was saying opened me up to the possibility of using this skill back in the United States, because in many ways you are speaking a foreign language when you're talking about equity, unfairness and reconciliation."

After Stanford, Miller enrolled at Georgetown Law School to become an international human rights lawyer but by graduation was so mired in debt that he accepted a position at a Denver law firm, where he found himself representing employers in discrimination cases. "That caused some angst, because I did not go to law school to defend the Man against minorities," he says. Soon, he was singing spirituals in the office to get through the day. One law firm later, he was dreaming of opening a soul food restaurant. But then a friend from law school called, asking him to help recruit someone for President Clinton's One America Initiative, which was developing strategies for racial reconciliation. "I did the same thing that Dick Cheney did when George W. Bush asked him to find a vice president," Miller says. "I put my name on the list." In 1999, he returned to D.C. to organize White House summits and invite business and spiritual leaders to speak about diversity.

After Clinton's term ended, Miller moved back to Colorado to start a political career, but the job market was slow. Whiling away time in a bookstore, he picked up John Egerton's *Southern Food*:



FEAST FOR THE EYES: Miller counters health critiques by explaining that soul food is based largely on greens and sweet potatoes, and that celebration cuisine is not meant to be eaten on a regular basis.

At Home, on the Road, in History and read, “The comprehensive history of black achievement in American cookery still waits to be written. From frontier cabins to plantation houses to the White House, from steamboat galleys and Pullman kitchens to public barbecues and fish fries and private homes without number, black chefs and cooks and servants have elevated the art of American cookery and distinguished themselves in the process, and they and all other Americans need to see the story fully told.”

Miller had found his mission. “So, with no qualifications at all except for eating a lot of soul food and cooking at home,” he says, “that’s what started me on the food-writing journey.”

That journey overlapped with Miller’s return to public service—from general counsel at a progressive think tank, to deputy legislative director and then senior policy analyst for Colorado Gov. Bill Ritter,

to executive director of the Colorado Council of Churches, building community across racial and denominational lines for social justice. And the journey proved to be long. Miller contacted Black food writers who confirmed the absence of a definitive history of Black cuisine—indeed, a dearth of written records, because the white-dominated publishing industry decided what stories got told and Black Americans had few resources for self-publishing. Miller recalls thinking, “But there’s this newfangled thing called the internet.” People were writing and blogging about food; the Library of Congress and various companies were digitizing troves of old newspapers and magazines and putting them online; and the interlibrary loan system allowed him to search every library in the country and request books.

But the moment of catalysis was when Miller joined the Southern Foodways Alliance (SFA), an organization dedicated to

documenting and promoting the diverse food cultures of the American South. Its 2002 symposium introduced him to the complexity of foodways—a term designating the social, cultural and economic contexts in which food is created and consumed—and fueled his passion for research. “In the process, he becomes one of the most respected and liked figures in the world of foodways,” says John T. Edge, the SFA’s founding director and the author of several culinary histories. “He does that by way of deep archive dives. He does that by way of rolling lots of microfiche.” Edge recalls an event where people were eating and drinking as Miller arrived grinning with an archival document on barbecue he’d found in the University of Mississippi library. “The party swirled around him, but the party was lost to him. He was focused on this bit of mimeographed research. He lives this stuff.”

Those years, Miller spent evenings and

'You CAN DESCRIBE BARBECUE FALLING OFF

weekends at the Denver Public Library. Searching for mentions of cooking, he read 3,500 oral histories of formerly enslaved people recorded in the 1930s by the Works Progress Administration. “The oral histories of enslaved people fundamentally changed me,” he says. “The breadth of human experience, the stories of evil and just downright sadism—I don’t think this nation will ever truly know the amount of evil committed under slavery and how that trauma is with us today.”



KITCHEN CABINET: Miller, at the White House with presidential kitchen steward Adam Collick in 2015, has unpacked the history of Black cooks advising presidents on race relations.

American cuisine, since he wanted to understand other culinary influences as well. He also interviewed hundreds of people and soon had enough information to write multiple books. “Then, because I cared about my subject so much,” he says, “I decided to eat my way through the country. I went to 150 soul food restaurants in 35 cities and 15 states.”

During Miller’s food odyssey, chefs told him about their struggles to sustain the soul food tradition, especially given the

critiques. “One is that it’s so unhealthy it probably needs a warning label,” he says. “The other is that it’s a slave food not worthy of celebration.” He addresses the first by saying that soul food’s building blocks are dark leafy greens and sweet potatoes—both increasingly touted by health experts. Furthermore, soul food isn’t understood in context: It originated in holiday festivities of the antebellum South, when enslaved people had access to more of the meat and other ingredients that were generally reserved for white people in order to reinforce the racial caste system, Miller says. “What we think of as soul food today is really the celebration food of the American South, and celebration food is not meant to be eaten on a regular basis.”

As for the health risks, Miller believes they are overblown. “I don’t know many people eating a ton of soul food,” he says, “but they’re eating a lot of fast food, convenience food and junk food. And a host of environmental factors aren’t taken into account—the stress of generational trauma or long-term exposure to racism and oppression. There’s more and more research validating how that affects health.”

The other critique—that slave food was essentially the master’s garbage and wasn’t worthy of celebration—is more complicated. Miller says that whites cooked many of the same foods, several of which had European origins. Take chitlins—pig intestines—one of the most iconic but divisive soul foods. European cookbooks from the 1700s contain recipes for them. Even sweet potato pie is similar to carrot pie, using the same spicing methods as in the 1700s, but with one sweet root crop swapped out for another. “The whole idea that soul food is just slave food breaks down pretty easily once you start applying some historical scrutiny to it,” Miller says.

But soul food also diverged in its ingredients, influenced by what was available, as well as in its methods, with the line between sweet and spicy more blurred than in white Southern cuisine. With slaveholders rationing starch, molasses and

smoked meat, enslaved people often subsisted on seasonal vegetables flavored with meat. “It’s the whole idea of cooking some greens with a ham hock in it,” Miller says. Limited resources required creativity: foraging, fishing and, on lenient plantations, maintaining personal livestock and gardens. “Slaveholders wanted to spend as little as possible to keep their enslaved labor force going,” Miller says. Soul food evolved within these constraints, with the ingredients available, from West African, European and Native American traditions—and continued evolving after emancipation, shaped by the hardship of Reconstruction and Northern migrations as well as by increasing prosperity. Even barbecue, a celebration food par excellence, shifted from whole animals to spareribs and brisket—tougher cuts requiring long, skillful cooking to make them tender without drying them out.

Complicating the narrative around Black cuisine is that many African Americans were obliged to cook for whites. “There were very few things that African Americans could do professionally without inciting white resentment,” Miller says. After emancipation, presidents who might face white backlash if they appointed a Black cabinet member could curry favor with Black voters by hiring a Black cook. “Emancipation ushered in an age where, over time, presidents increasingly relied on their black cooks for advice on race relations,” Miller writes in *The President’s Kitchen Cabinet*. But after the civil rights movement, numerous African Americans chose other careers. Today, even as white celebrity chefs capitalize on soul food, many Black people shy away from taking ownership of that legacy. “There’s still a stigma associated with cooking because it was so forced for a long time,” Miller says.

Black discomfort with soul food also has more pernicious roots. After the Civil War, media campaigns to disenfranchise Blacks ridiculed their cuisine. “Food was a very effective way of conveying that Black people are bestial or childlike. That’s when

THE BONE, BUT JUST DON'T DO IT AROUND ME.

you start to see the proliferation of the watermelon and the fried chicken and even, to some extent, the barbecue stereotypes,” Miller says. “It’s so powerful that even to this day I know African Americans who are reluctant to eat fried chicken or watermelon with white people around.” With so many Black people distancing themselves from soul food, a space was created for white chefs to be celebrated for it and to profit.

THOUGH OFTEN FEATURED on the menus of soul food restaurants, barbecue is its own tradition, with a separate history and set of influences that Miller documents in *Black Smoke*. And that history is long, with Black people learning the art from enslaved Native Americans during the slave trade’s transition to West Africans. But today, while most Americans agree that barbecue is pork, beef and chicken slow cooking in smoke at low temperatures until fragrant and tender, the consensus comes apart like a perfect brisket when they think of a barbecuer. This question—the kind of person most Americans picture, and why—Miller also explores in his new book. The seed for the project was planted in 2004, when he watched *Paula’s Southern BBQ*, a TV special hosted by Paula Deen, the celebrity chef since accused of taking credit for the recipes of Black chef Dora Charles, then in her employ. “I was stunned that not one single African American had been interviewed on camera,” Miller writes. Whereas once “even racist whites failed to pass up barbecue made by an African American,” he adds, few people now recognize barbecue’s provenance.

This change began in the 1990s, with the rise of foodies and their interest in barbecue. Expensive competitions came into vogue, creating media darlings of four types of white barbecuers: the country bubba in overalls, the tattooed hipster with interesting facial hair, the haute cuisine chef, or a hybrid thereof. “For a long time, barbecue was just menial work with

delicious results,” Miller says, “but now that it’s a craft, it’s something you have a lot of white dudes doing, and it’s celebrated.”

While engaging with the politics of food, *Black Smoke* doesn’t lose sight of the greatest pleasure of so much culinary history: its taste, which Miller himself gets to appreciate professionally as a barbecue judge. There are four categories—chicken, brisket, spareribs and pork shoulder—and three criteria: appearance, taste and texture. “You’re looking for the perfect bite,” he says. “I’m a sparerib guy. First, you hold it with both hands, and you look at it lovingly. You want to see nice color, a nice glistening of fat, a little bit of char, some evidence that it’s been over flame—not a lot. You bite down in the middle of the rib and as you pull away, you should feel a bit of tug but nice separation. Not all of the meat falls off the bone because that means it’s overcooked. I often tell people, ‘You can describe barbecue falling off the bone, but just don’t do it around me.’”

His favorite ribs are perfumed with hickory smoke, though some have the fragrance of cherry or pecan wood. The smokiness has to be just right—only a hint of charcoal. His preferences for sauces and rubs depend on where he is. Kansas City: thick tomato sweet sauce with peppery accents. Northern Florida and South Carolina: tangy mustard sauce that nearly overwhelms the senses before playing off. Eastern North Carolina: vinegar and red pepper flakes added throughout the cooking process (unlike the thicker sauces held until the end so they don’t burn), a technique that goes back centuries, with the red pepper being a hallmark of African heritage.

MILLER STILL LIVES IN DENVER and still attends Campbell Chapel African Methodist Episcopal Church, where his parents met. “My faith tradition is my touchstone,” he says. “It guides my decisions, how I

relate to others and my vision for the world. That’s why I’m motivated to create a shared multiracial future where people respect one another and realize that we’re all in this together.”

The next project he envisages is a guide to using food for racial reconciliation—“a practical roadmap on how to have difficult conversations.” As director of the Colorado Council of Churches, he has often chosen to bring Black and white churches closer through meals. “The act of sitting down and eating with someone is transformative,” he says, “especially when you do it on a regular basis, because it just eases all of the tensions. It lowers barriers, and people are more able to relate to each other.”

Just as reading the narratives of formerly enslaved people helped set Miller on his path, they made him realize how important acknowledging Black Americans’ cultural contributions is for the work of racial reconciliation. He points to the 1619 Project, a *New York Times* series that, according to its website, “aims to reframe the country’s history by placing

the consequences of slavery and the contributions of Black Americans at the very center of our national narrative.” Nonetheless, he says, it has yet to run an essay on food. “Despite all of the horror, my people rose to demonstrate professionalism as cooks and ingenuity creating dishes and equipment to cook those dishes. To see them repeatedly assert humanity in the worst possible circumstances, to see them continue to fight back and say, ‘Now—now I’ve got pride. I’ve got humanity, and I’m going to make you acknowledge what I think is an awesome story,’ it’s really inspiring. I think that’s why for a lot of people, the soul food story is one of triumph.” ■

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SCHOOLHOUSE ROCKED

THE PANDEMIC CRUMBLER CORNERSTONES
OF U.S. EDUCATION. THE QUESTION NOW IS WHAT
WILL EMERGE FROM THE RUBBLE.

BY SAM SCOTT

ILLUSTRATIONS BY DAVIDRO

IN EDUCATION, as so much else, the coronavirus pandemic has been a long lesson in how quickly things can go from weird to just another Wednesday. A year ago, who would have fathomed endless school days on Zoom? Today, there's little more mundane for millions of American kids.

But virtual classrooms still leave much to be desired, especially for someone like Tiffany Cheng, a chemistry and forensics high school teacher in Campbell, Calif. Students at Cheng's school aren't required to turn on their cameras during remote

classes. And the vast majority—concerned with their peers' gaze as much as their teacher's—don't.

So Cheng addresses herself to a screenful of black boxes with only a dimmed sense of who's on the other side. When a student came to her virtual office hours in November, Cheng was so taken aback when the student turned on her camera at the end of the text exchange, she cried. Three months into the school year, Cheng was seeing her for the first time.

"I was like, 'Oh my God, this is what

you look like, and this is what you sound like,'" says Cheng, a mentor in Stanford's Teacher Education Program. "And you're asking me a question."

A screen of inscrutable black boxes isn't a bad metaphor for the effect of COVID-19 on American education. As the pandemic bore down in March 2020, educators responded with often heroic efforts to haul the profession's use of technology into the future. It's no joke to say the results probably killed the venerable snow day for many cold-weather

schools, says Denise Clark Pope, a senior lecturer at Stanford's Graduate School of Education.

But what followed has been more like a snow year. Three-quarters of the nation's 100 largest school districts offered only remote learning in the fall, according to the site Education Week. Half the 900-plus districts it surveyed began the academic year online only, and a quarter were hybrid (some instruction online, some in person), leaving just 24 percent of districts offering traditional, full-time, in-person schooling. The result: a coerced experiment in social distancing, distance learning and pedagogical improvisation, the ramifications of which may take years to be understood.

"We're going to learn more as more data comes available and as we come out the other side of this traumatic experience," says Thomas Dee, professor of education and senior fellow at the Stanford Institute for Economic Policy Research, adding that intellectual honesty requires an "agnostic posture" until then. "That being said, there's very real reason to be concerned about the decrement to child development that this generation of youth is going to experience, and that, at least, could be long-lived."

Normalcy beckons as vaccines roll out, but so does the call for deep reforms to a system whose long-standing ailments have been exposed by COVID-19 wounds that cut deeper in some communities than others. At the least, it's possible that schools of the near future will involve fewer multiple-choice tests.

HISTORY LESSONS

There aren't great historical corollaries for the past year in American education. The 1918 flu pandemic killed some 675,000 people in the United States but shut down schools for a

shorter period. Other disasters, like Hurricane Katrina in 2005, were devastating but regionally contained, with the median time out of school at five weeks, according to a Rand Corporation report (though many students spent the remainder of the year displaced from their original schools).

Michael Hines, an assistant professor in the Graduate School of Education (GSE) and a historian of American education, has written about a 1937 polio outbreak in Chicago that pushed educators to try their own version of remote instruction, broadcasting 15-minute lessons on local radio stations to homebound children. Complete with celebrity announcers, the effort ginned up headlines as well as anxiety. A hotline received 1,000 calls on the first day from parents worried about poor reception, overhasty instructions and missed broadcasts.

The effort lasted just several weeks but was long

enough to raise concerns that the households benefiting most from the "air lessons" were the ones who needed them the least—families, for example, who had the space and money to have an individual radio set up for each of their children. Students from less affluent homes and those who needed more help suffered, Hines wrote. The results tempered enthusiasm that broadcasting might one day "supplant the textbook—and even the teacher."

As COVID-19 forced a new round of distance learning a year ago, Hines heard speculation about whether technology had

evolved to the point of replacing traditional schools. He doesn't hear much about that now. As before, he says, there's an abiding sense that too much is missing, especially for those who most need it.

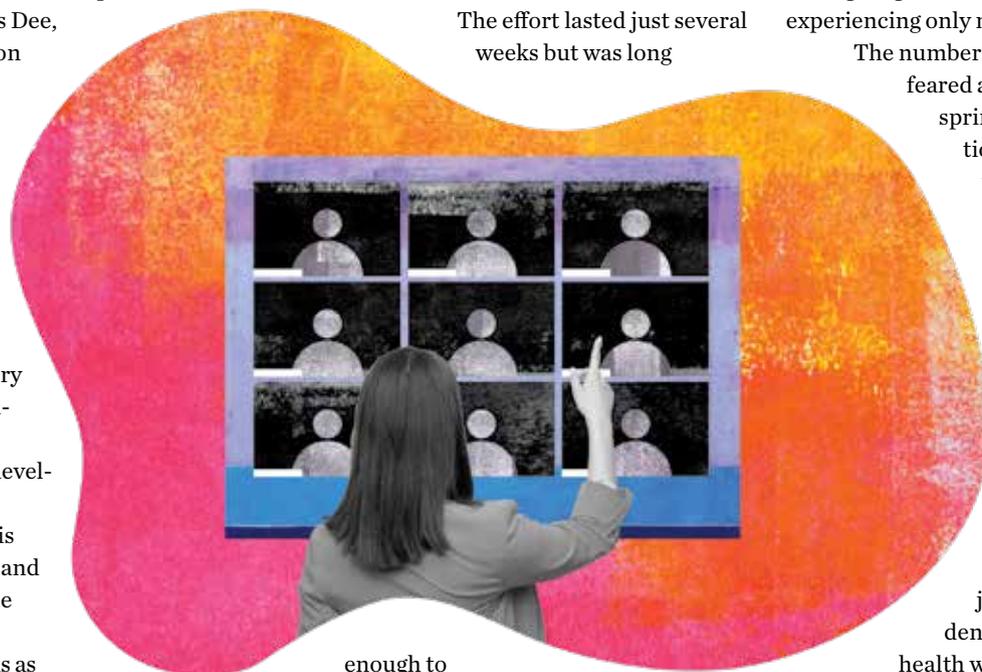
In education, as in other effects of the disease, COVID-19 has hit already vulnerable communities the hardest, "whether you're talking students of color, students with special needs, English-language learners or the unhoused," Hines says. "This pandemic looks different in different communities."

TROUBLING PROGRESS REPORTS

The news about distance learning isn't all bad. Results from standardized tests administered to nearly 4.4 million U.S. students this past fall showed children in grades three through eight holding steady in reading and experiencing only moderate decline in math.

The numbers are better than some had feared after the shutdown in the spring and the forced migration to remote learning, but they come with a significant caveat: A disproportionate number of minority and high-poverty children, who are the most exposed to the pandemic's economic and health upheavals, didn't take standardized tests in the fall.

And academics are just one measure of student well-being. Mental health was already an issue before the pandemic, says Pope, '88, PhD '99, the co-founder of a nonprofit called Challenge Success, which partners with schools to promote healthier environments. Survey data suggests that months of isolation, lockdowns and deaths have increased anxiety, depression and suicidal thoughts, she says. Comparing March–October 2019 with the same period in 2020, the proportion of emergency department visits related to mental health jumped 24 percent for 5- to 11-year-olds and 31 percent for 12- to 17-year-olds, according to analysis by the Centers for Disease Control and Prevention.



It's why a story like Cheng's worries Pope. Emotional connections matter not just because they facilitate learning, motivation and belonging, but because teachers, counselors and school nurses are often the eyes that see deeper problems. "My big concern right now is if we have enough clinicians and mental health-care providers to handle this load when we couldn't even handle it before COVID," says Pope.

Jon Tuin, the principal of an Orange County high school who has worked with Challenge Success, sees the pandemic's toll in failing grades and rising dropout rates. His teaching staff has been making home visits to students who haven't been logging in to classes. Often, the team has returned with stories of students who have to work or babysit, or who lack internet access or a quiet place to work in a crowded home.

His school has also been staging campus events to talk to the rising number of students getting Ds and Fs. To a surprising degree, Tuin says, many were students with few problems before the pandemic—kids who were in track and field, drama or other student organizations but who've struggled to make the transition to a more isolated life, devoid of extracurriculars. "They just said, 'Man, I just have been in a funk,'" Tuin says. "I just haven't been able to get connected."

TUIN ASKED
A SENIOR
WHAT SHE'D
REQUEST IF SHE HAD
THREE
WISHES.
HER ANSWERS: A
FOOTBALL GAME,
AN ASSEMBLY
AND
GRADUATION.

On one occasion, Tuin asked a senior what she'd request if she had three wishes. Her answers: a football game, an assembly and graduation.

UNMET NEEDS

Some kids in special education have actually fared OK, says Christopher Lemons, associate professor of special education. He's heard accounts of kids in speech therapy achieving great results online and of some on the autism spectrum who've thrived in the new environment.

But for young kids who are nonverbal, struggle making eye contact or need physical therapy, Zoom can be an especially poor substitute for face-to-face meetings. There are children for whom a screen just isn't something they want, or are able, to focus on, Lemons says.

He recounts recently working online with a boy, around 7, who kept getting up to walk around the computer, expecting to find the person talking to him. Effective in-person sessions, he says, often require physical proximity: sharing the corner of a table with a hand on the chairback or a foot by a chair leg to stop the student from scooting away; being able to quickly interact with the book or toy the child is engaged with; having a place to

"BEFORE THE PANDEMIC, I was really low-tech. I was a fairly effective teacher in many ways. Where I was not effective, however, was in terms of the use of technology, or in terms of getting kids excited about technology, of conveying the benefits and the wonders of technology. And I had to learn a whole new way of providing instruction.

"I think there are some things about distance learning, some tools, that people are going to fall in love with. The features on Google Classroom, Zoom polling, Google Slides and Docs as interactive notebooks, and Flipgrids and Jamboards as ways students can communicate their understanding are just some of them. Once we return, whatever return looks like, we can't go back to where we were. I think that this is potentially going to help educators really come into the future in a way that maybe many of us, people like me, were able to get away with not doing before. All of that is going to change, and it should."

—**Salina Gray**, PhD '14, teaches seventh-grade science at a public middle school in Southern California. Read "Back to 'School'" Q&As at stanfordmag.org/contents/back-to-school-covid.





“I HOPE we emerge from this with an increased understanding of how important social-emotional development is for kids. I hope that we have a reduced emphasis on testing, and that we’ve learned it’s not as critical as it’s been made to seem. I think there are a lot of opportunities to use technology in the future in really creative ways that we haven’t availed ourselves of in the past. For example, we’ve been able to take our students virtually to the Smithsonian Museum of Natural History, and they go all around the museum on a scavenger hunt using virtual reality. They absolutely loved that.

“I also just hope that overall we’ll return with an increased appreciation for our public schools and what they do for kids. And nationwide and especially here in Arizona, I hope that appreciation translates into actual financial support for what we’re trying to do.”

—**Molly Pont-Brown**, '94, teaches fourth grade at a public school in Scottsdale, Ariz.

take a break and play. If a teacher is stuck on the other side of an internet connection, he says, it often falls on an already exhausted parent to stand in as a proxy.

Kids are resilient, Lemons says, but students in special ed who aren’t receiving consistent services are sliding backwards. Federal law already requires schools to offer summer programs for those who’ll regress without them. But the mandate is chronically underfunded, and many districts restrict access accordingly, he says. “One of the things that would be really important for Congress to do as they’re working on additional COVID response packages is to earmark money for students with disabilities to receive intensive interventions over the course of the summer,” he says. “These are students whose needs need to be prioritized.”

Summer programs will invariably be considered for other students if educators diagnose major problems with lost learning and engagement, Thomas Dee says. Still, it’s hardly a panacea. The literature on the benefits of traditional summer school, often comprising long days focused on one or two subjects, isn’t that encouraging: “Pretty modest and short-term test score gains,” he says.

The ones that do work well? Dee points to the San Francisco Unified School District’s approach—a program called Aim High that incorporates a wider breadth of academic subjects, as well as a course called Issues and Choices that targets social-emotional topics like advocating against bullying, encouraging a growth mindset, and challenging stereotypes. In pre-COVID times, the mix seemed effective at re-engaging students, resulting in dramatic drops in chronic absenteeism. That could be key to reconnecting with kids after normal school returns, Dee says. “A summer program with this kind of broad design is uniquely attractive, not just in promoting learning narrowly defined but in supporting student engagement,” he says.

DEEP PROBLEMS

By definition, everyone is affected by a pandemic. But for Linda Darling-Hammond, professor emerita of education and president of the California State Board of Education,

this pandemic has been a stress test exposing older, deeper and much more specific ills that hit poor people and communities of color—from structural racism to regressive school funding to the digital divide. “When the pandemic [began], about 30 percent of young people and families lacked computers that were up to the task, or high-speed internet, or both,” Darling-

‘EVERYTHING ABOUT EDUCATION HAS BEEN DISRUPTED. THIS IS A MOMENT FOR REINVENTING SCHOOL AS WE RESTART IT.’

Hammond says. “Those were, of course, disproportionately families of color and families in low-income communities.”

She illustrates that last point with a widely circulated photo of two small girls, sitting on a sidewalk outside a Taco Bell in Salinas, Calif., so they could use its Wi-Fi for school. Long before anyone knew what COVID-19 was, the lack of internet access was holding back families like theirs economically and educationally. The pandemic just put the problem in our faces and exacerbated it.

It's a point echoed by Sean Reardon, a GSE professor who studies inequity in schools. The pandemic's effect on schoolkids is bad, he says, but its influence pales compared with that of a lifetime of poverty or racism. "The pandemic is not on the order of magnitude of 18 years of living in a high-poverty neighborhood, struggling for resources without a safety net or social network or economic resources that make it possible to succeed."

Yet the tumult of COVID-19 also brings opportunity for wider change, says Darling-Hammond. America's mass education system formed a century ago, under the heavy influence of assembly-line efficiency, corporate esteem for bureaucratic regulations and 1920s notions of preparing people for "their place in life," she says. A hundred years later, the pandemic's upheaval is a timely invitation to pursue new directions.

"Everything about education has been disrupted," she said at a virtual GSE conference on race and inequality in the fall, shortly before she took the helm of President Biden's education transition team. "This is a moment for reinventing school as we restart it."

In August, the Learning Policy Institute, the education think tank that Darling-Hammond heads, issued a report with 10 policy suggestions for doing just that. Some recommendations require major institutional planning. For example, the report extols community schools, like those comprising the Oakland Unified School District, where schools are paired with community partners who provide on-site health services, counseling, team sports and more. Such schools already knew which families needed the most help and could keep them connected to services, the report explains.

Other recommendations may be taking root naturally in the transformed educational landscape.

Moratoriums on standardized testing—and decisions by hundreds of colleges to suspend use of the ACT and SAT for admissions—have created space and flexibility for teachers to tailor lessons to the interests, cultures and needs of students, said lead writers, including Darling-Hammond.

Such "authentic learning" often ties lessons to real-world applications. At Oakland High School in the spring of 2020, 61 students took on the challenge of improving the commute to schools for teachers and students. The project continued even as the pandemic shut down so much else—because the students cared about the results, organizers said. The project's client? The City of Oakland Department of Transportation.

School administrator openness to such projects has jumped since the pandemic, Darling-Hammond says. "It's allowed people to think about what we want to be focusing on that connects kids to the world beyond."

RETHINKING THE SOLUTION

Wholesale changes in education are always challenged by the atomized structure of our school system, says Dan Schwartz, dean of

the GSE and professor of educational technology. People tend to think of K-12 education as a massive cargo ship, which can be moved, however slowly, with an order. In reality, he says, it's more like a sea full of sailboats, each with its own captain, a fractured command that was on full display over the past year as individual districts struggled with how to implement learning within their communities.

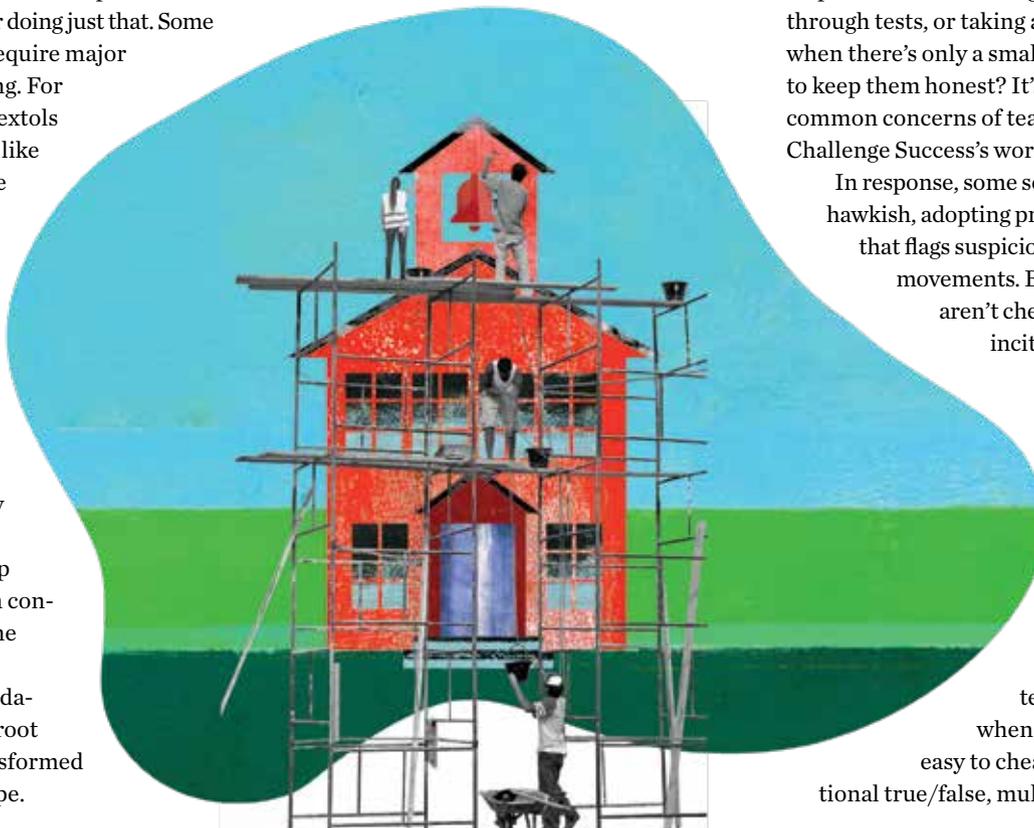
The sweet spot for lasting change, he says, may be those things that prove easy, effective and popular. The past year has already forced changes in the classroom that may—some say should—outlast the pandemic. Thach Do, MA '16, a high school math teacher at the same school as Tiffany Cheng, is reluctant to crow about upsides to a difficult era. But the move online, he says, has provided a valuable push toward "ed tech" platforms that have given him new ability to share and track classwork. Like Cheng, he feels disheartened speaking into the void of turned-off cameras, but says with new apps he has gained clarity on students' daily progress. "I know exactly who is lost and who is ready to go on their own," he says.

But the solutions offered by technology aren't always the best answers. How do you stop students from Googling their way through tests, or taking answers from Dad, when there's only a small camera—if it's on—to keep them honest? It's one of the most common concerns of teachers who attend Challenge Success's workshops, Pope says.

In response, some schools have grown hawkish, adopting proctoring software that flags suspicious eye and body movements. But such programs aren't cheap, and they have incited backlash from

critics who see intrusiveness, mistrust and potential for fallibility.

For Pope, the controversy is mostly beside the point. The critical weakness of testing isn't that, when done virtually, it's easy to cheat. It's that traditional true/false, multiple-choice,



right-wrong, memorization-heavy tests are poor measures of growth, comprehension and mastery, and promote shallow learning and grade fixation. They're also unreflective of how we operate in the real world.

"Nobody at work says, 'You are going to take a test tomorrow and it's going to be timed and you don't know what's on it and you can't use any of the resources around you, including your computer and your colleagues,'" she says. "That's what we ask students to do every day."

She counsels schools to drop the software and adopt more creative methods of assessment, which might include asking students to show their work, observing them make presentations, or utilizing the kind of real-world projects Darling-Hammond talks about—all of which offer a deeper gauge of understanding.

It's an approach many education researchers have long championed to limited buy-in from time-strapped teachers. But the pandemic has brought about new interest. Pope jokes that it's Challenge Success's "dirty little secret": "We are giving them a solution that will work right now through remote learning, but we absolutely want them to continue this solution when everybody is back."

Cheng, for one, has become more of a believer in an open-book mindset during the pandemic. It's the way scientists work, she says, using all the tools and research at their disposal, then having to verify and apply what's been learned.

Rather than asking her students to give the qualities of a certain element, she says, she might give them a made-up scenario. A new element has just been discovered, she'll say, with a list of attributes she provides. "I will say, 'Here's the periodic table. All the same rules apply,'" she says. "Tell me about this element."

ADDING BY SUBTRACTION

The constraints of distance learning are also pressuring teachers to limit content. Even the tech-savviest teachers strain to cover the amount of material online they once did in the classroom. Students may struggle to log into online classrooms; Chromebooks can choke on the data demands of certain sites, the slow tap-tap of typing can't come close to

the speed of talking, and then there's the stress of life in a pandemic.

In response, many teachers have unilaterally narrowed their lessons down to the essentials. Pope calls it "Marie Kondo-ing" the curriculum, in honor of the famed queen of decluttering. "You can't teach it all," she says. "You never could, but you really can't now because you can't overload kids with content when they've got so much else going on."

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California has gone farther, enacting legislation to authorize slimmed-down English and math curricula for online classes. Enter Jo Boaler, a Stanford education professor who was tapped to lead the creation of the new guidance in math. Boaler—who has a fervent following among many K-12 math teachers—has long maintained that we overstuff math classes with rote drills, timed tests and an

excess of superficial material at the expense of more meaningful, creative and interconnected approaches.

She's not short of candidate curricula to cut. In a world of ubiquitous computing power, she doesn't see great point in the amount of time typically spent on teaching synthetic division, factoring or even division of fractions. Nobody in the real world does them by hand, she says; they cause enormous amounts of stress; and they're generally not taught in a way that connects them to bigger ideas. They also take time away from more insightful learning.

"Probably the biggest need teachers have in terms of better teaching is less of it, so they can actually go in depth on ideas and give kids a rich experience," she says.

She's not only interested in subtracting from the curriculum. She wants to see data science taught to kids from kindergarten up. In the midst of a pandemic rife with misinformation, she says, the need has never been clearer.

BONDING TIME

Pope may have to do some persuading to get teachers to try alternative ways to grade pupils, but, she says, there's no question from educators when she speaks about the importance of building relationships with students.

It's something most teachers have an innate sense of. And if they don't, the discrepancies revealed by the pandemic and a summer of Black Lives Matter protests have drawn a line under how much weight some students carry with them. "If teachers thought they were really only responsible for academics, they now absolutely understand they've got to do things to foster connection in order to facilitate learning," Pope says.

The irony is that this awareness has peaked when distance learning has made it so much harder to act. It was one thing in the spring when teachers moved online with students they already knew, who knew them and who knew one another. It was another in a new school year when everyone was a stranger to one another. That, Cheng says, is when the cameras went dark.

Challenge Success helps teachers cross the void, often by finding simple ways to translate to the digital environment the kind of ice-breakers and community activities the teachers

already used in their classrooms.

One idea Pope stresses is the sacredness of shared screen time. Something like a lecture can be recorded for individual watching later, she says. Shared class time should be reserved for working together, forming groups to work on activities, breaking students off into smaller chatrooms, or holding group discussions. “If you’re going to have everyone on the screen, use that time to build connections,” she says.

For Cheng, it’s still a challenge to recreate the rapport she naturally had in the classroom, where she would read signals as small as how a student was holding a pen for clues to comprehension and mood. She used to be so surrounded by students that she had to schedule lunchtime gym breaks just to make sure she got away. Now she never sees them.

But she’s honed ways to build bonds, acknowledging every student by name each class even if they don’t respond, and engaging in small talk via chat. She writes down their answers for follow-up conversations. “The more I repeat back to them what I know about them, the more they are able to open up and just chat with me,” Cheng says.

As an introvert, Do doesn’t miss the banter of real-life classes as much as Cheng does. But he doesn’t question its importance. The data showing how many kids went off the grid in the spring makes it clear how easily they can float away.

And so he spends the first 10 minutes of class engaging his students with games, humor and memes. “I have never done this much community-building in my class before,” he says.

One time, he learned it was a student’s birthday and asked everyone to grab a pencil and paper, draw their best birthday cake and hold it up to the camera. “That was a really adorable moment,” he says. It was also one of the few times his students turned on their cameras all semester. ■

SAM SCOTT is a senior writer at *STANFORD*. Email him at sscott3@stanford.edu.

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Kevin Devine, '70	Eddie Poplawski, '81, MBA '87
Kyle Duarte, '05	Raquel Johnson Rall, '04
Ann Ezra Erickson, '81	Ying (Tina) Shi, MA '06
Mark Fuller, MS '78	Dawn Smalls, JD '03
Laura Jones, MA '85, PhD '91	Joel Stratte-McClure, '70

2020-21

Summer Moore Batte, '99	Jordan Nevo, MS '09
Sheri Gould Blaisdell, '84	Nadia Johnson Rawlinson, '01
Jennifer Eagleston Cauble, '76	Scott Showalter, '94
William Copeland, '99	Julia Arellano Sullivan, MBA '82
Rudy Herrera, MBA '79	Martin Treu, '79
Irene Ibadapo, '09	Kamba Tshionyi, '98
Kennan Murphy-Sierra, '14	
Marcos Nájera, '94, MA '95	

2019-20 AWARD OF MERIT GROUPS

<i>Stanford Alumni Women's Impact Network</i>	<i>Class of '78 40th Reunion Campaign Co-Chairs</i>	<i>CSE Alumni Excellence in Education Awards Program Leadership</i>
April Bell, '95	Henry Brandon, '78	Rebecca Padnos Altamirano, MA '01
Marta Hanson, '11	Lawrence Barnett, '78	Fadia Hefni Desmond, MA '95
Prathima Setty, '95	Natalie Naftzger Davis, '78	Norma Francisco, PhD '99
<i>Inaugural 2019 Stanford Latino Alumni Summit Leadership Team</i>	Tom DeFilippis, '78, JD '81	Moolani Napolitani, MA '06
Ana Moreno VanDiver, '97	Rick Magnuson, '78, JD '81, MBA '81	Thea Gentile Smith, MA '89
Angelique Flores, '99	Tina Gwatkin Moghadam, '78	
Daniel Reyes, '02	Rick Weber, '78	
	Mark Whiting, '78, MBA '82	

2020-21 AWARD OF MERIT GROUPS

<i>Class of '53 Leadership Team</i>	<i>GSB Women's Circles Leadership Team</i>	<i>Community Graduation Leaders</i>
Terrence Blaine, '53	Lili Pratt King, '71, MBA '76	Jackie Crespo, '05, MS '07
Nancy Howe Clark, '53, MA '54	Barbara Boyd Proulx, '83, MS '84, MBA '90	David Gonzales, '93
Patty Jones Fortine, '53	Martha Tian, MBA '12	Delia L. López, '94
Elise “Boots” Schieffelin Liddle, '53	Amy Kessler Ting, MBA '84	Clara Luu, '15
James R. Madison, '53, LLB '59		<i>Law School Dean's Welcome Leaders</i>
Donald Price, '53, MBA '58		Peter Bragdon, JD '93
Nancy Clark Sharpe, '53, MA '54		Brent Bullock, JD '86
		Andrew Komaroff, JD '93
		Lan Nguyen, JD '01
		Naomi Brufsky Waltman, '85, JD '88



STANFORD ASSOCIATES

[small doses]



by Deni Ellis B  chard

Kari Nadeau
is transforming the
treatment of food allergies,
one morsel at a time.

They never identified the cause. Maybe the oil that the restaurant used held traces of milk or egg. Maybe when Stefan Lainovic, only 4, laid his ice pop down on the table, a dusting of other food clung to it. Suddenly he began to sneeze. He vomited. A rash spread across his body as his face swelled. He struggled to breathe and then passed out. Thanks to an injection of epinephrine (which constricts blood vessels, raising blood pressure) and the further care of ambulance and hospital staff, he survived, but the Lainovics were changed. “That was the day we understood just how bad this could get,” says his mother, Rebecca. “We needed to engage.” She recalls how alone she and her husband, Sacha, MBA ’81, felt over the next 16 years, as they supported allergy advocacy and research. “It’s a life-threatening disability,” she says, “but it was not viewed that way then.” In the 1990s and early 2000s, people treated the couple as if they were helicopter parents or attention seekers. Though they did everything possible to give Stefan a normal life, they were constantly on guard—checking ingredients, avoiding restaurants, packing every meal he ate away from home until he was 18—and always kept an EpiPen on hand. Not until 2012, when Stefan was halfway through college, did they hear about Kari Nadeau, a Stanford professor of medicine and of pediatrics who was conducting an allergen desensitization trial. Rebecca and Sacha flew to Stanford and met with her. “No doctor had ever said these words to us before, or since,” Rebecca says. “She said, ‘I think I can help your son.’ I still get emotional. I’ll never forget that day.”

Nadeau’s trial required participants to ingest powdered allergens in tiny doses that increased as they gained immunity—with the goal



‘No doctor had ever said these words to us before, or since. She said, “I think I can help your son.”’

of full tolerance or at least sufficient desensitization that accidentally eating the allergen wouldn't make them seriously ill. The first trial to desensitize people to multiple food allergies at once, it addressed a growing epidemic. Worldwide and among all age groups, rates of food allergies have risen from less than 2 percent in the 1950s to nearly 8 percent today. In the United States alone, an estimated 7.6 percent of children and 10.8 percent of adults have food allergies. That's 5 million children and 26 million adults—and, Nadeau says, about half of children are allergic to more than one food. The disease demands constant vigilance, even toward foods that are supposedly safe but have been processed in facilities with allergens. For some children, just being hit by cheese during a food fight could kill them. But, though once a life

sentence, food allergies are increasingly treatable. “Some people are already getting cured,” Nadeau says. With Sloan Barnett—a journalist whose son overcame allergies in the trial—Nadeau recently co-authored *The End of Food Allergy: The First Program to Prevent and Reverse a 21st Century Epidemic*. “Really more like the beginning of the end,” Nadeau says, since the treatments she pioneered are not yet in widespread use and she continues developing better therapies that, by adding medication to neutralize allergic reactions, have accelerated desensitization and revolutionized the field of allergy medicine.

Understanding the treatments in Nadeau's trial requires a foray into the medical history. *The End of Food Allergy* offers just that, describing the search for remedies and the epidemic's cause. The leading theory is the hygiene hypothesis: Too much sanitization has stripped homes of the dirt and germs that strengthen children's immune systems. “If they don't encounter foreign microbes, blood cells that would normally differentiate between threatening invaders and innocent guests never have a chance to become trained at their job,” Nadeau and Barnett write. “As a result, our immune systems remain weak, unable to ward off infections and confused about when to attack and when to stand down.” Excess hygiene (a misnomer, the authors point out, since scientists aren't advocating against handwashing, a crucial practice for protecting against pathogens such as SARS-CoV-2) results from reliance on bleach and antibacterials. It may also increase rates of hay fever and eczema, health conditions even more present in households where there are fewer children tracking dirt and germs into the home.

Eczema—specifically, the permeability of dry, cracked skin—turns out to be a key driver of food allergies. In our evolution, the parasites and bacteria that entered us through the skin demanded a rapid and severe immune response, whereas the gut was primed to view foreign materials as nutrients. “The gut lining is filled with immune cells that automatically are more tolerant,” Nadeau says. “They're like the

United Nations Peacekeepers, whereas on your skin, it's more like the Marines.” And once the skin's cells detect an intruder, the entire immune system is put on high alert for those antigens. Certain foods—milk, egg, peanuts—are so common in households that trace amounts of them in the air and on surfaces can penetrate the eczematous skin of newborns before they are old enough to ingest them and are henceforth treated



by their bodies as invaders. “Introducing foods early through the mouth,” Nadeau and Barnett write, “can make all the difference.”

While no one theory may fully explain allergies, the impoverished microbiomes of Westernized societies offer additional clues. For instance, mice that are fed the gut bacteria of human babies allergic to milk develop the same allergy. “Changes in how we live—away from animals, away from dirt, with an excessive use of antibiotics and a diet lacking a variety of plants—are the culprit behind our diminished microbiome,” the authors write.

A childhood in a moldy New Jersey houseboat had Nadeau struggling to breathe at night long before she knew what allergies were. In high school, after a counselor told her women couldn’t be doctors, she confirmed with her pediatrician that this wasn’t true. Then, to find out if she had what it took, she joined an ambulance volunteer squad. “I thought, OK, this is good. I really like to take care of people,” she says. “I like the action, and I’m not afraid of blood.” Studies followed: biology at Haverford College, then an MD/PhD at Harvard Medical School, where she met her future husband, Paul Jackson, ’88, also in the program. In 2003, the couple moved west to complete residencies at Stanford. One of her patients was a boy who died from a milk allergy. “I thought it was such a tragedy that the parents had lost their child due to something that could have been prevented,” she says. Over the years that followed, as Nadeau and Jackson started a family and raised five children (including two sets of twins), allergies became her focus.

Food allergies turned out to be complex—the ways, for instance, that the skin could be allergic but not the digestive tract, or that a transplanted organ could confer allergies on the recipient, as happened in the case of the boy who died. When his liver was donated, it gave the recipient his milk allergy. As Nadeau investigated the cellular pathways causing the cascade into full anaphylactic shock—a drop in blood pressure; a weak, accelerating pulse; the narrowing of airways; nausea and vomiting—she turned her attention to treatments.

Fortunately, the historical record is not without references to oral desensitization. Mithridates the Great, the tyrannical ruler of Pontus from 120 to 63 BCE, dosed

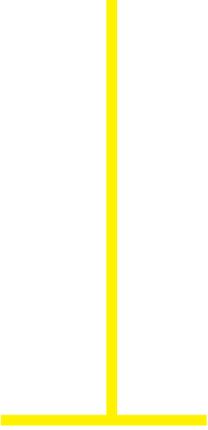


himself with poisons to immunize himself against plotting rivals. “For hundreds of years, the concept of desensitization has been occurring in many populations,” Nadeau says. “In the rain forest, when parents saw their children brush up against a plant and a child had a rash, they would start feeding that child the same leaf.” But whereas doctors began using injections to desensitize people with respiratory allergies to pollen or animal dander in 1911, widespread medical treatment for food allergies lagged—even though a treatment had been published in the *Lancet* in 1908 by Alfred Schofield, a London doctor. His patient was a 13-year-old boy who had suffered allergic reactions to egg more than 150 times: hives, swollen lips, wheezing. If he touched raw egg, his skin blistered. But over six months, Schofield fed him pills. The first batch held one-ten-thousandth of a raw egg. The next, one-thousandth, and so on. Soon, the boy was comfortable eating ever-larger amounts of egg.

Schofield’s work was largely forgotten, and the idea of single-allergen desensitization didn’t gain traction in the medical community until the 1980s. But since desensitization can take years and many people suffer from multiple allergies, Nadeau decided to run a trial that desensitized patients to as many

In the United States alone, an estimated 7.6 percent of children and 10.8 percent of adults have food allergies. That’s 5 million children and 26 million adults.





'I had my own little lunch table sectioned away with red tape, six feet from all my friends . . . I always felt isolated and strange.'

as five allergens at once, giving them tiny doses of the offending food proteins, which had been purified in pharmaceutical-grade facilities and approved by the FDA.

One of the participants, Kate Kepner, then 5, was allergic to sesame, peanut, walnut, pecan, egg and milk—ingredients so common in other kids' lunches that she faced a daily risk of going into shock simply from crumbs left behind. She couldn't visit friends without her mother. School was worse. "I had my own little lunch table sectioned away with red tape, six feet from all my friends, kind of like with COVID except everything was normal, so I always felt isolated and strange," says Kepner, now 15. For her, the trial's first reward came during its scariest moment: the food challenge, when participants had to eat small amounts of allergens to prove to the researchers that they were allergic. Upon learning that touching milk gave Kepner rashes, Nadeau explained that skin has a longer immune memory than the digestive tract. When she had Kepner drink milk through a straw to bypass the skin of the lips, there was no reaction. Throughout the trial, Kepner would consume progressively larger doses of peanut, walnut,

pecan, sesame and egg—but not of milk. There was no need: Once she began consuming it regularly through a straw, her immune system adjusted, and her skin lost its allergy. "That was the first absolutely life-changing thing," her mother, Melissa, recalls. "Kari was knowledgeable and brave enough to challenge her. No other doctor would touch this. They would say, 'Look, if I put a drop on her skin, she gets hives all over. I'm not going to have this child drink it.'" The trial itself took three years. Every two weeks, Kepner and her mother traveled from San Francisco to Stanford, where Kate was hooked up to an IV in case she needed rapid epinephrine delivery. By the end, she was desensitized to all her allergens. Whereas the family once made constant calculations—scrutinizing the ingredients in a new food or determining the distance to the nearest hospital—she could now attend sleepaway camps, eat in restaurants and travel at ease.

For Stefan Lainovic, who participated in the same trial as Kepner, the results were similarly dramatic. He made up for missed time at Williams College, in Massachusetts, by taking classes at Stanford. With eggs, he can now "freestyle"—has full tolerance—whereas with milk, he is slightly sensitive to large quantities. Each day, he eats a small yogurt as a maintenance dose to keep his immune system familiar with his old nemesis. "After college," his mother says, "he traveled all over the world—the most amazing two years of his life—and he was able to experience all kinds of international cuisine."

While desensitization has changed lives, the trial had a second arm that transformed the field of allergy medicine. It used the asthma drug Xolair, a monoclonal antibody targeting the body's own antibodies that trigger allergic reactions. Nadeau hypothesized that it might accelerate desensitization by preventing the immune system from becoming reactive. Participants in the Xolair arm of the trial received the medication in addition to doses of their allergens, allowing Nadeau to compare the two trial groups and assess the efficacy of Xolair. The process was documented by Melanie Thernstrom in a 2013 article in the *New York Times Magazine* that focused on Tessa Grosso, an 8-year-old in the Xolair group who was allergic to multiple foods and had nearly died twice from accidentally eating wheat. Tessa's mother, Kim, recalls hearing of a peanut desensitization trial before meeting Nadeau. "It would have taken three years, and she had 20 different allergies," she says. "She would have been 60 by the time she finished all of the foods." With Xolair, Tessa was desensitized to her five worst allergens in four months.

Not all children completed the trial. Some experienced abdominal pain and quit; others felt too much anxiety eating their allergens; a few moved

away. But for those who did finish, Thernstrom saw their families change. “Being a food-allergy parent is the diametric opposite of having a psychologically healthy relationship to your child,” she says. Parents guarded anxious children, keeping them from cultivating freedom and a sense of security. “It took a couple of years for the trauma to wear off and the nature of that parent-child relationship to ease,” says Thernstrom, whose own son, Kieran, completed the non-Xolair arm of the trial in two years. “But I saw so many families flower.”

While the success rate of those taking only the allergens was 33 percent, the Xolair group’s was much higher: 83 percent, the most successful of any multiple-allergen trial to date. Though the treatment is not yet widely available, as it’s offered by only a few private clinics, Nadeau is working on a final-phase trial funded by the National Institutes of Health, Genentech and Novartis. She anticipates that Xolair will receive FDA approval for the treatment of food allergies within the next few years.

People have a distinct way of talking about Nadeau. Rebecca Lainovic describes her as “ethereal” and “the miracle of Kari.” Maria Garcia-Lloret, an assistant clinical professor in allergy and immunology at UCLA Medical Center, says Nadeau has “the angels”—a gift for speaking to others. “She was the first to do these multi-allergen oral therapies,” Garcia-Lloret says. “A lot of people thought she was crazy.” But many have believed in Nadeau. The Lainovics, the Kepners and other families have supported her research financially. In 2014, Sean Parker, Facebook’s first president, pledged \$24 million to Stanford Medicine to establish the Sean N. Parker Center for Allergy Research. As its director, Nadeau leads a team of 60, and she partners with researchers throughout the United States. One of her many collaborators at Stanford, Stephen Galli, professor of pathology and of microbiology and immunology, calls her “one of the most innovative leaders of efforts to understand the origin and, importantly, the effective prevention or treatment of food allergies.”

Published this past September, *The End of Food Allergy* is more than the culmination of this work. It grew from Nadeau’s own experience with a health scare, her 2004 diagnosis with a rare form of leukemia that ostensibly gave her a few years to live. She flew to the disease’s leading specialist, who told her not to do chemotherapy—that her form of the disease was caused by a virus and would pass. It did, but she was left with a sense of unease: “This really drove home that many people don’t have the same access



‘Being a food-allergy parent is the diametric opposite of having a psychologically healthy relationship to your child.’

to make a definitive decision about what they should do next. That’s why I wrote the book.” Susie Hultquist, founder and CEO of Spokin, an app that helps people manage their food allergies, calls the book “a tool and a resource like no other.” She says, “It’s really hard to get access to the front-row seat to one of the leading minds in the food allergy community.”

Recently, Nadeau co-founded SpoonfulOne, a line of baby foods containing doses of 16 common allergens to prime the immune system. She is working with a team at Stanford to develop allergy diagnostics so that children don’t risk their lives to find out what they can eat. And she is launching a new desensitization trial that combines Xolair with dupilumab, a monoclonal antibody that the FDA recently approved to treat asthma, hay fever and eczema, and that targets cytokines—inflammatory molecules underlying allergy symptoms. Whereas Xolair stops “the match that lights the fire behind allergic reactions,” Nadeau says, dupilumab can prevent the painful symptoms that make people leave trials. “We need to make sure that if the fire is going to happen, then that fire is dampened,” she says. “We need to make sure that the treatment is safer and more tolerable, and that we can get up to a 100 percent cure rate. That’s my goal.” ■

DENI ELLIS BÉCHARD is a senior writer at STANFORD. Email him at dbechard@stanford.edu.

REVIEW

Against the Clock



CHARITY FERREIRA
is a
contributing
editor at
STANFORD.

FINDING ANSWERS to problems that seem unsolvable is what Ron Davis does. The geneticist's research led to the creation of techniques for identifying and isolating disease genes and helped crack the code of DNA, including mapping the entire human genome. But the problem that Davis, director of the Stanford Genome Technology Center and a professor of biochemistry and of genetics, has been working to solve for the past decade is the most difficult and most important of his life.

In 2009, Davis's son, Whitney Dafoe, was struck by a debilitating illness doctors couldn't diagnose. Four years later, his condition had deteriorated to the point that he lay incapacitated in a darkened back bedroom of his parents' Palo Alto house, unable to eat or communicate. He couldn't tolerate even the slightest

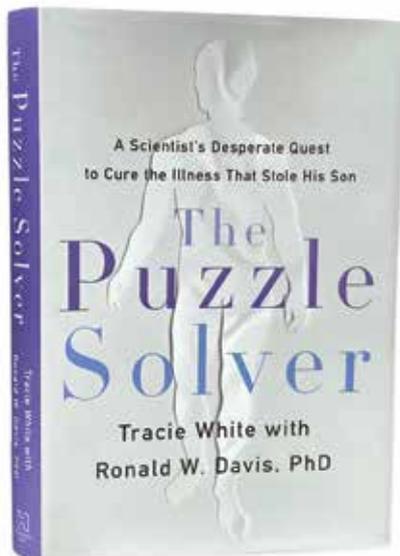
stimulus—footsteps, colors and patterns, and odors of any kind were unbearable. Science didn't recognize, much less understand, whatever had made him so sick.

Tracie White, a writer at the School of Medicine, spent years getting to know the Davis-Dafoe family. *The Puzzle Solver: A Scientist's Desperate Quest to Cure the Illness That Stole His Son*, which White wrote with Davis, is the story of a young man's battle with chronic fatigue syndrome, also known as myalgic encephalomyelitis (ME/CFS). It's a chronicle of the evolution of our understanding of ME/CFS. And it's a portrait of Davis as father and scientist as he divides his time between caring for his son and doing the research he hopes will save Whitney's life.

Through her interviews with other ME/CFS patients, White weaves in their stories: how they live with the syndrome's incapacitating symptoms and receive doctors' dismissal and ridicule instead of help. She

shares the Davis-Dafoe family's elation when Davis finds evidence that CFS is a biological disease by sequencing Whitney's genome and constructing a metabolic pathway chart that documents every aspect of his biochemistry. And she conveys their hope as Davis galvanizes funding for further research; recruits scientists from across medical specialties; and embarks on a study of the most severely ill ME/CFS patients—those who are homebound and therefore harder to reach, who Davis believes are likely to show the strongest molecular signals of the disease.

White gets to know Whitney not as an unresponsive patient forced by ME/CFS to block out the world, but as a sweet, funny, spiritual young man with not only a vibrant past, but also—pending his father's next breakthrough—a future. ■



The further Whitney slipped away, the more intense Ron's research became.

The Puzzle Solver: A Scientist's Desperate Quest to Cure the Illness That Stole His Son, Tracie White and Ronald W. Davis, Hachette Books.

WE RECOMMEND

Making Your Move

The Role I Played: Canada's Greatest Olympic Hockey Team

Sami Jo Small, '98; ECW Press. Small offers a fascinating insider's account of the intensity, competition and camaraderie of elite women's hockey.

See No Stranger: A Memoir and Manifesto of Revolutionary Love

Valarie Kaur, '03; One World. Can no-holds-barred, radical acceptance of "the other" lead to justice and healing in fractured communities? (Spoiler: Yes, but the road is bumpy.)

Tiny Imperfections

Alli Frank, MA '99, and Asha Youmans; G.P. Putnam's Sons. Make a great escape with this novel of ambition, family and the absurdities of private-school admissions in San Francisco.

The Joy of Movement: How Exercise Helps Us Find Happiness, Hope, Connection and Courage

Kelly McGonigal, PhD '04; Avery. Shake your tail feather—it can give your blues a break and boost feelings of belonging.

Eva and Otto: Resistance, Refugees, and Love in the Time of Hitler

Tom Pfister, '70, Kathy Pfister and Peter Pfister; Purdue University Press. Letter by love letter, the correspondence of a young German couple builds a story of their work to undermine fascism and support the Allied war effort.





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Farewells

FACULTY

Charles Albert Drekmeier, of Palo Alto, August 25, at 92. He was professor emeritus of political science. His book *Kingship and Community in Early India* was awarded the American Historical Association's Watumull Prize. For 23 years, he and his wife, a history professor, co-taught an honors seminar, Social Thought and Institutions, that focused on a single topic, such as community or utopia, for an entire year. A civil rights and anti-war advocate, he co-founded the Stanford Committee on Peace in Vietnam in 1965. He was predeceased by his wife of more than 60 years, Margot; and his daughter, Nadja May. Survivors: his sons, Peter and Kai; and three grandchildren.

John Arthur Gosling, of Manchester, England, July 17, at 81. He was professor emeritus of anatomy and instrumental in the creation of the School of Medicine's clinical anatomy division. He taught as a visiting professor seven times from 1975 to 1991 before joining the faculty as a full professor. His research focused on the neuroscience of the genitourinary system. He was co-author of *Human Anatomy*, contributed to dozens of other books and co-authored more than 100 papers. He was a three-time winner of the Kaiser Award for Excellence in Preclinical Teaching. He was also an avid rock climber. Survivors: his daughters, Rachael Williams and Jane Garbett; and seven grandchildren.

James G. Greeno, of Pittsburgh, September 8, at 85, of Parkinson's disease. He was emeritus professor of education. He helped develop the theory of situated learning, which emphasizes the influence of social interactions and environment on learning. He was a Guggenheim Fellowship recipient, served on the editorial teams of several publications, and held leadership roles with the National Academy of Education, the American Educational Research Association and the American Association for the Advancement of Science. He also co-founded the Institute for Research on Learning, a nonprofit dedicated to the application of artificial intelligence and cognitive science to learning. Survivors: his wife of 63 years, Noreen; children, John, '80, and Catherine, PhD '89; and four grandchildren.

Leda Mussio, of San Mateo, Calif., September 19, at 92, of pneumonia. She was senior lecturer emerita of French and Italian. She directed the Casa Italiana, collaborating with numerous Italian celebrities to connect the immersive residential experience to cultural events in Italy. She was also coordinator of many Italian film events. She took pride in her Florentine heritage and enjoyed maintaining ties to her past students and colleagues. She was predeceased by her former husband, Magdalo. Survivors: her son, Gianmaria.

Peter Paret, of Salt Lake City, September 11, at 96. He was Raymond A. Spruance Professor of International History emeritus. He had served in the Army during World War II; as a scholar, he explored connections between modern guerilla movements and the Napoleonic wars and politics, culture and the arts. His numerous awards include Germany's Order of Merit, Great Cross; the American Philosophical Society's Thomas Jefferson Medal; and the Society for Military History's Samuel Eliot Morison Prize. He was also a member of the American Academy of Arts and

Sciences. He was predeceased by his wife, Isabel. Survivors: his children, Suzanne and Monty, '90; and four grandchildren.

Robert Dario Simoni, of Palo Alto, September 18, at 81. He was the Donald Kennedy Chair in the School of Humanities and Sciences and professor of biology emeritus. His research focused on the biogenesis, structure and function of cellular membranes. He served as acting provost, chair of the faculty senate and five terms as biology department chair. For his service to the university, he was honored with the Kenneth M. Cuthbertson Award. He was also an award-winning winemaker. Survivors: his wife of 59 years, Diane; children, Susan Burk, Steven and David, and five grandchildren.

Makoto Ueda, of Los Altos, August 19, at 89. He was professor emeritus of Japanese. He served

twice as chair of the department of East Asian languages and cultures and also directed the East Asian program, now the Center for East Asian Studies. His scholarly work focused on the translation and criticism of Japanese poetry. His translations made many female haiku and tanka poets from the 17th century to today available for the first time in English. Survivors: his children, Eunice Louie and Edward, '86; four grandchildren, including Julien, '21; and three sisters.

1940s

John "Jack" Podesta Dixon, '40 (graphic arts), of Glendale, Calif., October 15, at 104. He earned money for college by working for the Civilian Conservation Corps. At the university, he pledged Theta Xi, ran cross-country and track and was an

A Giant in the Field of Legal Ethics

During her more than four decades as a law professor at Stanford, Deborah Rhode promoted an idea of radical simplicity: that the law's purpose is to advance justice and to serve the public interest.

Deborah L. Rhode, the Ernest W. McFarland Professor of Law and the founder and director of the Center on the Legal Profession, died January 8 at her home on the Stanford campus. She was 68.

As a law student at Yale in the mid-1970s, interning at a legal aid clinic, Rhode saw through the smoke screen of high fees and bar association protectionism that kept low-income women from obtaining uncontested divorces. She and colleagues were quick to act, issuing a how-to kit that prompted local lawyers to threaten to sue for unauthorized practice of law. Rhode, along with her classmate and future husband, Ralph Cavanagh, nailed the ethical implications in an article for the *Yale Law Journal* that attacked lawyers' justifications for challenging do-it-yourself alternatives.

Gender bias and professional injustice were topics she'd return to in law school classrooms, a series of articles and more than 30 books, including *The Trouble with Lawyers* and *The Beauty Bias: The Injustice of Appearance in Life and Law*. A new book, titled *Ambition*, is scheduled for publication later this year.

After clerking for Supreme Court Justice Thurgood Marshall, Rhode joined the Stanford Law School faculty in 1979, when she was 27. Determined to explore issues of gender and bias despite the potential professional risks, she would eventually be hailed as a pioneer—becoming only the second female law professor at Stanford granted tenure.

Regardless of the course name, Rhode kept her focus on law's larger purpose. Class discussions ranged widely as she urged students to ask hard questions about



the profession, equity, leadership and power. Her favorite baseball cap admonished, "Watch what you say, I might put it in my book." In her *Lawyers and Leadership* course, she brought in luminaries like Condoleezza Rice.

"Deborah Rhode was a force," says Rice, the former secretary of state and Stanford provost who now directs the Hoover Institution. "I was honored to work with her in the classroom." Adds former Law School dean Kathleen Sullivan, "Deborah believed deeply in the capacity of lawyers to do good and modeled that goodness in all she did."

At a January 18 virtual memorial, Cavanagh quoted a passage from his wife's final book: "Ultimate fulfillment comes from a sense of remaining true to core ideals and principles, and of using life for something of value that outlasts it."

In addition to her husband, Rhode is survived by her sister, Christine, and eight nieces and nephews.

—John Roemer

editor and cartoonist for the *Chaparral*. He served in the Navy during World War II and the Korean War and retired from the Naval Reserves at the rank of commander. In civilian life, he spent 35 years as an engineer at Pacific Bell. He was predeceased by his wife of 62 years, Linnea. Survivors: his wife of 15 years, Shirley; children, Diane Gennuso and Jack; and four grandsons.

John Wesley Arnold, '42 (medicine), MD '45, of Long Beach, Calif., April 30, at 100. While in medical school, he met and married Wilma Blakey, then a cadet nurse in training at Stanford. As an Army physician in World War II, he served at the 49th General Hospital in Tokyo. He was a board-certified eye, ear, nose, and throat specialist and practiced medicine with his father for many years. He was also an avid genealogist, gardener, fly fisherman, golfer and amateur historian. He was predeceased by his wife, Wilma; and son Bruce. Survivors: his son John, '69; and grandchildren, Allison, '99, Lindsay '02, MBA '10, and Blake, '06.

Bessie Paulsen Tufts, '42 (history), of Woodland, Calif., July 7, at 99. She was a member of Chi Omega. She worked in San Francisco after graduation, but Woodland soon became her long-term home, leaving for extended trips to Africa, Europe and the California desert. She thought of herself as a farmer, but she also managed several investment properties. She was predeceased by her first husband, James Adams, '41; second husband, Bill Riegels; and third husband, Warren Tufts. Survivors: her children, Bill Adams, '70, and Jamie Dougherty; three stepchildren; three grandchildren; and two great-grandchildren.

Marion Shipman Barnes, '44, of Oakland, September 5, at 98. While out with friends one evening, she was introduced to a first lieutenant on his way overseas. They fell in love instantly. He proposed that night; she accepted; and after the war ended, they married. She served her children's local schools through the PTA. Later, she was a floor helper for more than 20 years at Samuel Merritt Hospital (now part of the Alta Bates Summit Medical Center). She was predeceased by her husband of 59 years, Jerry. Survivors: her children, Jeffery, Stephen, Leslie and David; 12 grandchildren; and 22 great-grandchildren.

June Eloise Miller Lighty, '44 (graphic arts), of Burlingame, Calif., September 20, at 97. She pledged Alpha Omicron Pi. After graduation, she worked for the Bank of America. Her volunteer service was manifold: She volunteered for the Red Cross, American Heart Association, PACE, Stanford Home for Convalescent Children and the Garden Café. She was involved with the Boy Scouts, served as a Cub Scout den mother, and hosted "rivalry gatherings" between Stanford and Washington State U. She was predeceased by her husband, Phillip; and son Stephen. Survivors: her sons Phillip Jr. and Thomas; four grandchildren; and five great-grandchildren.

Philip R. Lee, '45 (biological sciences), MD '48, of New York City, October 27, at 96, of heart arrhythmia. He was a member of Theta Delta Chi. He served as a doctor in the Naval Reserve during the Korean War. As assistant secretary for health and scientific affairs in the Department of Health, Education and Welfare from 1965 to 1969, he oversaw the introduction of Medicare and compelled hospitals to desegregate. He was chancellor of UC San Francisco from 1969 to 1972 and later director of its Institute for Health Policy Studies. He returned to government service as assistant secretary of Health and Human Services from 1993 to 1997. Survivors: his wife, Roz Lasker; children, Dorothy,

Paul, Margaret, Amy Pinneo and Theodore; stepdaughter, Duskie Estes; five grandchildren; two stepgrandchildren; and two great-grandchildren.

Peter Palk, '45 (interdisciplinary), of Dana Point, Calif., September 25, at 96. He and his wife met as Stanford freshmen, but they married only after he returned from a 13-month combat tour on the USS *North Carolina* in the Pacific theater of World War II. He worked for Carter Hawley Hale department stores for 35 years and in retirement undertook a second career in real estate. Survivors: his wife, Carol (Hurwitz, '45); children, Robin and Christopher; three grandchildren; and four great-grandchildren.

Carole Jean Carpenter Reynolds, '45 (social science/social thought), of Laguna Beach, Calif., August 11, at 96. She was a member of Delta Gamma, played on the basketball team and wrote for the *Daily*. She made lasting contributions to the Laguna Beach arts community as an art museum docent, founding member of the arts council, chair of the art commission, co-founder of the Community Art Project and founder of the Laguna College of Art + Design library (now the Carole Reynolds Art Research Library). She was predeceased by her husband of 50 years, Jack, '44, MBA '48. Survivors: her daughters, Kimberly Cooper and KC Cooper; stepsons, Ralf and John Reynolds; and five grandchildren.

Richard Harrison Williams, '45 (speech and drama), MA '48 (education), EdD '57, of Palo Alto, January 5, 2020, at 96, of pneumonia. He was involved with Ram's Head and served as stage manager at Memorial Auditorium. He first taught in Elk Grove, became vice principal of Yuba City High School and then served as principal of Burlingame High School for 24 years. He led student groups overseas in the summers and also served as president and secretary of the Burlingame Kiwanis Club. Survivors: his wife of 65 years, Grace (Von der Mehden, '50, MA '54); children, Renee and Blaine; and two grandchildren.

Marie Josephine McGervey Wagner, '46 (speech and drama), of Burlingame, Calif., August 27, at 95. She was active in volunteer work and an engaged parishioner at St. Catherine of Siena parish. She loved to capture scenes from her travels in watercolor and was a member of the Peninsula Outdoor Painting Society. She was predeceased by her husband of 39 years, Herman, '48. Survivors: her children, Virginia Caughell, William, John and Albert; seven grandchildren; and great-grandchild.

Eugene Harold Corman, '48 (social science/social thought), of Beverly Hills, Calif., September 28, at 93. He was a member of the tennis team and Theta Delta Chi. He produced prime-time television and more than 30 films for Universal, Columbia, MGM, United Artists and 20th Century Fox. He won an Emmy Award in 1982 for *A Woman Called Golda*. He was also a passionate collector of modern and contemporary art, and he served as chair of the Beverly Hills Fine Arts Commission. Survivors: his wife of 65 years, Nan; sons, Todd and Craig, '81; four grandchildren; and brother, Roger, '47.

Robert J. Hildreth, '48 (psychology), of San Francisco, August 22, at 93. He was a member of Delta Tau Delta. He was owner, president and CEO of a trucking company for 35 years. He also pursued wide interests, including drawing, painting in watercolor, flying, hiking, sailing, opera and Zen Buddhism, and he was a longtime member of the Bohemian Club. Survivors: his wife of 33 years, Mei Ling Kwei, '50, MD '55; children, James and Diane; four grandchildren; and seven great-grandchildren.

Virginia Lorayne Schultz Procter, '48 (mathematics), of Atherton, Calif., June 18, at 93. She and her husband owned and co-managed a home construction company known for building midcentury modern homes. She was also a devoted swim mother, PTA leader and high school sports booster. She volunteered at Stanford's Children's Hospital, was a docent at the Filoli historic house and gardens, and cheered many Stanford football and basketball games in person. She was predeceased by her husband of 63 years, Bob, MS '48. Survivors: her children, Carol Procter Collins, '83, MS '85, and Glenn, '77; and three granddaughters.

Lila Joan Spitzer Cerf, '49 (communication), of Piedmont, Calif., September 10, at 92. She was in the Gaieties. An internship as a travel writer in Mexico City led to her first job after graduation with *Sunset* magazine. She was passionate about self-improvement throughout her life, particularly in her favorite pastimes of tennis, golf and bridge. She was predeceased by her husband of 66 years, Alan, PhD '56. Survivors: her children, Robert, Douglas, Jeffery, Richard and Nancy; 11 grandchildren, including Jake, '12; five great-grandchildren; and sister.

Warren Douglass Noteware, '49 (civil engineering), of Stockton, Calif., April 16, at 94. He was a member of the flying club at Stanford and served in the Navy during World War II. He toured Europe and North Africa by bicycle for a year after graduation, then took charge of the family farm and ranch. He opened his own engineering firm in Manteca, Calif., in 1971. He was appointed to the California Water Resources Board in 1982 and later to the California Energy Commission. He was predeceased by his wife of 50 years, Marguerite. Survivors: his sons, James, '74, Brian and Fred; seven grandchildren; and two great-granddaughters.

Marilyn Cox Titus, '49 (education), of Arroyo Grande, Calif., September 19, at 93, after a long illness. She was a member of the Rally Committee and Cap and Gown. She initially taught in San Francisco schools and later worked at CSU Northridge and Rancho Los Amigos Hospital. She also served her community as an active volunteer for Children's Hospital Los Angeles, YMCA, PEO and other civic groups. She was predeceased by her husband of 55 years, Mickey, '50. Survivors: her children, Kathi, Sue Prock, David, Colleen Martin and Pat; seven grandchildren; and four great-grandchildren.

Ransom Buck Turner, '49 (basic medical sciences), MD '53, of Santa Rosa, Calif., August 15, at 94. He served in the Army during World War II. At Stanford, he was a member of Delta Chi. He practiced medicine for more than 40 years. He served as president of the California Academy of Family Physicians and held related posts at the state and national levels. He was predeceased by his first wife, Mary (Robertson, '52); second wife, Marilyn; and son, Daniel, '85. Survivors: his daughters, Jan, Carol Turner Courville, '81, and Beth Turner Proudfoot, '79; stepchildren, Lisa Sonnenburg, Eric Anderson, Kristen Anderson and Kurt Anderson; 11 grandchildren; and two great-grandchildren.

1950s

F. Gregg Bemis Jr., '50 (economics), of Santa Fe, N.M., May 21, at 91, of cancer. He was on the rugby team. After graduation, he served in the Marine Corps during the Korean War, then earned his MBA from Harvard. He was a corporate executive for 25 years and then a venture capitalist, but he found his true passion in 1982 when he bought the wreck of the *Lusitania* for £1,000. He undertook a diving expedition that returned artifacts, but legal

wrangling with the Irish government prevented him from solving the long mystery of the ship's quick sinking from a single torpedo. Survivors: his wife, Lisa (Thacker, '52); and children, including Stephani Bemis Coppola, '84.

Ann W. Hutchinson Gordon, '50 (English), of Dayton, Ohio, October 12, at 92. She worked first in New York City and then Beirut, where she earned her MA and taught at the American U. of Beirut. In 1975, she brought her family from Beirut to Princeton, N.J., before settling in Ohio. She was an avid reader of modern fiction and a fierce tennis player. She was predeceased by her first husband, David; and second husband, Eugene Aleinikoff. Survivors: her children, Matthew and Victoria; and two grandchildren.

Jean Louise Harzfeld Inglis, '50 (communication), of Menlo Park, August 16, at 91. Her first job was with the *Menlo Park Recorder*. She then utilized her journalism skills as a newsletter editor for local schools, Menlo Park Presbyterian Church and the Orton Society. She also worked to help dyslexic children through what is now the International Dyslexic Association. She was a lifelong advocate of physical fitness and a healthy diet, anticipating the fitness boom of the '60s by a decade. She was predeceased by her husband, John; and her son John Arthur. Survivors: her sons Christopher and James and their families.

Theodore Marion Noble Jr., '50, MA '50 (education), of Lincoln, Calif., August 5, at 94. He was a member of Theta Xi. He joined the Air Force and served for 23 years, including as a pilot in the Korean War, and retired at the rank of lieutenant colonel. He then taught middle school math and science in Hillsborough, Calif., for 24 years. Retirement brought him the opportunity to build his dream home, complete with a backyard four-hole golf course. Survivors: his wife, Lynn; children; and grandchildren.

Kathryn Aileen Cohrt Crockett, '51 (history), of Mitchell, S.D., September 13, at 91. Her first job was with the United Nations. After living in Germany and Michigan, she raised her family in Hawaii. She pursued an MBA from the U. of Hawaii and worked as a project director for the J. Walter Cameron Center and also supported numerous cultural and arts organizations. After returning to her family home in 1991, her primary passion was working with the Mitchell Area Historical Society. She was predeceased by her son, Arthur. Survivors: her daughter, Claire F. Crockett-Shaw; and grandson.

Charles "Sandy" Mansfield Rockwell Jr., '52 (civil engineering), of Fairfield, Calif., November 2, at 90, of Alzheimer's disease. He was a member of Phi Sigma Kappa and Navy ROTC. He met his sweetheart and dance partner at the university, served in the Navy during the Korean War, and then returned to complete his degree and marry in Memorial Church. As head engineer for the Santa Clara County parks department, he helped design and build most of the city's parks. He was predeceased by his wife of 68 years, Velma (Smoot, '55). Survivors: his children, Jennifer Doherty, John, '78, and Lauree Carpenter; five grandchildren; and great-granddaughter.

Anne Louise Horney Bentrott Wise, '52 (social science/social thought), of Seattle, October 26, at 89. She was one of the first female residential Realtors in West Seattle and became one of the most successful. Later in life, she was able to build her dream home on Puget Sound and travel the world. She was predeceased by her first husband, of 24 years, Boyd Bentrott; and second husband, of 30 years, Ken Wise. Survivors: her

children, Martin, Bryan, '83, Robert and Tom; 13 grandchildren, including Bryan, '06, and Mark, '10; and four great-grandchildren.

James W. Barnett, '53 (economics), of Belvedere, Calif. He was a member of Phi Gamma Delta and served in the Army during the Korean War. He began in the family business as a teller at Santa Rosa Savings, was branch manager at Tamalpais Savings and later was head of New Horizons Savings in San Rafael. He enjoyed playing tennis and golf, skiing, swimming and hiking. Although he traveled extensively, his favorite places were Inverness and West Marin. Survivors: his wife, Jean (Marsh '53); sons, Charlie and Michael; and two grandchildren.

David Jay Dahl, '53 (biological sciences), MD '56, of Pasadena, Calif., June 20, at 89. He was a member of Phi Sigma Kappa. After his internship in New York City and residency in San Francisco, he served in the Army Medical Corps in Germany. In private practice, he was on staff at Huntington Memorial Hospital for more than 30 years, ultimately serving as chief of staff and chief of surgery. He helped train resident physicians at the Huntington Memorial Hospital and also served as a state surgical inspector. He shared his love of the outdoors and physical activity with his family. Survivors: his wife of 65 years, Annabelle (Horchitz, '55); children, James, Susan, Gregory and Janet; six grandchildren; and stepgrandson.

John Erick Mack Jr., '54, MS '59 (geology), of Palo Alto, June 16, at 88. He was a member of the track and football teams and Zeta Psi. He served in the Navy after graduation. During his 40 years with Union Oil, he rose from a field geologist in Guatemala to a senior executive in oil and gas and geothermal energy. He was an avid backpacker, fly fisherman, skier and supporter of the Boy Scouts. He was predeceased by his first wife, Margaret (Dickson, '54, MA '55). Survivors: his wife of 21 years, Marion (Worthington, '54); children, John III, '81, Carter, Laurie Rohrbach and Peter; three stepchildren; 14 grandchildren; one great-grandchild; and sister, Laurie Mack McBride, '61.

John Roland Stahr, '54 (Latin American studies), of Newport Beach, Calif., October 14, at 87. He was the manager for all student clubs and a member of Navy ROTC, the crew team and Alpha Kappa Lambda. After serving in the Navy, he earned his LLB from Harvard and practiced in Los Angeles and Orange County with Latham & Watkins. He served for more than 30 years on the board of the Pacific Symphony and for many years on the board of the Hoover Institution. Survivors: his wife of 65 years, Elizabeth (Dempster, '55); children, Walter, '79, Fritz, '81, Gretchen Stahr Breunig, '86, and Karen; and five grandchildren, including Clancey, '15.

Charlotte Ann Fleisher, '55 (biological sciences), of Goleta, Calif., April 28, at 88. After raising her family in Albuquerque, N.M., and Goleta, she earned a master's degree in marriage and family counseling from Cal Poly San Luis Obispo. She worked as a counselor for Planned Parenthood, at a halfway house for people recovering from mental illness and in private practice. She loved to travel and especially delighted in the art galleries of London, Paris and Amsterdam. Survivors: her husband of 68 years, Robert, MA '55; children, Robert Jr., John and Kathleen Hansel; and two grandchildren.

Jeremy Ann "Jere" Hamilton Hutchinson, '55 (education), of Bend, Ore., May 13, at 87. She initially taught elementary school in La Cañada, Calif. She raised her family in Southern California, Iowa and Arizona. Wherever she lived, she owned horses,

and her favorite pastime was riding with friends and family. She was predeceased by her husband, William, '53, MS '57. Survivors: her children, Jenifer and Thomas; and three grandchildren.

Velma Jean Smoot Rockwell, '55, of Fairfield, Calif., August 26, at 86. She created a home for her family in the South Bay. She found joy in dancing, sewing, writing poetry, traveling and beachcombing, and she loved teaching others how to find their own joy. She was an active member of Sunnyvale Presbyterian Church. Her husband of 68 years, Charles, '52, died shortly after her. Survivors: her children, Jennifer Doherty, John, '78, and Lauree Carpenter; five grandchildren; great-granddaughter; and sister.

William Benjamin Rogers Jr., '55 (economics), of Fresno, Calif., October 24, at 87, of peritoneal mesothelioma. He pledged Beta Theta Pi, played rugby and football and ran for a 96-yard touchdown in 1952, still the university record. He was a stockbroker with Sutro & Co. and an art gallery owner. With his brothers, he was also a vintner in Madera, Calif. In retirement, he served on the Fresno County grand jury but continued to find time for Stanford reunions and tailgating during football season. Survivors: his wife of 65 years, Chris (Johnson, '54, MA '55); children, Rick and Kristen; four grandchildren; and two great-grandchildren.

Dixon Bogue Smith, '55 (chemical engineering), of Santa Rosa, Calif., at 87. After graduation, he served in the Navy. At Standard Oil (now Chevron), he rose to become one of the company's 50 top executives. He discovered a passion for rugby as a student and pursued it all his life as a player, referee, international referee evaluator and co-founder of the Hawaii Harlequins Rugby Football Club. He also enjoyed hiking, running, mountain climbing, skiing, opera, history and genealogy. Survivors: his wife of 24 years, Christine; children, William, Gwen Judd, Abigail Lowe, Dixon Jr. and Aurora Sprenger; and three siblings.

Lynn Atterbury Venrick, '55 (art), of Naples, Fla., October 7, 2019, at 85. She was in the Gaieties. She was a talented portrait artist and also enjoyed repainting the works of old masters.

Terry Maurice Badger, '56 (chemical engineering), of Escondido, Calif., August 9, at 86. He was a member of Sigma Alpha Epsilon and Navy ROTC. After graduation, he trained as a Navy helicopter pilot. He retired from the Naval Reserves after 30 years at the rank of captain. In civilian life, he worked as a sales engineer in the aerospace industry. In retirement, he became a gym sports director and taught racquetball. He enjoyed hiking, bridge and church and community service. He also co-chaired two Class of '56 reunions. Survivors: his wife of 63 years, Lynn (Lercara, '56); and children, Cara Chase and Craig; and three grandchildren.

William Smith Clark, '56 (humanities), of Walnut Creek, Calif., August 28, at 86. He was on the boxing, soccer and golf teams. He served in the Navy after graduation, then earned his law degree from UC Hastings. He first worked at his father's firm, then served as a state deputy district attorney. At the Church of St. Mary of the Immaculate Conception, he was an adult education teacher, parish council member and liturgy committee co-founder, and he actively supported the Cursillo movement for many years. He was predeceased by his wife, Laura; and son, Bill. Survivors: his daughter, Laurie; and three grandsons.

Bart McClain Schouweiler, '56 (history), of Reno, Nev., September 10, at 86. He pledged Delta Kappa Epsilon. After graduation, he earned his LLB from Georgetown and served in the Air Force

as a judge advocate. He was elected to the Nevada State Assembly twice and served as U.S. attorney for the district of Nevada. He later worked in private practice in Reno for more than 50 years. He was involved with numerous professional, charitable, fraternal and political organizations. Survivors: his wife, LaVonne Douthit.

Sharon Lee Davin Skinner, '56 (history), of Los Osos, Calif., August 16, at 86, of chronic inflammatory demyelinating polyneuropathy. She raised her family in New York City, Princeton, N.J., and Mexico City. After returning to California, she was a production manager at Impact Publishers in San Luis Obispo for 15 years. She was an ardent fan of Stanford football and enjoyed growing flowers, sewing, knitting and interior decorating. Survivors: her husband, James, '56; sons, Brian, Mark and Blain; and two grandsons.

John Kenneth Stewart Jr., '56 (history), of San Francisco, September 5, at 86, of cancer. He played football, ran track and was a member of Beta Theta Pi. He worked for TRW for 15 years, where he discovered a talent and passion for planning and developing affordable housing. In 1978, he launched his own housing management and development firm, which grew to 1,500 employees. He also served on the boards of the Low Income Investment Fund, Mercy Housing, Habitat for Humanity and SPUR. Survivors: his wife of 40 years, Augusta; former wife, Shannon Wilson; children, Sarah, Jennifer and John; two grandchildren; sister; and two stepsisters.

Ronald Robertus Henry Witort, '56 (history), of Modesto, Calif., September 13, at 85, of heart disease. He served in the Air Force. After earning his MA in education from San Jose State, he taught in Mountain View and helped introduce computers to the classroom in the 1980s. He later taught in

the education program at Stanislaus State. He was also an avid golfer and reader. Survivors: his wife of 63 years, Beverly, '56, MA '57; children, Chris, Laurie Leonard, Carrie Holgate and Tim; 15 grandchildren; three great-grandchildren; and half-sister.

Robert Earl Carroll, '57 (biological sciences), of Westport, N.Y., October 5, at 85, of cancer. At Stanford, he was co-chair for a homecoming float that won the prize for humor; the real punchline was that he married the other co-chair. He earned his MD from Albany Medical College and MPH from Harvard. He served in the Commissioned Corps of the U.S. Public Health Service, and was professor of preventive and community medicine and department chair at Albany Medical Center. Survivors: his wife of 63 years, Diane (Rogers, '56); sons, James and Lawrence; eight grandchildren; three great-grandchildren; stepbrother; and half-sister.

Peter Hall LaChapelle, '58 (economics), of Oakland, November 3, at 84. He was a member of the basketball and baseball teams and Beta Theta Pi. He earned his LLB from Lincoln Law School in San Jose and spent 30 years as a deputy district attorney for Alameda County. But his true passion for more than 45 years was coaching baseball teams of all levels, including many years as assistant coach at Piedmont High School. Survivors: his wife of 43 years, Barbara; children, Steve, Tracy, Tom and Erik; stepchildren, Suzanne Heske and Jeffrey Cathrall; four grandchildren; and four stepgrandchildren.

George Fred Wieland, '58 (psychology), of Ann Arbor, Mich., September 29, at 84. He earned his PhD in sociology from the U. of Michigan, then worked as a study director at its Institute for Social Research and later as an associate research scientist at its School of Public Health. He also held positions at the University of London and Vanderbilt. He wrote and edited several social psychology

textbooks, as well as popular volumes about the culture of Swabian Germans and German Americans. He also enjoyed contra dance. Survivors: his children, Susan, Sandra, Mike and Patience; three grandchildren; and brother.

Catherine Monnier Minock Wilfert-Katz, '58 (biological sciences), of Chapel Hill, N.C., September 13, at 84, of idiopathic pulmonary fibrosis. She was a member of Cap and Gown and the swim team. After earning her MD from Harvard, she joined the medical faculty at Duke. As chief of pediatric infectious diseases, she led research on pediatric HIV that led to a 90% reduction in mother-to-child transmission in North Carolina, followed by similar efforts nationally and globally. She was also a competitive tennis player and runner, an avid gardener and a talented photographer. Survivors: her husband, Samuel Katz; daughters, Katie Wilfert Regen, '89, and Rachel; and brother, Michael, '60.

Gayle Elaine Henderson Kierulff, '59 (sociology), of Bellevue, Wash., June 13, at 82. She worked as an administrative assistant and marketing coordinator for Sunkist and for a physical therapy practice. While raising her family, she continued to sharpen her needlepoint skills and pursue her love of sports, particularly baseball. Survivors: her former husband, Herbert, '59; children, Kathryn Wickward, Elizabeth Whiting and James; and four grandchildren.

1960s

Cynthia Lee Allen Passaro, '60 (art), of La Selva Beach, Calif., September 18, at 82, of congestive heart failure. She raised her children in Highland Park, Ill., and returned to California in 1989. She was a talented artist and managed the La Selva Beach art fair for many years. She was also an avid gardener and symphony lover and a force to be reckoned with in Scrabble. She was

Neuroscientist Who Studied the Biology of Human Conflict

When Emile Bruneau, '94, emerged from his first brain surgery in 2019, he asked his wife, Stephanie, to record him as he discussed intergroup conflict so he wouldn't forget the ideas he had while under anesthesia.

"He was so happy to be able to still think," she recalls.

Bruneau, a neuroscientist and peace activist who studied the science behind violence and conflict, died at home in Philadelphia on September 30 of brain cancer. He was 47.



Bruneau, founder of the Peace and Conflict Neuroscience Lab at the University of Pennsylvania, spent years traveling to regions of intense conflict around the world. His early work focused on hostilities against Europe's Roma population and between Israelis and Palestinians; more recently, he'd shifted to violence and political polarization in the United States. Despite differences in religion, history, language and more, each of the marginalized groups said they felt treated as if they were less than human.

"If you remove humanity from another group," Bruneau said in a video recording last year, "maybe that removes a stop on your violence toward them." Bruneau's study of dehumanization was important in showing that the tendency to view the "other"—whether Muslims, homeless people or political adversaries—as subhuman is a strong predictor of group violence.

Bruneau also discovered that different regions of the brain are activated when people make dehumanizing judgments about marginalized groups as opposed to judgments of mere dislike.

He hoped that by examining the biological roots of conflict, his research could inform the development of effective interventions to

change how people respond to groups they perceive as being less than fully human.

"He was a true pioneer, pushing the boundaries of science to be concerned about real-world impact," says Tim Phillips, who founded Beyond Conflict, a nonprofit organization where Bruneau served as lead scientist.

Bruneau was born at Stanford Hospital. Not long afterward, his mother developed schizophrenia. Her struggles, he later explained, inspired one of his central professional interests: empathy.

As an undergraduate, Bruneau studied human biology and played rugby. He later coached the Stanford women's rugby team and volunteered in high-conflict zones, including newly post-apartheid South Africa and "troubles"-era Ireland. He earned a PhD in neuroscience at the University of Michigan and was a postdoctoral fellow at MIT before joining the Penn faculty in 2015.

"A lot of us try to be our best selves," Stephanie says. "Emile is the only person I know who really did that every day."

Bruneau, who was buried in his Stanford rugby jersey, is survived by his wife; children, Clara and Atticus; father, Bill; stepmother, Betsy (Yost), '65; and stepsister, Heather Jeavons McLeod, '95.

—Rebecca Beyer

predeceased by her son, Douglas, '84. Survivors: her children, Leslie Lyon and Michele Singer; and former husband, Lanny, '59, MBA '65.

Allan Engel DeFraga, '62 (political science), of Martinez, Calif., in May 2018. He was a member of the freshman football team and Delta Chi. After earning his JD from UC Hastings, he practiced law for 38 years. He was an avid sports fan and bridge player, a passionate bocce player and theater attendee, and he loved to travel. He was predeceased by his wife of 47 years, Ann (Stark, '65). Survivors: his son, Matt; three grandchildren; and brother, Donald, '67.

Peter Johnson Musto, '63 (economics), of San Francisco, September 5, at 79, of heart disease. He worked first for Coldwell Banker, then entered the family real estate management business. He was head usher at the Episcopal Church of St. Mary the Virgin and a member of the Order of St. John. He also served as board director for the Society of California Pioneers and was a significant supporter of the San Francisco Opera and Ballet. Survivors: his longtime companion, Peter Gilliam; and sister.

William J. Rorabaugh, '68 (history), of Seattle, March 19, at 74, of lymphoma. He wrote for the *Daily*. He earned his PhD from UC Berkeley and taught for 43 years at the U. of Washington. He published numerous books and articles on the history of the early American republic and on the culture and politics of the 1960s. He was a fellow of the Newberry Library, Huntington Library, National Endowment for the Humanities, National Humanities Center and Kennedy Library. He also enjoyed photography and the fine arts. Survivors: his two siblings.

1970s

Thomas Eugene Snyder, '70 (chemistry), MD '76, PhD '78 (medical neurosciences), of Wellesley Hills, Mass., November 1, at 72. He was a member of Phi Kappa Sigma. He completed a residency in psychiatry at Tufts Medical Center in Boston and later founded Emotion Mining Co. to advance his goal of studying and measuring subconscious motivation. He loved introducing his children to sports as a way to teach an appreciation for competition, fair play and camaraderie. He was predeceased by his son Geoffrey. Survivors: his wife of 45 years, Jennifer; children Caitlin Burke and John; granddaughter; and two brothers.

Thomas Hazard Roe Gurnee III, '72 (economics), of Reno, Nev., August 16, at 69, of cancer. He was a member of Phi Kappa Sigma and the golf team. His year with Stanford in Germany was the precursor to future international travel. After earning his MBA from Santa Clara U., he worked for Varian in Brazil, moved to Singapore three times, worked in France for Schlumberger, and moved to China to handle IPOs for Sohu and Xinyuan. In Reno, he developed real estate and helped save the ArrowCreek Country Club from bankruptcy. Survivors: his wife, Jeanne Ackley; sons, Evan and Connor; grandson; and three siblings.

William Cornelius Weeks, '72 (psychology), of Seattle, August 22, at 69, of sudden cardiac arrest. After graduation, he worked for Stanford Linear Accelerator Center (SLAC) for 35 years as a programmer and systems analyst, primarily working on offline mass data storage technology. He enjoyed playing analytical games and solving puzzles, reading and following team sports. As an athlete, he loved to run, hike and play tennis and golf. In retirement, he enjoyed the scenic beauty of the Pacific Northwest. Survivors: his partner of 28 years, Melanie; and three siblings, including Charles, MFA '70, and John, '72.

Susan Ann Myers DePrez, '73 (history), of Highlands Ranch, Colo., June 18, at 68, of osteosarcoma. She was a member of Cap and Gown and the Dollies and a summer intern in the White House Office of Communications. After earning her JD from Loyola Marymount, she worked in the office of the state deputy attorney general. Later she served as legal counsel for Fluor Corp. and the Times Mirror Co. She was the Class of '73 class correspondent for 19 years. Central to her faith life was a community of Catholic couples that met regularly to study and to share their blessings and challenges. Survivors: her husband, Greg, '73; children, Stephanie and Danny; and sister.

John Edward Ferris, '73 (English), of Prague, September 13, at 71, of cancer. He was a member of the swim and water polo teams and Beta Theta Pi. He entered the university holding a world record in swimming and added two Olympic bronze medals and an NCAA championship before graduation. After graduation, his entrepreneurial career took him to French Polynesia, Newfoundland, England, Ireland, Portugal, Albania, Croatia, Istanbul, Paris, Addis Ababa and Prague. His endeavors included opening a tourist resort, collaborating with a Dutch botanist to innovate the floral business, founding a restaurant, writing novels and starting an English-language school for Chinese students. Survivors include his sister.

Richard Paul Wetzig, '75 (human biology), of Colorado Springs, Colo., August 24, at 67, of cardiac arrest. He was a member of Alpha Delta Phi. After medical school at the U. of Colorado, he completed his internship and residency, followed by fellowships at Harvard and the National Eye Institute. He then joined the department of ophthalmology at the U. of Colorado Health Sciences Center. He was also in private practice in partnership with his father and brother. He was a member of the American Academy of Ophthalmology, the American Uveitis Society, and numerous local committees and advisory boards. Survivors: his daughters, Natalie and Yvonne; former wife, Melissa; mother, Doreen; and two sisters.

Lewis Wohlford Butler, '79 (civil engineering), of San Francisco, September 17, at 63, of esophageal cancer. He played goalie on the soccer team and was senior class president. He earned a master's degree in architecture from Harvard and led his own firm, Butler Armsden, for 35 years as it gained a reputation for inventive modernist architecture. His Valley of the Moon Retreat, a home in Sonoma, received the 2016 American Institute of Architects Award. He also enjoyed surfing and tinkering with vintage British motorcycles. Survivors: his wife of 37 years, Catherine Armsden; children, Elena and Tobias; father, Lewis, LLB '51; and sisters, Lucy, '78, and Serra Butler Simbeck, MA '92.

1980s

Brenda Jay Rinehart, '81 (art), of Portland, Ore., January 9, 2020, at 89. She was diagnosed with bipolar disorder as an undergraduate, but thanks to the support of a wide circle of friends, she faced the challenge with courage and resolve and pursued her interests in artwork, sewing, volunteer service and her church community. Survivors: her eight siblings.

Timothy Tully Scott, '81 (English), of Portola Valley, Calif., September 5, at 61, of urothelial cancer. He earned his JD from the U. of Chicago. As an attorney specializing in business law, he became hiring partner and chair of the litigation department at Wilson Sonsini and then chair of the litigation practice at Sidley Austin. He retired as

managing partner of King & Spalding's Silicon Valley office. He cultivated diverse interests, including painting, photography, cooking, travel, reading and writing. Survivors: his wife of 27 years, Joye; children, Jennifer and Michael; mother, Ann; and two brothers.

Byron W. Jeong, '83 (economics), of Noto, Italy, June 19, at 58, of cancer. He was a member of Kappa Sigma. After graduation, he toured the world with Up With People. On his return, he worked for Apple to recruit and manage channel partners in Asia. He also worked for Knight Ridder, in modeling and as an entrepreneur in home decor. For the last several years, he put all his efforts into building an environmentally friendly modern glass house as a retreat on an olive farm in the hills of Sicily. Survivors: his two sisters.

Donna Ellen Westmoreland Grundberg, '85 (history and anthropology), of Brentwood, Tenn., October 6, at 57, of pancreatic cancer. She was a member of Kappa Alpha Theta. After graduation, she worked at the Smithsonian. She raised her family in Chicago and San Diego before settling in Brentwood. She was a special needs teaching assistant at Woodland Middle School, where she was honored as employee of the year in 2018.

She loved hiking, walking with friends and running in road races. She was also a devoted member of Brentwood Baptist Church and several Bible study groups. Survivors: her husband of 29 years, Jim, '83; children, Ryan, Drew, Eleanor and Joseph; parents, Don and Leta Westmoreland; and two siblings.

Katherine Anne Munter, '87 (English and French literature), of San Francisco, August 18, at 54, of diabetes. She was a member of Pi Beta Phi. After graduation, she worked as a clerk for the U.S. Tax Court. She returned to the Bay Area to earn her JD at UC Hastings. She started her legal career at Gordon & Rees and later worked at Phillips Spallas & Angstadt. She also served on the San Francisco Commission on the Status of Women and as a board member for Catholic Charities and the Tel Hi Neighborhood Center. She also mentored many young women looking to advance their professional careers. Survivors: her mother, Helen; and two sisters, including Patricia, '90.

Michael Scott Weersing, '87 (English), of Mount Lyford, New Zealand, November 12, at 55. He traveled to New Zealand in 1996 and, with a partner, transformed a sheep farm into a biodynamic winery, Pyramid Valley Vineyards. The two co-founders helped innovate the country's wine industry and received worldwide attention for the wines they produced. Survivors: his mother, Mary, '61; and three siblings, including Susan, '84.

EDUCATION

George Edward Rudloff, MA '49, EdD '55, of Newport Beach, Calif., June 2, at 96. He served in the Army Air Corps during World War II. In 1962, he earned an MPH degree from UC Berkeley. He taught high school in San Jose and college courses at San Jose State and San Francisco State before becoming one of the founding professors at Sonoma State. He was a successful swimming and water polo coach and also won multiple national titles as a masters swimmer, including six gold medals at age 92. He was predeceased by his son Robert. Survivors: his wife, Loralynn; children Carol, Ed and Jim; and eight grandchildren.

ENGINEERING

Govind Swarup, PhD '61 (electrical engineering), of Pune, India, September 7, at 91. He was known as the father of Indian radio astronomy for his

contributions in several areas of astronomy and astrophysics. He joined the Tata Institute of Fundamental Research in 1963 and was named professor of eminence in 1989. He was the lead scientist in the design and installation of the Ooty Radio Telescope and the Giant Metrewave Radio Telescope. He was also director of the National Centre for Radio Astrophysics and a fellow of the Royal Society. Survivors: his wife, Bina; children, Anju Basu and Vipin; and brother.

Jackie Ondra Bunting, PhD '67 (aerospace engineering), of Bozeman, Mont., November 14, at 82, of Alzheimer's disease. He had a rewarding career with Lockheed Martin in the space program. In retirement, he continued to enjoy exploring new technologies, traveling, skiing and spending time with family and friends. Survivors: his wife, Jane; children, Michelle Howard and Rad; three grandchildren; and brother.

Stephen Whatley Guin, MS '82 (civil engineering), of New Orleans, April 25, at 64, of cancer. He worked in California, Florida, and Louisiana as a project manager and consultant in engineering, construction, real estate development and construction finance. He enjoyed reading and discussing philosophy, religion, literature and political economics. He also loved sport fishing, hiking, biking, birding, and especially international travel and snorkeling. Survivors: his children, Caroline and Daniel; sister; and brother, David, '80.

Jefferson Reyes Cartano, MS '96 (operations research), of Livingston, N.J., August 24, at 47, of cardiac arrest. He taught physics and engineering at the County College of Morris for 10 years and was a PhD candidate in engineering communication at the U. of the Philippines. As a teacher, he was known for caring, motivating and encouraging his students. Survivors: his wife, Maria Christina; son, Rocco; mother, Noemi; and three siblings.

HUMANITIES AND SCIENCES

Leonard Foster Gardner, MA '50 (history), of Palmyra, Va., August 30, at 98. He served on the USS *Reid* during World War II and was a survivor of Pearl Harbor. After a career with the federal government, he moved to Lake Monticello, Va., where he started a newspaper, served on the county board and held posts on numerous boards and commissions. Survivors: his wife of 73 years, Doris; children, Rim, Carol Sherry, Margie Southard and Susan; 10 grandchildren; and eight great-grandchildren.

Joyce Hawkins Wagner, Gr. '52 (history), of Wenham, Mass., December 29, 2019, at 92, of Alzheimer's disease. She taught school in Palo Alto and Newton, Mass., and later worked as a book editor in Boston. She was president of the Friends of the Wenham Public Library, served on the board of the Wenham Housing Authority, worked with the League of Women Voters, taught Sunday School, led a Girl Scout troop and coached a girls' softball team. She also enjoyed playing piano, guitar and trombone. She was predeceased by her husband, Alfred. Survivors: her children, David, Robert and Elizabeth; three grandchildren; and sister.

Warren Lee Meinhardt, MA '55 (Spanish), of Gibson City, Ill., June 1, at 89. He earned his PhD in Romance languages from UC Berkeley. He taught at the U. of Illinois for 10 years and then for more than 30 years at Southern Illinois University, Carbondale. He was a lifelong stamp collector and especially enjoyed his time traveling in Mexico, Spain, Ecuador and Peru. Survivors: his wife of 67 years, Joan; children, Leland, Edmund, Laura Hazen and Glenn; seven grandchildren; two step-grandchildren; and six great-grandchildren.

Robert Meloy Ady, MS '64 (statistics), of Los Altos, September 23, at 92, of metabolic encephalopathy. He served in the Navy. During his career in electronics and systems engineering, he worked on sonar, radar, and satellite communications for Sylvania, Applied Technology, Ford Aerospace, Deskin Research Group, Boeing and General Dynamics. He played a significant role in developing GPS technology. He was also an accomplished swimmer and scuba diver and an avid tennis player. Survivors: his wife of 69 years, Barbara; sons, Piers, Byron and Giles; six grandchildren; great-grandchild; and two siblings.

Philip Carroll McGuire, MA '66, PhD '68 (English), of East Lansing, Mich., February 9, 2020, at 80, of cancer. He taught Renaissance literature at Michigan State U. for 40 years and served as English department chair. He published two books, co-edited a third on Shakespeare and was the author of numerous articles and chapters. He held grants from the National Endowment for the Humanities and Folger Shakespeare Library and was twice a visiting professor in England. Survivors: his wife, Penelope; children, Lucy and Emmet; two grandsons; and six siblings.

Ann Hillyer Rosenthal Metcalf, MA '69, PhD '75 (anthropology), of Kensington, Calif., September 13, at 80. She was professor emerita of anthropology and Edward Hohfeld Chair in American Studies at Mills College. She previously held positions at UC Berkeley, the U. of Washington and the Institute for Scientific Analysis. Her research focused on the status of women, child development and Native American studies, and she was awarded two National Science Foundation fellowships. She was an avid reader of Jane Austen, Stephen King and everything in between. Survivors: her sons, Stephen Rosenthal and David Rosenthal; and three grandchildren.

Richard S. Preisler, PhD '80 (biological sciences), of Reisterstown, Md., June 2, at 68, of progressive supranuclear palsy. His academic career at Towson U. spanned 35 years as a chemistry professor and department chair. He loved learning and teaching. The most important things to him were classical music, family, reading, literature and the value of integrity. Survivors: his wife of 27 years, Barbara; daughter, Shelley; mother, Florence; and sister.

Allison Anne Vana, MA '98 (political science), of Pasadena, Calif., August 9, at 45. She earned her JD from the U. of Illinois and was an associate at Meserve, Mumper & Hughes. She focused on insurance litigation relating to life, health and disability policies. She excelled at research and drafting motions and gave time to pro bono work. She loved the arts and traveling and was fiercely loyal to those she cared for. Survivors: her parents, Andrew and Mary; and two siblings.

LAW

David Arthur Binder, LLB '59, of Los Angeles, September 15, at 86. He was emeritus distinguished professor of law at UCLA, where he was on the faculty for more than 50 years and was honored with each of the university's three major teaching awards. He was a pioneer of clinical legal education and co-author of eight books on legal conceptual frameworks and practical skills. He spent many summers teaching courses on American law at universities in China. He was an avid golfer and also loved trekking in Nepal, Japan, Kyrgyzstan, Switzerland and Peru. He was predeceased by his wife of 59 years, Melinda. Survivors: his three grandchildren; and two great-grandchildren.

Osborne Mackie Reynolds Jr., LLM '65, of Norman, Okla., September 4, at 80. He earned a doctorate in juridical science from Southern Methodist U. In 1968, he joined the faculty of the U. of Oklahoma, where he was Maurice Merrill Distinguished Scholar and professor of law emeritus. He also held visiting appointments at Southern Methodist U. and Vanderbilt. He was the author of *Local Government Law* and numerous legal articles and other works. He enjoyed travel and visited more than 100 countries and all seven continents.

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Driven Snow

Was I in charge of the PistenBully, or was it the other way around?

A GLEAMING HULK of a thing, smacking of horsepower, the PistenBully is all brawny elegance. It's a boxy contraption, loud and cumbersome, but in the right hands it can finesse snow into glittering cross-country ski trails. Mine, I was sure, would be such hands.

Grooming trails is a solitary pursuit, executed at night, when temperatures fall. While skiers sleep, groomers coax various attachments fore and aft on the PistenBully into sculpting trails into the silky, ribbed platform skiers call corduroy, for skate skiing, and parallel tracks for classic skiing. Then they ghost home to sleep off the satisfying exertion of performing magic.

For years, my husband, the trails manager for North America's largest cross-country trails system, had been nudging me to join him on a grooming stint. A kid-free date night in the cozy cabin of a PistenBully? Sign me up. With a midnight start time? Not a chance. But turning 50 the year before made me more open to new experiences. Aging, paradoxically, rejuvenated me. We put it on the calendar.

On a cloudless night on the cusp of the vernal equinox, I arrived at the storage shed

thinking we would climb into the PistenBully, put on some tunes and knock out perfection for tomorrow's skiers. But first, my husband said, there were a buzzkilling number of fluids to check. I nodded and mm-hmmed as we checked the gauges, and then I sprang into the cab as soon as he gave me the go-ahead. All that time I wasted playing *Pole Position* in the 1980s was about to bear fruit.

Inside, I got a crash course in heavy machinery, as my husband demonstrated the joystick, used for steering, along with switches, levers, dials, pedals and other thingamajigs, and gave me specific instructions, like "When you want to blah blah blah, you switch the mumble-jumble to (indecipherable word)."

"Got it," I told him, and practically pushed him out of the driver's seat. Less talk, more action.

Thirty seconds later, I found myself in a battle of wills with the joystick, struggling to wrestle the PistenBully into submission as it fishtailed across the trail. The tracks behind the machine were parallel but squiggly, like I'd been laying rubber on asphalt, but white. Riding shotgun, my husband held his tongue. I carved a kilometer of serpentine, unskiable

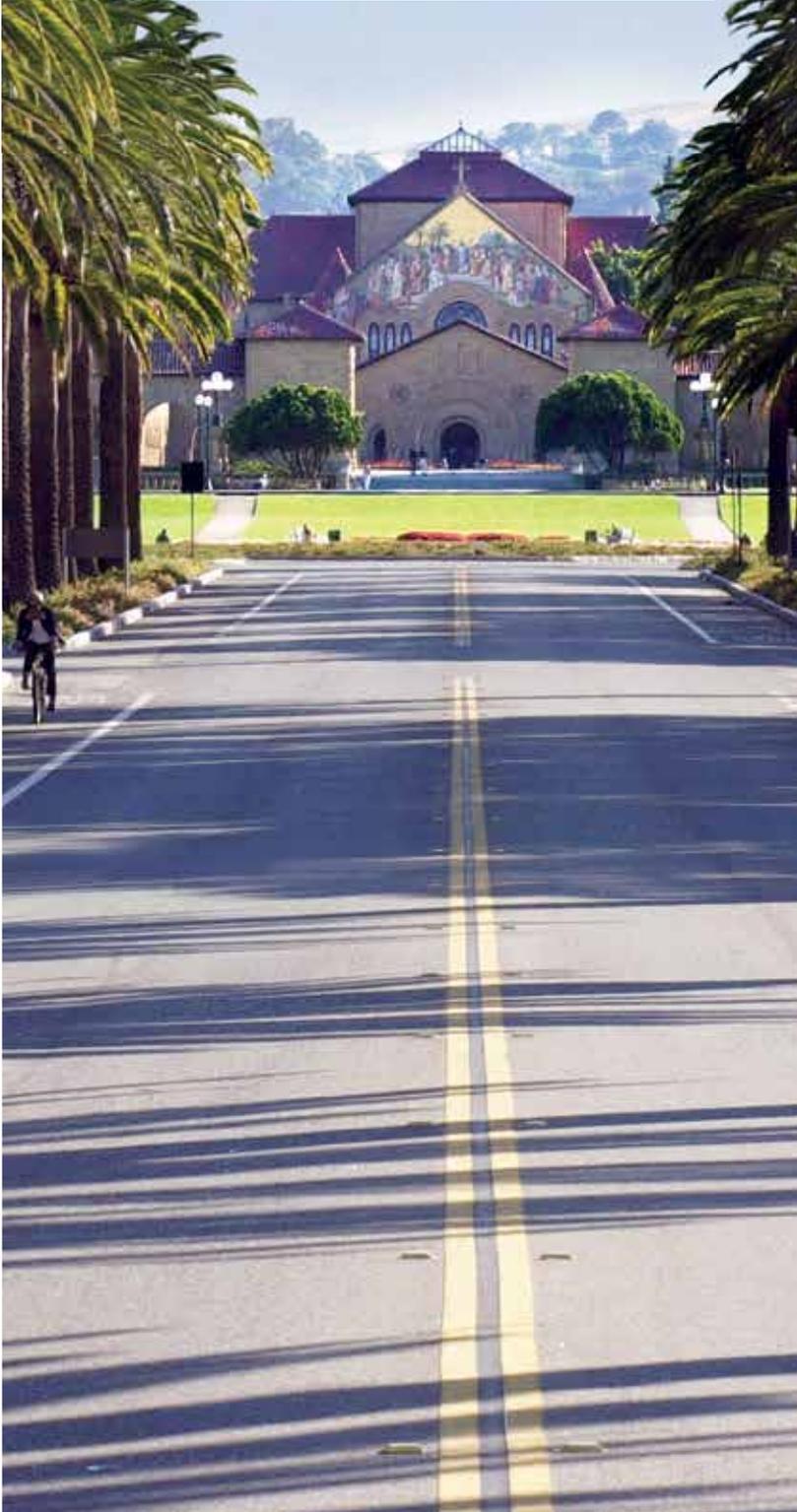
tracks before throwing myself at the mercy of his expertise. Humbled, and with guidance, I repaired the S-curves and finally laid down respectable tracks and serviceable corduroy.

Early the next morning, I skied on my handiwork, feeling both self-congratulatory and self-critical. At one point during my ascent, I crossed paths with another skier, who remarked, "It doesn't get any better than this." Unsure whether he meant the condition of the trail or the bluebird day, I beamed, as if I could claim credit for both. With uncharacteristic restraint, I resisted blurting out "Thank you!"

But when I slid into the tracks to descend, I gave my thanks: for the day, for the place, and for the good fortune that allowed me to enjoy them. In the warmth of the spring sun, the tracks wouldn't last long. But my gratitude would. ■

ASHLEY LODATO, '91, is the education director for a small arts nonprofit organization and a freelance writer who lives in Washington's Methow Valley. She spends as much time as she can running, hiking and skiing in the mountains, and exploring trails rather than creating them.

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Loretta Thermenos, pictured with her husband, Paris, MBA '83

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