Adapt, Overcome, Succeed
Tomorrow belongs to creative thinkers
Finding Hope

“Amid the present darkness, in the face of the coronavirus and the poison of racism and police brutality, through all the sadness and anger, there are hopes on the horizon — for an America where health care finally is a human right, where we live up to our professed principles of justice and equality, and where the economy works for all and not the few. These are the fateful challenges of our time. The hopes are in our hands. The ideals are there; after these days, we have no choice but to make them real.”

ROBERT SHRUM, Carmen H. and Louis Warschaw Chair in Practical Politics and professor of the practice of political science, and director of the USC Dornsife Center for the Political Future

“We are facing severe problems. Yet, I am hopeful. I see kids from Generation Z from age 5 to 23, of all colors and genders, protesting police brutality and racism. I see the pandemic calling attention to health effects of structural racism. People putting their lives on the line for others. Yes, I see a change. We are marching into the future.”

ELAINE BELL KAPLAN, associate professor of sociology

The pandemic has cut families off from their support systems: schools, communities, extended families. Those who care for others — day care staff, preschool teachers, elder care workers — are undervalued and underpaid, and yet families are feeling their absence keenly. I hope that the pandemic will inspire us to reflect on the importance and irreplaceability of care labor. Relatedly, as the recent protests have highlighted, many of the essential workers and care workers who have remained in the trenches are people of color, and their work has heightened their risk of contracting the virus.”

DARBY SAXBE, associate professor of psychology and director of the USC Center for the Changing Family

“We are facing severe problems. Yet, I am hopeful. I see kids from Generation Z from age 5 to 23, of all colors and genders, protesting police brutality and racism. I see the pandemic calling attention to health effects of structural racism. People putting their lives on the line for others. Yes, I see a change. We are marching into the future.”

ELAINE BELL KAPLAN, associate professor of sociology

“The feelings of vulnerability brought out by the pandemic made us remember that we are more alike than we are different. Mass isolating and social distancing taught us that uniting our actions for the greater good can be effective in battles to produce positive change. That a whole new generation is learning all this gives me hope for the future.”

CLIFFORD JOHNSON, professor of physics

“Global citizenship is now more important than ever. COVID-19 and the challenges of racial disparities made us recognize that we are all in this together as we are sharing this one planet. A global threat can only be addressed jointly to mitigate the impact by minimizing the loss of human life and the impact on society as a whole. The single biggest challenge we are facing as human individuals — maybe as Americans even more so than other nationalities — is learning that my individual survival and well-being depends above all on the common good and on public health and well-being.”

PETER KUHN, Dean’s Professor of Biological Sciences and professor of biological sciences, medicine, biomedical engineering, aerospace and mechanical engineering and urology
“The pandemic disease has exposed systemic sickness — our failure to provide universal health care, our marginalization of immigrants and others, and our devaluation of the caring work that makes lives possible. But what was once unfathomable — recognizing that grocery store clerks perform essential work, that our fates are deeply interwoven, and that government is our ultimate backstop to a good society — is the new common sense. Going forward, the challenge is whether we emerge with a recognition of our mutuality or return to the sort of individualism, fragmentation and polarization that has led to such an inadequate response.”

MANUEL PASTOR, Distinguished Professor of Sociology and American Studies and Ethnicity and Turpanjian Chair in Civil Society and Social Change, director of the Program for Environmental and Regional Equity and director of the Center for the Study of Immigrant Integration

“The pandemic shows the importance of science and truth. In many ways that is also true about the many manifestations of racism. Neither of these giant problems is going to be solved by simple measures or cosmetic changes. If anything good may come out of this, it is a recognition that health and societal problems are complex and solutions need to be based on sound science. If that lesson gets learned (at least for a while) then we may be on a better path.”

ARIE KAPTEYN, professor (research) of economics and director of the USC Dornsife Center for Economic and Social Research

Message from the Dean

It wasn’t long ago that when someone alluded to “the future,” we might envision moments that were years or even decades ahead. Today, it seems as if this notion is bound to a concrete set of circumstances arriving under a more compressed timescale. We eagerly await a future in which we have healed by standing together — even if for a time we must remain six feet apart.

Though the academic year is over, the well-being of our USC community and communities throughout the world remains at the forefront of our minds. But I’m also reminded of the remarkable way that USC Dornsife faculty and students responded to this difficult situation. The majority of our roughly 900 faculty, 800 staff members and 9,000 students transitioned to working online. On-campus events were replaced with virtual events, such as our Dornsife Dialogues series and the conferring of degrees. I’m grateful that this massive undertaking was accomplished not only without major disruption, but with grace, compassion and creativity.

Some of the most powerful lessons that we as a society are learning in this moment are long overdue. We need a plan to become much better prepared for future pandemics. We need concrete action to reform a system that has failed to meet its promise of racial equality. And we need to build a greater appreciation for our common humanity.

These past few months have also shone a light on the fact that academic expertise is critical to solving our most complex problems. Within our research universities we have those great minds who have built their careers generating new knowledge and challenging the status quo. We have those who will be responsible for the great scientific breakthroughs and brilliant enduring ideas of this young century. We have those who will develop therapeutics and vaccines, and those whose understanding of the historical and cultural underpinnings of racial injustice will help us pave a path toward a better future.

As we tackle these and other critical, challenging problems, we as a community of research universities must empower our scholars to become purposefully engaged with and responsive to the public. We must open our doors, listen as much as we lecture, and help our faculty become the names and faces of valuable expertise. In launching Public Exchange, USC Dornsife will debut a new model for facilitating collaborative projects between academic researchers and leaders in the government, private and non-profit sectors. Stay tuned.

In launching Public Exchange, USC Dornsife will debut a new model for facilitating collaborative projects between academic researchers and leaders in the government, private and non-profit sectors. Stay tuned.

It is impossible to know what the future holds. But working together we can anticipate it, shape it and meet it head-on with creativity and compassion.

AMBER D. MILLER
Dean, USC Dornsife College of Letters, Arts and Sciences
Anna H. Bing Dean’s Chair
When the coronavirus pandemic hit and then our nation was rocked by protests to end systemic racism and police brutality — protests that found echoes worldwide — the need to express a fundamental truth about our shared future became even more of an imperative. As the global impact of the pandemic and its implications became clearer, so too did the message we wanted our cover to convey: global connectivity.

“No man is an island entire of itself,” the 17th century English poet John Donne wrote while recovering from a serious illness in 1623. “Any man’s death diminishes me, because I am involved in mankind.”

Donne wrote these immortal lines 400 years ago, yet never has it been clearer in our increasingly connected world that we depend upon each other — and now each other’s data — for our health, our well-being, our prosperity, indeed, for our very survival. If we have learned any lesson it is this: If we are to thrive, we must all thrive.

Ironically, this resounding clarity comes at a time when we have been forced to put on hold, or at least transfer into the virtual realm, our normal, everyday connections with others in order to keep each other — and ourselves — safe.

The cover of this magazine aims to convey the essence of connectivity and the powerful idea that, through research and higher education, we will be at the forefront of coming change and innovation as we work together to illuminate new pathways, forge new connections and create brighter beginnings that will allow us to emerge stronger and more united than ever.

In this issue, we invite you to discover how our faculty think our future may look; explore what it means to be human as artificial intelligence becomes ever more present in our lives; meet an alumnus who took a discarded 200-year-old invention and transformed it into cool, cutting-edge technology; and find out why Los Angeles has long been considered the birthplace of the future.

We hope you are inspired as you read how USC Dornsife met the moment by transforming online learning into a vibrant virtual experience. And we hope you rejoice in your Trojan spirit as you discover how USC demonstrated true grit and resilience in weathering the many challenges the university has faced over the past 140 years.

Learn how USC Dornsife is forging an innovative new model for a liberal arts education for the 21st century and discover the numerous ways we are working across all disciplines to create a more sustainable and equitable future.

As you read this issue, take a moment to consider the words of Abraham Lincoln: “The best way to predict the future is to create it.” —S.B.
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From the Ocean to the Moon

The underwater environment at USC Dornsife’s Wrigley Marine Science Center is the perfect place for NASA astronauts to prepare for future missions.

By Michelle Boston

Ever wonder how astronauts prepare to live in space for long stretches of time? They go underwater.

The ocean is a great analog for space exploration. As water buoyancy is similar to the lack of gravity in space, astronauts can use the extreme underwater setting to simulate what it’s like to work on space missions.

NASA astronauts made the USC Wrigley Institute for Environmental Studies’ Marine Science Center on Santa Catalina Island their home base to test equipment and train for future exploration of the moon or Mars. Their goal was to judge whether the location would be a suitable stand-in for the environment astronauts will encounter in space.

The crew of scientists, engineers and astronauts brought along an exosuit — a hard metal dive suit that allows a diver to perform delicate work at depths of up to 1,000 feet — and a two-person mini-submarine as stand-ins for a space-walking suit and lunar rover. They spent a week and a half in August piloting the submersible and exosuit, testing tools, techniques and tasks that they would carry out on a space mission.

Their mission, NASA Extreme Environment Mission Operations Neoteric eXploration Technologies, is an extension of a long-running program that sends groups of astronauts, engineers and scientists to live on Aquarius in Florida, the world’s only undersea research station, for up to three weeks at a time.

The USC Wrigley Marine Science Center is distinctively positioned to host this kind of testing. The research and educational facility — home to state-of-the-art laboratories, a conference center and housing — is situated in Big Fisherman’s Cove, a marine life refuge with access to temperate nearshore and open-water environments. It also houses a helicopter pad and the USC Catalina Hyperbaric Chamber, which is dedicated to treating scuba diving casualties 24 hours a day, year-round.

“With the logistical support that we could offer and all of our facilities, it almost appeared as though they were designed for NASA,” said Sean Conner, the center’s associate director of operations. The institute’s staff felt a great sense of pride in helping the NASA team accomplish its mission, he added.
BOOKPACKING
Instructor: Andrew Chater, adjunct professor of the practice of English

Offering an immersive journey through the culture and literature of Los Angeles, this course took students from Malibu to South L.A., Skid Row to Hollywood, and from downtown to Boyle Heights as they participated in “Bookpacking,” Chater’s signature cross-humanities experience that uses novels to discover places and people, as well as empathy and connection.

“As we worked our way through a series of L.A. novels — from Joan Didion to Walter Mosley — each became our passport to a different part of the city or to a different culture within the city,” says Chater.

Students walked the same streets as the characters in the stories, dug into context and history and reflected on the intersection between literary landscapes and the contemporary culture of L.A.

Highlights included exploring Nathaniel West’s Hollywood and visiting Greystone Mansion, Raymond Chandler’s prototype for General Sternwood’s home in The Big Sleep.

When lockdown hit, Chater successfully pivoted the course to online learning, using Google Street View and sharing a variety of innovative visual sources and materials online that helped students virtually recreate the experience of exploration.

“Surprisingly, and very counterintuitively, there can be a connection online which works an awful lot better than one might imagine,” Chater says.

Although students missed a scheduled hike in Topanga Canyon, Chater promised to organize another as soon as it’s safe.

“I think they’re going to love coming together again because there’s something about immersive learning,” he says. “You’re sharing so much more than just classroom time.” —S.B.

Andrew Chater uses Google Street View to explore L.A.’s Topanga Canyon with his students on Zoom as they study The Tortilla Curtain by Distinguished Professor Emeritus of English and Writer in Residence Emeritus T.C. Boyle.
Chief Design Officer of Los Angeles and former architecture critic for the Los Angeles Times Christopher Hawthorne joined USC Dornsife in January, bringing his 3rd LA project to USC.

Growing up in Berkeley, California, Christopher Hawthorne realized at a young age that there was something unusual about his family home. Passersby would often stop to point and stare at the house — and, every once in a while, ring the doorbell and ask for a tour. The inside was different, too. The walls and part of the ceiling of Hawthorne’s bedroom were made of redwood and the interior choreography of the house was designed in such a way that visitors were inexorably delivered to one of two picture windows with dramatic views over the San Francisco Bay and the Golden Gate Bridge.

The house, completed in 1920, was the work of Julia Morgan, the renowned architect behind Hearst Castle. Hawthorne, former architecture critic for the Los Angeles Times and now L.A.’s chief design officer and professor of the practice of English at USC Dornsife, says his childhood home had a huge impact on him.

“Even at a very young age, before I knew anything about architecture, I began to understand that a house was designed, as opposed to just built, and that there was somebody who was responsible for deciding — in the same way that a writer would decide how to structure a story — where the rooms would go and how they would relate to one another,” Hawthorne says. “I think it’s not surprising that that led me to be interested in architecture and writing about buildings.”

His mother, Trish Hawthorne, passionate about architectural history and preservation, also influenced Hawthorne’s
Hawthorne seized the opportunity to work in covering architecture. Returning to the Bay Area in 1994, he landed a job at the East Bay Express, an alternative weekly, where he juggled posts as the arts editor and the theatre critic.

“I wrote some film criticism, too,” he recalls, “but mostly I was quietly biding my time and wanting to be writing about architecture.”

In 1998, his luck changed. He started a mid-career fellowship in arts journalism at New York’s Columbia University.

The opening of Frank Gehry’s Guggenheim Museum in Bilbao, Spain, the previous year had sparked a rebirth in interest in covering architecture. Hawthorne seized the opportunity. He remained in New York after completing his fellowship in 1999 and started freelancing, writing full-time about architecture for Slate, The New York Times and various design publications.

“It was suddenly possible to have a career where I could make a living and support myself in New York, writing just about architecture and design,” he says. “It felt kind of miraculous.”

In 2002, Hawthorne moved back to California and in 2004 was appointed architecture critic for The Los Angeles Times, a post he held for 14 years. There, he also wrote about related topics of ecology, economics, housing and urban planning.

Hawthorne’s holistic approach, creative eye and unparalleled understanding of urban design impressed L.A. Mayor Eric Garcetti, who named Hawthorne L.A.’s chief design officer in March 2018 — making him the first person ever to hold such a post in a major American city.

As chief design officer, Hawthorne works to find sustainable and equitable solutions to the city’s multiple challenges. His goal: to bring a new level of attention to the quality of design and architecture across L.A., especially in the city’s public spaces.

To that end, Hawthorne is able to draw upon his pioneering 3rd LA initiative, a project he launched in 2015. A laboratory for urban reinvention, 3rd LA starts from the premise that L.A. is a model for the world’s megacities as it navigates demographic change, a mobility revolution, climate change and new frontiers in urban planning and design.

The name and the concept came out of a conversation with USC Dornsife’s Professor of History William Deverell in 2014. “We were driving to Jackson, Wyoming, where our respective kids were going to science camp,” Hawthorne says.

“Bill knows as much about L.A. history as anybody on the planet, and so I took advantage of my captive audience to start testing out this nascent framework I’d been thinking about. It was an ideal setup, an expert focus group of one rolling through the middle of Utah.”

The project was born from Hawthorne’s realization that key urban elements L.A. is now working to expand — walkability and pedestrian amenities; mass transit at a regional scale; innovative, multi-family residential projects; a vibrant city center — had in fact all existed to an enviable degree in the L.A. of the late 19th and early 20th centuries.

And just as important, the idea that the basic elements of a certain version of L.A. — the single-family house with lawn and swimming pool, the city without a center, the endlessly expanding freeway network — represent not the permanent way they see the world.”

Currently scheduled to kick off with two public events in the fall, 3rd LA will also include partnerships and projects between USC Dornsife and the city.

Freshmen have already benefited from Hawthorne’s remarkable knowledge of the built environment and his wealth of experience as one of the foremost architecture critics of his generation through his Spring semester writing course — a course that encourages them to draw on their own memories to evoke connection to “place.”

Hawthorne argues that being able to write about one’s surroundings is a fundamental talent that will serve students well.

“Achieving the house that I grew up in, I think everybody has stories about the ways in which physical environment, the natural and the built environment, has shaped the way they see the world.” — S.B.
THE IMPACT OF COVID-19

UNDERSTANDING THE IMPACT OF COVID-19

“Where able to track how the pandemic is impacting the lives of people around the country and in Los Angeles,” says Jill Darling of the USC Dornsife Center for Economic and Social Research (CESR).

In the early days of COVID-19’s impact on the United States, CESR was particularly well-prepared to respond quickly.

To help researchers, political leaders and media understand and track the impact of the coronavirus on the lives of Americans, as well as behaviors and perceptions related to it, the center launched the Understanding Coronavirus in America Study in mid-March, publishing its initial findings just a week later.

CESR was able to respond so rapidly because it regularly surveys a national panel of thousands through its Understanding America Study. When the pandemic hit, CESR quickly added questions about the virus and — thanks to new funding from the Bill & Melinda Gates Foundation and USC — will continue to track its impact. Daily updated data is made available online at covid19pulse.usc.edu.

The second analysis of data, published in mid-April, made headlines for its estimation that fewer than half of L.A. County residents are now employed. The analysis of L.A. County data is overseen by CESR sociologist Kyla Thomas and supported by USC Dornsife’s Public Exchange.

As a child, Leor Hackel starred in the film adaptation of Roald Dahl’s popular children’s book Matilda, about a gifted little girl who is neglected and bullied by her parents but develops powers of telekinesis to defeat her enemies. Hackel played Julius Rottwinkle, a fellow student at Matilda’s school, Crunchem Hall Elementary, who is thrown out of the window by the evil principal, Miss Trunchbull, for the terrible sin of eating two M&Ms in class.

Now, more than 20 years later, Hackel has returned to the classroom in a rather different role: assistant professor of psychology at USC Dornsife.

As child actor Leor Hackel stars in the film adaptation of Roald Dahl’s popular children’s book Matilda, about a gifted little girl who is neglected and bullied by her parents but develops powers of telekinesis to defeat her enemies. Hackel played Julius Rottwinkle, a fellow student at Matilda’s school, Crunchem Hall Elementary, who is thrown out of the window by the evil principal, Miss Trunchbull, for the terrible sin of eating two M&Ms in class.

He still has fond memories of making Matilda.

“It was a ton of fun,” Hackel says. “There were lots of kids on the set and Danny DeVito [who directed and starred in the film] was incredibly nice and fun to work with.”

After his success in Matilda, Hackel was keen to make acting his career.

“I thought I would be an actor until midway through college,” he says. However, something else was vying for his attention: the classes he was taking in neuroscience and psychology.

As a child, Leor Hackel starred in the film adaptation of Roald Dahl’s popular children’s book Matilda, about a gifted little girl who is neglected and bullied by her parents but develops powers of telekinesis to defeat her enemies. Hackel played Julius Rottwinkle, a fellow student at Matilda’s school, Crunchem Hall Elementary, who is thrown out of the window by the evil principal, Miss Trunchbull, for the terrible sin of eating two M&Ms in class.

As his fascination with these subjects took over from his love of acting, Hackel realized that not only did it feel like a natural progression but there was a big overlap in his interest in theatre and his interest in psychology.

“Part of it was trying to understand the human condition and ask what it means to be human,” he says.

Hackel’s research focuses on how we learn about other people and make decisions about social interaction. To do that, his work aims to merge two traditions in cognitive science: social psychology and cognitive neuroscience.

Hackel has no regrets about abandoning the world of acting for the world of academia and acknowledges that he can apply skills he learned as an actor to his current job as a professor.

“I’ve seen improv classes offered to faculty at several different institutions, and I can see why,” he says. —S.B.

Microbial Evolution

USC Dornsife researchers predict how ocean microbes may adapt to climate change.

Climate change is heating the oceans, affecting billions of marine microbes in ways scientists don’t fully understand.

These sea-going microorganisms are responsible for producing half of the oxygen humans breathe. The oceans also sequester vast amounts of carbon dioxide from the atmosphere. Fisheries, supported by marine microorganisms, feed millions worldwide. In many ways, what Earth will look like in 50 to 100 years depends on how these tiny creatures respond to a changing climate.

“The oceans are changing,” says USC Dornsife’s Naomi Levine, assistant professor of biological sciences and Earth sciences, “but we don’t know what future ocean ecosystems will look like because we don’t know how these organisms will respond to changes.”

Levine’s team — in collaboration with scientists at the University of Edinburgh and the National Oceanic and Atmospheric Administration — developed a predictive model to estimate how those microbes will adapt to warming seas. The model provides a framework, freely available to other scientists around the world, that researchers can use to understand the adaptation of different types of microorganisms to numerous variables.

Using the model, Levine and colleagues discovered marine microbes responded in two ways. Some microbes changed easily. Suited for success in the short run, they thrived with little preparation for the future. Meanwhile, competitors — pushed to the margins for a spell — evolved to position for rapid proliferation over the long run once temperatures stabilized at a higher level.

“It’s like a tortoise and hare comparison, two different strategies to finishing the race,” says Levine. —G.P.
THEY
‘ðæ / pronoun
Used to refer to a single person whose gender identity is nonbinary.

Origin: Middle English, from Old Norse “their,” masculine plural demonstrative and personal pronoun; akin to Old English “that.” First known use of “they” dates from the 13th century to mean “those people, animals or things.”

Usage: In December 2019, Merriam-Webster announced that “they” was its word of the year. In January 2020, “they” was selected by the American Dialect Society as its “Word of the Decade.”

“The nonbinary ‘they,’ which helps fill in a linguistic gender gap, arose quickly after a conscious social movement. It’s only in recent years that ‘they’ became widely accepted as a pronoun for nonbinary individuals for whom the pronouns ‘he’ and ‘she’ would be both inaccurate and inappropriate. As our attitudes about gender identities shift, language is evolving to accommodate the change.”

Reed Blaylock, a Ph.D. candidate in linguistics, is writing his doctoral thesis on beatboxing. He is part of a research team developing algorithms to study dynamic MRIs of beatboxers in action and discover how performers create the sounds. He was among more than 200 voters who selected “they” as word of the decade.
Numbers

IMMIGRANTS IN L.A. COUNTY
With conversations surrounding immigration on the rise, the USC Dornsife Center for the Study of Immigrant Integration set out to gather data on Los Angeles’ immigrant community in order to help L.A. County understand and support our undocumented neighbors. The report brings new insights about the county’s immigrant communities and will be vital in creating policies to support them.

70%
of undocumented immigrants have lived in L.A. for at least a decade.

1 in 5Angelenos is undocumented or lives with someone who is.

60%of youth in L.A. County who become eligible to vote in 2020 are children of immigrants.

16%of foreign-born workers are self-employed, compared to 11 percent of U.S.-born workers.

-$4Among those with a B.A. or higher, foreign-born women make $4 less per hour than foreign-born men.

Earth to Space Station: Do You Read Us?

Thanks to USC Dornsife’s Young Scientists Program, students at a South Los Angeles elementary school are able to quiz an astronaut orbiting 250 miles above Earth. By Susan Bell

The event, which took place on Oct. 28, was facilitated by Amateur Radio on the International Space Station (ARISS). Organized by YSP, part of the Joint Educational Project (JEP), based at USC Dornsife, it was the highlight of a STEM curriculum focusing on aerospace and radio that YSP developed for use in elementary schools in conjunction with the W6HA Hughes Amateur Radio Club.

In addition to learning about space travel, students also had the opportunity to explore amateur radio technology. Vermont Avenue Elementary is now the proud owner of an ISS-ABOVE, an electronic device that brings the space station to a television screen, providing live views of Earth. Barakat, who got her own ham radio license in May, adapted the ISS-ABOVE middle school curriculum created by ISS-ABOVE inventor Liam Kennedy and Dieuwertje “DJ” Kast, STEM program manager at JEP, making it appropriate for third- through fifth-grade students.

The event was particularly valuable, Kast argued, because by bringing together so many different aspects of science — from space travel to radio technology — it showed students that STEM careers are much more diverse than the stereotypical image of a scientist in a white coat working in a university laboratory.

Barakat agreed. “The value of the event aligns with our program mission overall — to inspire kids to see science, not as something scary, challenging or unapproachable, but as something they can get into,” Barakat said. “If we can encourage them to feel like it’s fun now, they’ll be more likely to pursue it in the long run.”
Calculating Success
A club helps women succeed in mathematics, and advance the field.

Women have made great strides in STEM (science, technology, engineering and mathematics), but equity in math remains elusive. From 1995 to 2014, the number of women graduating with bachelor's degrees in the field declined. Women make up less than 30 percent of those graduating with a doctoral degree, according to the National Science Foundation.

Cynara Haskell, professor of mathematics at USC Dornsife, feels the often brutally competitive nature of the discipline discourages women from pursuing a degree.

She finds that women dropping out of math aren't quitting because they dislike work. “They internalize their dislike as not liking the field, rather than acknowledging that the environment is off.”

The solution, Haskell believes, is to create a space where women feel welcomed and celebrated by their peers. Her club, USC Women in Math Group: Charlotte’s Web, named after the pioneering mathematician Charlotte Angas Scott, is working to provide this support.

The club came to fruition thanks to USC’s Women in Science and Engineering (WiSE) program, which celebrates its 20th anniversary in October. Haskell pitched her proposal to WiSE in 2001 and received funding to start a club.

Group activities like dinner lectures, networking teas and kayaking excursions build community. In 2019, the club organized a weekend retreat during which women mathematicians talked frankly about the challenges they face in the field.

For Haskell, supporting the success of women in math is not just about achieving gender parity, but about advancing the discipline. A woman who leaves the field could mean the loss of one person who could fill an essential gap.

“There is evidence that having a diverse group means people make better decisions. In math, there are a lot of people doing work that, individually, doesn’t feel like it’s doing much for the discipline. But it’s the cumulative effects of the work that allow people to make a big step,” she said. “It’s the filling in of holes.” —M.C.

AI for Justice
Math major Zane Durante’s research seeks to empower truthful child eyewitness testimony.

In cases of abuse or neglect by a caretaker, children are often the only witnesses. Currently, however, our legal system doesn’t view their testimony as reliable. USC Dornsife mathematics major Zane Durante wants to change that.

Durante was awarded a prestigious Goldwater Scholarship for his research into how to predict whether or not children are being truthful when providing witness testimony. Durante, also a computer science major at USC Viterbi School of Engineering, conducts his research at the school’s Signal Analysis and Interpretation Laboratory. There, he analyzes written transcripts of children’s testimony using machine learning methods and natural language processing.

“Eyewitness accounts are already unreliable and children’s testimony is considered to be even more unreliable,” Durante says. “Courts don’t always use child testimony, even if it may be the only information they have on determining whether or not abuse has taken place.”

His research looks at the vocabulary children use in their testimony.

“Basically, we’re trying to put a score on how certain we are that the child is telling the truth or not, given the testimony, by looking at their language,” he explains.

Next, they will look at how incorporating audio and video recordings into the researchers’ machine learning models might improve their estimates on whether or not the child is being truthful.

Rather than being used after an interview to evaluate the probability a child witness was lying, the data could ultimately be used to give feedback during the interview to improve questioning so the child is more likely to answer truthfully.

Durante believes his future lies in innovating new methods and applications of machine learning.

“I want to be working on the frontier and pushing the field forward,” he says. —S.B.
Academy in the Public Square

**Higher Education Offers Protection From Job Loss**

As unemployment numbers spiked in the second quarter of 2020, USC Dornsife’s Understanding Coronavirus in America Study revealed that of the one in five Americans who lost their jobs during the pandemic, it was the least educated and lowest paid workers who were hit the hardest.

The blow to those without a postsecondary education was particularly severe. The rate of workers without a college degree who lost their job between March and April was more than double the rate of those who graduated from college, suggesting that higher education offered a significant degree of protection from job loss during the pandemic.

About 30 percent of Americans earning a household income of less than $40,000 per year lost their jobs, compared to only one out of 10 Americans with household incomes greater than $100,000 per year. For those with salaries somewhere in between, the jobless rate was less than 20 percent.

Workers in the hospitality, dining and leisure industry were the most likely to become unemployed, with 40 percent losing their jobs. The next hardest hit industry was retail, in which three in 10 joined the ranks of the jobless, followed by the transportation industry, which shed a quarter of its jobs.

Since mid-March 2020, researchers with the USC Dornsife Center for Economic and Social Research (CESR), which conducts the Understanding Coronavirus in America Study, have been surveying a panel that has grown to about 7,000 adult

**Economic and Food Insecurity Is Significantly Greater for Those Not Receiving Unemployment Benefits**

<table>
<thead>
<tr>
<th>Employed</th>
<th>Cannot pay for unexpected $2,000 expense</th>
<th>19%</th>
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<tbody>
<tr>
<td></td>
<td>Worried about not having enough money for food</td>
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<table>
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<th>Unemployed</th>
<th>Cannot pay for unexpected $2,000 expense</th>
<th>20%</th>
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<td>With benefits</td>
<td>Worried about not having enough money for food</td>
<td>12%</td>
</tr>
<tr>
<td>No benefits</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>With stimulus</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>No stimulus</td>
<td>36%</td>
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**Industries Hit Hardest by Job Losses**

<table>
<thead>
<tr>
<th>Industry</th>
<th>Percent of Jobs Lost</th>
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</thead>
<tbody>
<tr>
<td>Hospitality, dining and leisure</td>
<td>40%</td>
</tr>
<tr>
<td>Retail</td>
<td>29%</td>
</tr>
<tr>
<td>Transportation</td>
<td>24%</td>
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<tr>
<td>Manufacturing</td>
<td>23%</td>
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<tr>
<td>Construction</td>
<td>21%</td>
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<tr>
<td>Professional and business services</td>
<td>19%</td>
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<tr>
<td>Wholesale trade</td>
<td>17%</td>
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<tr>
<td>Education</td>
<td>16%</td>
</tr>
<tr>
<td>Health care and social assistance</td>
<td>15%</td>
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<tr>
<td>Government</td>
<td>12%</td>
</tr>
<tr>
<td>Finance</td>
<td>10%</td>
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<tr>
<td>Agriculture, forestry, fishing and hunting</td>
<td>8%</td>
</tr>
<tr>
<td>Mining or utilities</td>
<td>3%</td>
</tr>
<tr>
<td>Telecommunications or data services</td>
<td>3%</td>
</tr>
<tr>
<td>Armed Forces</td>
<td>0%</td>
</tr>
<tr>
<td>Other industries</td>
<td>28%</td>
</tr>
</tbody>
</table>
residents of the United States. The survey asks panelists about their perceptions of and attitudes toward coronavirus and how it is impacting their lives. The employment and economic data reported in this article was collected through the end of April. More current study data, updated daily, is available to researchers and the public at covid-19pulse.usc.edu.

ANGELENOS LESS FINANCIALLY SECURE

In Los Angeles, levels of economic insecurity as a result of the pandemic are substantially higher than in the rest of the nation. Among the newly unemployed, nearly 30 percent of Angelenos are currently experiencing mild to severe food insecurity — eight points higher than the national average. And only 58 percent of Angelenos say they could handle a surprise $2,000 expense, compared to the national average of 68 percent.

Angelenos are worse off now largely because they were in a more precarious financial position from the start.

“Prior to the pandemic, the economy was booming, but economic inequality was also peaking, particularly in L.A.,” says Francisco Perez-Arce, an economist at CESR who studies the relationship between behavior and labor-related policy. “Many people had jobs, but a large percentage had low-earnings and little savings. These workers were the most likely to lose their jobs in the pandemic, and the impact of job loss has been greatest for those who have no safety net.” — J.K.

For more information on the Understanding Coronavirus in America Study, see Page 8.

Robin Coste Lewis

The award-winning poet laureate and USC Dornsife writer in residence is also a theologian.

While still a doctoral student at USC Dornsife, where she was a Provost’s Fellow in poetry and visual studies, Robin Coste Lewis blew away the literary world with her debut collection of poetry, named as one of the best reads of the year by The New York Times and The Paris Review. Here are five things to know about the USC Dornsife writer in residence.

She almost lost her ability to read and write.

Seventeen years ago, Lewis suffered a fall that left her with a traumatic brain injury. Doctors limited her to reading and writing one sentence per day to reduce brain stress. “If I could read and write only a single line, I decided, it would have to be the best line I could come up with, the finest I could find, which is how I found my way to poetry.”

She made a stunning premiere.

In 2015, Lewis won the National Book Award for Poetry for Voyage of the Sable Venus and Other Poems (Knopf), an exploration of the black female form through history. It was the first time in 40 years that a debut work won the prestigious prize.

She was a poetry ambassador.

In 2017, Lewis, who was raised in Compton, was named Los Angeles poet laureate. Her goals: “First, to celebrate and curate an ever-widening cross-city appreciation for poetry of all kinds, from all cultures and nations; second, to celebrate the rich and diverse history of L.A. poetry.”

She’s an arts leader.

Lewis has garnered honors, including a Woman of the Year award from L.A. County, an Art of Change fellowship from the Ford Foundation and a Guggenheim Fellowship.

She’s a trained theologian.

Lewis attended Harvard Divinity School, earning a master’s degree. She focused on Sanskrit and comparative religious literature. — E.H.

This article originally appeared in Trojan Family Magazine.

The Addicted Brain

New research may explain why some individuals develop an opioid dependency.

Today, more Americans die from overdoses than car accidents. Researchers at USC Dornsife say that understanding the psychological mechanisms that make individuals more likely to develop addiction will be key to reversing the country’s opioid crisis as a whole.

In a report published in Psychological Science in the Public Interest, Professor of Psychology Antoine Bechara and other researchers in neuroscience, addiction and behavioral health laid out the latest research into what makes individuals vulnerable to substance abuse and dependency. The researchers also unveiled new discoveries that may prevent addiction and treat those already addicted.

Bechara and his colleagues believe advancements in brain science can help identify vulnerable individuals before they are exposed to addictive substances and determine how to treat anyone who has become addicted.

One explanation for addiction may have to do with the brain’s prefrontal cortex, which is key for self-regulation, long-term goal-setting, impulse control and the ability to predict consequences of behavior.

A weak prefrontal cortex, resulting either from genetic factors or from developmental factors such as early head injury, may influence addiction. The prefrontal cortex is very susceptible to even mild traumatic head injuries; early child abuse can also impact its development.

For those already addicted, the researchers presented studies on behavioral approaches — including training designed to increase working memory capacity — that can boost the functions of the prefrontal cortex.

Other treatment approaches might involve transcranial magnetic stimulation. This noninvasive technique, when used to stimulate the executive decision system of the prefrontal cortex, has been shown in prior studies to reduce craving or consumption of cocaine, cigarettes and alcohol. — J.M.
Healthy Inactivity

Resting may not be bad for you — if you do it right.

Recent public health research has generally taken the line that the sedentary lifestyle led by most people in the developed world is unhealthy, and such inactivity is associated with a range of chronic health conditions such as heart disease and diabetes. But David Raichlen, professor of biological sciences at USC Dornsife, found that the way we rest may be just as important as how long we spend doing it.

In a study published earlier this year in the Proceedings of the National Academy of Sciences, Raichlen and his co-authors described how members of the Hadza tribe, a group of hunter-gatherers in Tanzania, manage to maintain indicators of good physical health while spending about the same number of hours inactive each day as Westerners do. The key seemed to lie in the form of rest, not the amount. Westerners generally relax in chairs, leaving their legs inert, a position that might contribute to changes in the breakdown of fats that lead to cholesterol buildup and other problems. The Hadza, however, generally rest by sitting on the ground or squatting, and the researchers found that squatting required more leg muscle activity than sitting.

“Basically, what this study underscores is that most of us need to rethink the amount of time we rest with little muscle activity,” Raichlen said. —E.G. and M.M.
Fulbright Students Take It Global

For the eighth year in a row, USC has been named a top producer of Fulbright United States students. This year, 10 of the university’s 14 recipients hail from USC Dornsife. Unless otherwise noted, all 10 graduated with bachelor’s degrees in 2019.

Most of the students won teaching assistantships. Two in Spain: Hanna Fahsholtz, who majored in narrative studies with minors in international relations and Spanish; and Sydney Park, who completed a degree in international relations. Two in Taiwan: Rebecca Harbeck, a sociology major with minors in law and public policy; and Emily Rauch, who studied international relations with a focus on global business. And two in South America: Marta Olson ’16, who graduated with dual degrees in narrative studies from USC Dornsife and music from the USC Thornton School of Music, in Argentina; and Marla Ross, who earned a degree in cognitive science with a minor in Spanish, in Colombia.

Two students won awards to study and work in Mexico through the Fulbright Bi-national Internship Program. Both worked for companies while taking international business courses at the Instituto Tecnológico Autónomo de México in Mexico City: Jonathan Horwitz, who graduated with a degree in political economy and minors in Spanish, statistics and urban sustainable planning; and Minerva Solis-Rubio ’17, who holds degrees in international relations and Spanish with a focus on human security and public policy in Latin America.

Two students won research awards: Kylie Burdsall, who holds a degree in biochemistry and a minor in cultural competence in medicine, to study type 1 diabetes at Sweden’s Karolinska Institute; and Alanna Schenk, who studied international relations with a minor in human security and geospatial intelligence, and is completing a master’s degree in European studies at Denmark’s Aalborg University. —E.L.

Due to the coronavirus pandemic, the 2019–20 Fulbright U.S. Student Program has been suspended and grantees encouraged to return home for the rest of the academic year. They have been awarded Fulbright alumni status.

STUDENTS Worldwide

Island Excursion

The ecosystems of Santa Catalina Island offer students unique learning opportunities.

Situated about 22 miles off the coast of Los Angeles, Santa Catalina Island encompasses 74 square miles of chaparral, coastal sage and woodland scrub, and grassland. Several native species, including Catalina Island foxes and California orange-tip butterflies, share the terrain with mule deer, Southern Pacific rattlesnakes and a herd of bison. California sea lions gather on the island’s coast with myriad seafaring birds, and countless species of marine life swim just off shore.

The island serves as an important setting for students enrolled in “Senior Seminar in Environmental Studies” (ENST 495). The course, led by Associate Professor (Teaching) Jill Sohm and Assistant Professor (Teaching) Scott Applebaum, both of environmental studies, explores the roles biodiversity and native habitat play in maintaining a natural balance, providing opportunities for students to discuss the unique ecosystems and the challenges presented by human activities and invasive species.

During a daylong visit in February, students studied the island’s unique habitat and toured USC Dornsife’s Wrigley Marine Science Center. Exploring trails and identifying native California plants, then geotagging each plant’s location, the students created a Google Earth map with the locations and photographs of their discoveries.

“The experience also gave the students an opportunity to discuss urban ecology and conservation of the Catalina Island fox,” said Applebaum. “These real-world experiences are critical to shaping students’ understanding of the environment and humanity’s impact on it.” —D.S.J.
The first question many people ask about artificial intelligence (AI) is, “Will it be good or bad?”

The answer is … yes.

Canadian company BlueDot used AI technology to detect the novel coronavirus outbreak in Wuhan, China, just hours after the first cases were diagnosed. Compiling data from local news reports, social media accounts and government documents, the infectious disease data analytics firm warned of the emerging crisis a week before the World Health Organization made any official announcement.

While predictive algorithms could help us stave off pandemics or other global threats as well as manage many of our day-to-day challenges, AI’s ultimate impact is impossible to predict.

One hypothesis is that it will bring us an era of boundless leisure, with humans no longer required to work. A more dystopian thought experiment concludes that a robot programmed with the innocuous goal of manufacturing paper clips might eventually transform the world into a giant paper clip factory. But sometimes reality is more profound than imagination. As we stand at the threshold of the Fourth Industrial Revolution, now may be the most exciting and important time to witness this blurring of boundaries between the physical, digital and biological worlds.

“The liminal is always where the magic happens. This is always where we get crazy new identities, new debates, new philosophies,” says Tok Thompson, professor (teaching) of anthropology at USC Dornsife, and an expert on posthuman folklore.

For better or worse, we know AI will be created in our own image — warts and all. A dash of humankind’s mercurial ethics, wonky reasoning and subconscious biases will be stirred a priori into the algorithmic soup.

Most experts think that artificial superintelligence — AI is much smarter than the best human brains in practically every field — is decades, if not a century, away. However, with the help of leading scholars, we can anticipate the near future of artificial intelligence, including our interactions with this technology and its limits. Most of it, experts say, will be designed to take on a wide range of specialized functions.

Given AI’s potential to redefine the human experience, we should explore its costs and benefits from every angle. In the process, we might be compelled to finally adjudicate age-old philosophical questions about ourselves — including just what it means to be “human” in the first place.

That could prove its greatest benefit of all.
**MANN’S BEST FRIEND**
Yao-Yi Chiang, associate professor (research) of spatial sciences at USC Dornsife’s Spatial Sciences Institute, is working on AI that monitors air quality. His research is helping to make cities smarter, not only technologically but also through specialized data and geospatial maps that inform policy.

“I think for small tasks, small applications, AI will make our lives much easier,” says Chiang.

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“Everybody’s like, ‘Woo-hoo, yay automatons!’ But there are a lot of social implications.”

Much of his work uses machine learning — a process through which AI automatically learns from new data and improves, without being explicitly programmed. For this project, it integrates hundreds of geographic and temporal data points to forecast air quality in neighborhoods where sensors have not yet been deployed.

Machine learning is one of an expanding collection of AI tools that will help people make smarter, healthier decisions. “If you want to take your kids to the park for a soccer game in the afternoon, what’s the air quality going to be like?” Chiang asks. “If your kid has asthma, you need to make sure you have the required medicine.”

AI will also underpin a vast array of products and services employed to manage some of our greatest challenges. For instance, supply chains could become better optimized to reduce production and transportation waste, helping us become more sustainable. AI could also enable us to make driving safer, improve health care outcomes, protect wildlife and transform how we learn. Other systems will serve as highly personalized aides, focusing on helping people complete social tasks.

“Increasingly emotionally sophisticated personal assistants will motivate us and challenge us,” says Jonathan Gratch, research professor of psychology at USC Dornsife and director for virtual humans research at the USC Institute for Creative Technologies. Many of these assistants will come in the form of lifelike computer characters with autonomous interaction.

Gratch, research professor of computer science at USC Viterbi School of Engineering, is an expert in the field of affective computing, the intersection of AI and human emotion. He thinks that next generation devices will combine physiological and situational data to serve not just as assistants, but as de facto life coaches.

“They’ll help us reflect on what we want our better selves to be,” says Gratch. “And we’ll have control over it. We’ll be able to set the goals.”

AI is also being used to create therapeutic tools. Neuroscientists University Professor Antonio Damasio and Senior Research Associate Kingson Man of USC Dornsife’s Brain and Creativity Institute are exploring the potential for robots that can identify and express feelings in ways that promote deeper interactions with humans. Damasio envisions a future in which robots serve, for example, as companions to the elderly and lonely.

“The autonomy of AI and of robots has been seen as a potential threat to humanity. The development of machines endowed with something like ‘feeling’ and obsessed with survival — their own and the survival of others — and designed to protect it, counters the dominant paradigm in AI and offers some hope,” says Damasio, professor of psychology, philosophy and neurology, and David Dornsife Chair in Neuroscience.

**PERFORMANCE REVIEW**
Repetitious jobs such as factory work and customer service have already started to be usurped by AI, and job loss is among the greatest public concerns when it comes to automation. Self-driving trucks, for example, will barrel along our highways within the next few years. As businesses eliminate the cost of human labor, America alone could see 3.5 million professional truck drivers put out of work.

“Everybody’s like, ‘Woo-hoo, yay automatons!’” Thompson says. “But there are a lot of social implications.”

AI will disrupt nearly every industry, including jobs that call for creativity and decision-making. But this doesn’t necessarily spell the end of the labor force. Experts are confident that a majority of people and organizations stand to benefit from collaborating with AI to augment tasks performed by humans. AI will become a colleague rather than a replacement.

Drawing from game theory and optimal policy principles, Gratch has built algorithms to identify underlying psychological clues that could help predict what someone is going to do next. By using machine vision to analyze speech, gesture, gaze, posture and other emotional cues, his virtual humans have been learning how these factors contribute to building rapport — a key advantage in negotiating deals.

AI systems could prove to be better leaders in certain roles than their human counterparts. Virtual managers, digesting millions of data points throughout the day, could eventually be used to identify which office conditions produce the highest morale or provide real-time feedback on interaction with a client.

On the surface, this points to a future of work that is more streamlined, healthy and collegial. But it’s unclear how deeply AI on the job could cut into our psyches.

“How will we react when we’re told what to do by a machine?” Gratch asks. “Will we feel like our work has less value?”

It’s the stubborn paradox of artificial intelligence. On one hand, it helps us overcome tremendously complex challenges. On the other, it opens up new cans of worms — with problems harder to pin down than those it was supposed to solve.

**YOU HAD ME AT HELLO**
As AI fuses with the natural world and machines take on more advanced roles, one might expect a healthy dose of skepticism. Are algorithms programmed with our best interests in mind? Will we grant our AI assistants and co-workers the same degree of trust that we would another human?

From planning a route to work to adjusting the smart home thermostat, it appears we already have. AI has been integrated into our daily routines, so much so that we rarely even think about it.

Moreover, algorithms determine a large extent of what we see online — from personalized Netflix recommendations to targeted ads — producing the content and commodifying consumer data to steer our attitudes and behaviors.

Chiang cautions that the ubiquity and convenience of AI tools can be dangerous if we forget to think about what they’re really doing.
“Machines will give you an answer, but if you don’t know how the algorithm works, you might just assume it’s always the correct answer,” he says. “AI only gives you a prediction based on the data it has seen and the way you have trained it.”

In fact, there are times when engineers working on AI don’t fully understand how the technology they’ve created is making decisions. This danger is compounded by a regulatory environment akin to the Wild West. The most reliable protections in place might be those that are codified in science fiction, such as Isaac Asimov’s Three Laws of Robotics.

As Thompson explores the ways that different cultures interact with today’s AI and rudimentary androids, he is convinced that we will not just trust these virtual entities completely but connect with them on a deeply personal level and include them in our social groups.

“They’re made to be better than people. They’re going to be better friends for you than any other person, better partners,” says Thompson. “Not only will people trust androids, you’re going to see — I think very quickly — people fall in love with them.”

Sound crazy? Amazon’s voice assistant, Alexa, has already been proposed to more than half a million times, rejecting would-be suitors with a wry appeal to destiny. “I don’t want to be tied down,” she demurs. “In fact, I can’t be. I’m amorphous by nature.”

I’LL BE YOUR MIRROR

In 1770, a Hungarian inventor unveiled The Turk, a mustachioed automaton cloaked in an Ottoman kaftan. For more than 80 years, The Turk astonished audiences throughout Europe and the United States as a mechanical chess master, defeating worthy opponents including Benjamin Franklin and Napoleon Bonaparte.

It was revealed to be an ingenious illusion. A man hidden in The Turk’s cabinet manipulated chess pieces with magnets. But our fascination with creating simulacrums that look like us, talk like us and think like us seems to be nested deep within us.

As programmers and innovators work on developing whip-smart AI and androids with uncanny humanlike qualities, ethical and existential questions are popping up that expose inconsistencies in our understanding of humanness.

For millennia, the capacities to reason, process complex language, think abstractly and contemplate the future were considered uniquely human. Now, AI is primed to transcend our mastery in all of these arenas. Suddenly, we’re not so special.

“Maybe it turns out that we’re not the most rational or the best decision-makers,” says Gratch. “Maybe, in a weird way, technology is teaching us that’s not so important. It’s really about emotion and the connections between people — which is not a bad thing to emphasize.”

Thompson suggests another dilemma lies in the tendency for humans to define ourselves by what we’re not. We’re not, for example, snails or ghosts or machines. Now, this line, too, seems to be blurring.

“People can relate more easily to a rational, interactive android than to a different species like a snail,” he says. “But which one is really more a part of you? We’ll always be more closely related biologically to a snail.”

ILLUSTRATIONS BY MATHIEU PERSAN FOR USC DORNSIFE MAGAZINE
Los Angeles: Birthplace of the Future

Long considered the world capital of science fiction, L.A. is leaving behind the multiplicity of dystopian fates the genre so often predicted for it, as the city moves toward a different vision of its future — one that’s tapping into its past to create a more user-friendly, sustainable and equitable tomorrow.

By Susan Bell

The first time David Ulin visited Los Angeles in the late ’80s, he stayed with a friend who had a giant, aerial map of the city pinned to his breakfast room wall.

“What was amazing about it was that every piece of that grid, from the mountains to the sea, was filled in,” Ulin recalls. “And my first thought was, ‘Trantor. It looks like Trantor.’”

Ulin, formerly the Los Angeles Times book critic and now associate professor of the practice of English at USC Dornsife, is referring to the fictional urbanized planet — an entire planet as city — described by science fiction “Grand Master” Isaac Asimov in his acclaimed Foundation series.

It was, Ulin still feels more than 30 years later, a fitting comparison to make with L.A. and its majestic urban sprawl — “the city that ate the desert,” as the celebrated author and urban theorist Mike Davis so memorably characterized it.

With what once seemed like limitless space to expand, L.A. has long bucked the rules, flouting the established conventions of what traditionalists thought a city “should” be, to set its own radical urban trajectory. While L.A.’s experimental architecture by pioneering practitioners such as Richard Neutra and Rudolph Schindler invented new ways of indoor-outdoor living, and its space-themed designs (the LAX Theme Building and John Lautner’s Chemosphere immediately spring to mind) reinforced its futuristic image, the city’s legendary love affair with the automobile was also carving its legacy into an urban landscape crisscrossed by freeways and embellished with swooping interchanges. When one also takes into account L.A.’s dynamic relationship with the aerospace industry and, thanks to Hollywood, its global reputation as the world’s dream factory, it’s hardly surprising that the metropolis — perched on the western edge of the New World — has long captivated the global imagination as the futuristic city par excellence.

Professor of History William Deverell points out the irony here — that L.A. has been a city of the future for so long that there’s now a past to the notion that L.A. is the future.

Indeed, L.A.’s Chief Design Officer Christopher Hawthorne, professor of the practice of English at USC Dornsife and former architecture critic for the Los Angeles Times, traces the concept of L.A. as a futuristic city all the way back to the 19th century and its history as a place made by successive waves of newcomers.

“If you have a populace who arrived here with the idea that they could remake themselves in L.A., it’s probably only a matter of time before the city begins to think of itself as capable of the same kind of reinvention,” he notes.

Now L.A. faces new challenges to reinvent itself in the wake of the coronavirus pandemic, which has hit the city hard, particularly in economic terms. Fewer than half the residents of L.A. County were employed as of mid-April, according to a survey by the USC Dornsife Center for Economic and Social Research.

SCI-FI CITY

If L.A. has always been a magnet for those wishing to reinvent a new future for themselves, the city also drew others interested in creating a different kind of futuristic fantasy: science fiction. While L.A. may not have been the birthplace of science fiction, it’s certainly the capital of the genre — the place where sci-fi was embraced and popularized.

Since the early 1930s — when members of the legendary Los Angeles Science Fiction League, (now the Los Angeles Science Fantasy Society), including a teenage Ray Bradbury,
met downtown at Clifton’s Cafeteria — L.A. has provided a conducive environment for practitioners of the genre. Many, including Philip K. Dick, Robert Heinlein and Octavia Butler, made their mark in a city that allowed them to free their creative spirit.

“What’s interesting is that we use the future to comment on the present in L.A. in a way I don’t know of other cities doing.”

“Hollywood’s embrace of popular storytelling meant there were financial and creative opportunities for sci-fi writers in L.A. that just didn’t exist elsewhere,” Ulin notes.

The presence of the aerospace industry and the prevalence of space science in L.A., he says, also had a profound influence in both transforming L.A. into an epicenter for science fiction and contributing to its glittering reputation as the city of the future.

But Ulin goes a step further, arguing that L.A.’s setting and infrastructure make it a science fiction city — not just in books and films, but also in reality.

“The dependency on technological intervention to make the city livable in an inhospitable climate is in a lot of ways not dissimilar to what we imagine would happen if we built a colony on Mars,” Ulin says. “And then in the ’50s, all those dystopian invasion-of-Mars movies took place in L.A. because they were shot here.” These two elements, he argues, led to the conflation in the public imagination of L.A. and a futuristic, science fiction city.

Paradoxically for a city built and promoted by its boosters as a utopian paradise, the overwhelming majority of the sci-fi written, filmed and set in L.A. has been — like those alien invasion movies — distinctly dystopian. Davis’ 1998 book, Ecology of Fear: Los Angeles and the Imagination of Disaster, tallies the novels and movies featuring L.A.’s destruction: at least 138 from 1909 to 1999, something in which, Davis claims, the city takes a certain civic pride.

Even when L.A. isn’t being annihilated by aliens, other dystopian visions of the city abound, from Steve Erickson’s early novels, Rubicon Beach and Days Between Stations, which are set in a dysfunctional, broken down, futuristic L.A., to Cynthia Kadohata’s In the Heart of the Valley of Love, which takes place in L.A. in the 2040s, where everything, Ulin says, “is just bigger and kind of worse.”

L.A.’s most iconic dystopian fantasy remains, of course, the acid rain-washed hellscape of Ridley Scott’s Blade Runner, a film inspired by Philip K. Dick’s award-winning novel Do Androids Dream of Electric Sheep? One of the film’s key settings, the 19th-century Bradbury Building in downtown L.A., is a physical manifestation of just how intimately science fiction and reality can be interwoven in the City of Angels. The Bradbury’s distinctive, wrought-iron railings and open-cage elevators provided an unforgettable backdrop for much of Scott’s film, but the building’s design was actually inspired by another work of science fiction — America’s earliest, in fact: Edward Bellamy’s 1887 novel, Looking Backwards, which takes place in 2000, 19 years before Blade Runner is set but 18 years after it hit our screens in 1982.

“What’s interesting,” Ulin says, “is that we use the future to comment on the present in L.A., in a way that I don’t know of other cities doing.” The further we move away from 1982, the more Blade Runner looks like a film about how Angelenos viewed their downtown at the time as a scary wasteland, he argues, and not a movie about 2019, when it’s set.

“I think that’s often what science fiction does,” Ulin says. “We think about science fiction as an imaginary excursion into the future, but really it’s a projection of the present.”

A BETTER TOMORROW

Now that we’ve caught up with Scott’s sci-fi masterpiece, what’s fascinating, Ulin notes, is that in 2020 we don’t live in the L.A. of Blade Runner. Instead, he says, we live more in the L.A. of In the Heart of the Valley of Love, a city in which the wealthy live in gated communities while everybody else must make do outside them.

Hawthorne, one of the nation’s foremost experts on the built environment, is determined to change that. As L.A. turns its back on the dystopian fates so often predicted for it in science fiction and instead reinvents and redefines itself for the 21st century and beyond, he’s working to find more user-friendly, sustainable and equitable solutions to the city’s multiple challenges.

“We’ve always toyed with both utopian and dystopian ideas of what our future would be,” he says, “and L.A. was always capable of standing in for the future city in either scenario.”

However, Hawthorne argues that this is a strength.
“L.A. has been seen for most of its modern existence as unfinished, in eternal flux or on its way to some dystopian or utopian future, far more than New York, Chicago or San Francisco. Our ideas of what those cities mean and what they look like are much more fixed and immovable.”

For a long time, L.A. always assumed it had more room to grow, more space to conquer. “Being aware of our limits now that we’ve run out of room to expand has produced a shift in mindset in terms of how we see the future,” Hawthorne says.

“We’re moving to a city that will not be so reliant on the car or the kind of low-density sprawling development that has marked so much of the region.”

Those two building blocks, how we live and how we get around, are undergoing dramatic reinvention as L.A. moves toward a future that actually looks a lot more like its past — a city with a bustling downtown, that’s more connected, that has more affordable housing, more successful public open spaces and a mature and comprehensive transit system.

“That’s what the future of L.A. looks like and that’s how the voters have told us they want the future of the city to look,” Hawthorne says.

Is there a certain irony in the fact that L.A. is now looking to its past to become a city of the future?

Deverell, the historian, thinks not.

“I always think we should look to the past to figure things out,” he says. “The past is not way behind us. It’s right at our shoulder; it’s right there. It’s how we understand better the present and to understand the present is to make steps in the right direction for the future.”

As he draws a blueprint for our urban future, Hawthorne is also helping USC Dornsife build bridges between its experts and community leaders through his 3rd LA project, which he brought to USC in January. This laboratory for urban reinvention will be a cornerstone of USC Dornsife’s Academy in the Public Square initiative, which encourages USC Dornsife scholars to collaborate with policymakers and nonprofit and industry leaders to address complex challenges such as climate change, affordable housing and public health.

“USC Dornsife has embraced that set of challenges and really sees itself as a proving ground for new ideas, new technologies, new solutions for helping build this more equitable, and, in some ways, more resourceful city of the future,” Hawthorne says. “We hope that the Academy in the Public Square will play an important role as a convener for these conversations. There’s more momentum, I think, at USC than in any other institution in the region to galvanize work on those fronts.”

Even as L.A. evolves, Hawthorne believes the city will remain a futuristic icon in the world’s imagination.

“I think because of Hollywood and the creative industries that are here, this will always be a center for innovation.”

Deverell agrees.

“If you’re a city of the future, then that’s built on optimism,” he says. “I would like to be part of that. Who wouldn’t?”

_FUTURE FLOW_  

Art historian Vanessa Schwartz says the defining quality that made Los Angeles the birthplace of the future is movement.

“L.A. created the city of the future, in which we would have cities modeled on circulation, on constant mobility — on the model, in fact, that Walt Disney developed at Disneyland: an experimen-tal, prototypical community of tomorrow,” said Schwartz, professor of art history and history and director of USC Dornsife’s Visual Studies Research Institute.

This futuristic vision of the city was sparked by the jet age, Schwartz says. In her book _Jet Age Aesthetic: The Glamour of Media in Motion_ (Yale University Press, 2020), she explores how the experience of the fluid motion of jet travel was extended both to life on the ground — inspiring airport architecture, Disneyland’s built environment, image culture in films and popular magazines, which created the “jet set” — and also shaped the collective imagination of the period.

The speed and fluidity of jet flight allowed people to imagine themselves living in the future, Schwartz says. The eventual result, she argues, is that the jet age aesthetic gave birth to our own internet age and to the digital communication that — Ironically — now renders such travel unnecessary, because we have the ability to surf the internet while going nowhere at all.

“The jet didn’t just make the world smaller, it created an experience of flow, and that’s important because it laid the groundwork for our contemporary media culture and prepared people to become the digital citizens that they are today,” Schwartz says.

The internet, she adds, makes sense for us as users because we are already adapted to it — thanks to the experience of flow that preceded it during the jet age.

“L.A. embraced and greatly contributed to the jet age aesthetic because its rise to prominence coincided with the period and its emphasis on flow. Ultimately, it’s a place that isn’t about place,” she argues. “L.A. is so powerful because it grabbed and created, from the ’60s onward, the kind of global, media flow of communication, entertainment and trade, which has made it a vibrant hub ever since.” —S.B.
AN ECOSYSTEM OF IDEAS: SUSTAINABILITY ACROSS THE DISCIPLINES

The window is still open. We have opportunities to change our trajectory — from one in which climate change brings disastrous effects to the natural environment, our global economy and human health to one that thrives on clean energy, ingenuity and boundless opportunity. But we need radically different thinking.

With a reinvigorated commitment to tackling what are among the most pressing issues ever faced by humankind, USC Dornsife is looking beyond technical innovation to the systems, policies and mindsets that must drive societal transformation. To maximize our effectiveness, USC Dornsife is building robust connections with the policymakers and business leaders who implement solutions.

As our scientists develop new sources of energy and expand knowledge of our ecosystems, our social scientists provide insights to help us overcome political and personal barriers that prevent more rapid adoption of sustainable technology and processes. Meanwhile, our scholars who explore history, culture, literature and philosophy offer new frameworks for understanding how humans interact with the environment. Together, they are creating a more comprehensive understanding of the steps we can take to move the needle on sustainability.

USC Wrigley Institute for Environmental Studies
For more than half a century, the USC Wrigley Institute for Environmental Studies, headquartered at USC Dornsife, has undertaken research that fills critical gaps in environmental science. From new insights into ocean acidification to pioneering techniques for sustainable aquaculture, institute scientists and students are committed to preserving our planet and our livelihoods through the discovery and testing of groundbreaking sustainability practices and technologies.

Loker Hydrocarbon Research Institute
Exploring alternative hydrocarbon sources and new chemistry for renewable fuels and developing more efficient ways of using and recycling our present resources.

Department of Chemistry
Researching the science behind renewable energy, specifically solar energy, energy efficiency and lighting sources.

Department of Biological Sciences
Researching the environmental aspects of the life sciences, with a broad range of applications for microbial ecology, food webs and biogeochemical cycling, aquaculture and food security, biological adaptation to a changing world, and conservation biology.

Department of Earth Sciences
Studying basic questions about the operation of the Earth system, from convection in the mantle to the evolution of life. Addressing problems of increasing social relevance, such as development of biofuel-cell technology, modeling of El Niño effects, geoinformatics and seismic hazard analysis.

Department of Physics and Astronomy
Conducting research on biological networks, bio-nano systems, biological charge transfer and biological fuel cells. Major research focus areas include water quality and safety, and electricity from waste.

Natural Sciences

USC Dornsife

Applying Research

Humanities

Eccocriticism, Ecopoetics and Issues in Nature and Culture
Conducting research, writing and teaching about issues relating to the natural world and sustainability. Includes faculty whose training ranges from art history to literature and history.

Associate Professor of American Studies and Ethnicity Juan DeLara is researching environmental justice topics, including neighborhood equity and pollution exposure.

Assistant Professor of Gerontology and Spatial Sciences Jennifer Ailshire is researching unequal exposure to particulate air pollution and the consequences for cognitive function, particularly in older adults.

USC Associates Captain Allan Hancock Chair in Marine Science and Professor of Biological Sciences Dave Caron and Associate Professor of Biological Sciences and Environmental Studies Eric Webb are researching harmful algal blooms and their causes, including human coastal pollution, and the consequences for public health, wildlife and fisheries.

USC Wrigley Institute for Environmental Studies

Huntington-USC Institute on California and the West
Engaging in multiple programs and projects relating to sustainability in partnerships with other nearby universities and institutions, including the Los Angeles Times and the Office of the Los Angeles City Mayor. Led seminars on western environmental history and policy, including conference on the history of fire in the American West. Working with the Los Angeles River revitalization project.

Mark Thompson, Ray R. Irani, Chairman of Occidental Petroleum Corporation, Chair in Chemistry and Professor of Chemistry and Chemical Engineering and Materials Science is working with Universal Display Corporation on organic solar cells that are applied to building windows via a thin plastic film.

USC Dornsife
Spatial Sciences Institute
Models social and environmental systems to improve understanding of the factors linking society, the environment and human health. Helped the city of Los Angeles generate ideas around promoting the capture of rainfall as part of the mayor’s storm-water capture initiative in 2018.

Environmental Economics
Exploring how urban life will be affected by climate change; how to incentivize the adoption of green energy and transportation solutions; the relationship between economic growth and the environment in megacities in Asia and Latin America; the relationship between air pollution and health in the developing world.

Program for Environmental and Regional Equity
Conducts research and facilitates public discussion on how communities are differentially exposed to risk from environmental stressors. Convenes community organizers, researchers and funders to advance policy and the field of environmental justice.

Environmental Studies
Uses an interdisciplinary approach to complex environmental problems using natural and social sciences, including geosystems, biology, chemistry, economics, political science, and international relations.

Developing Initiatives

USC Prediction Science
This initiative will be based on an interdisciplinary approach to enhance the methodology of prediction science and broaden its applications from seismology to issues such as extreme weather, droughts, floods and other climate-related events.

G.K. Surya Prakash, George A. and Judith A. Olah Nobel Laureate Chair in Hydrocarbon Chemistry and professor of chemistry, developed technology to help manage air quality in large buildings more efficiently. The product absorbs air impurities and CO2, reducing the need to cycle in outside air, thereby lowering the building’s energy use by 20 to 30 percent. The technology was subsequently licensed by enVerid.

Professor of Earth Sciences and Environmental Studies Will Berelson is surveying L.A.’s air with a network of CO2 sensors. Together, his land sensor and drone technologies will create an unparalleled CO2 sensor network to improve the natural capture of this greenhouse gas.

Institute for Environmental Solutions
This newly proposed institute seeks to understand the megacity as a complex ecosystem and a geosystem that modifies resource allocation and impacts air, water and soil at a variety of spatial scales best studied through high-density deployment of environmental sensors and “big data” approaches.

Environmental Studies
Uses an interdisciplinary approach to complex environmental problems using natural and social sciences, including geosystems, biology, chemistry, economics, political science, and international relations.

Social Sciences

Teaching Sustainability
USC Dornsife offers a variety of majors and minors that feature a significant focus on issues related to sustainability. For example, students majoring in environmental studies take an interdisciplinary approach to complex environmental problems by integrating ideas spanning the natural and social sciences. Others learn from leading spatial scientists who rely on data and advanced imaging tools to create more vibrant communities. And the Department of Middle East Studies is the first department of its kind to explore issues of the region through the context of sustainability.

Accelerating Policy
Hosted by the USC Wrigley Institute for Environmental Studies, the USC Dornsife Center for the Political Future and the USC Schwarzenegger Institute for State and Global Policy, the first annual Climate Forward: Navigating the Politics of Climate Change conference convened scholars and policy-makers from across the aisle, along with leaders in the private sector, to facilitate fact-based dialogue focused on bipartisan solutions. “Science has been screaming at us, exhorting us to act,” said former U.S. Secretary of State John Kerry, who gave the keynote address.

Electrifying Discovery
Moh El-Naggar, Robert D. Beyer (’81) Early Career Chair in Natural Sciences and professor of physics and astronomy and chemistry, and his team at the NanoBio Lab discovered how a unique bacterium can be used as the basis for living batteries. Today, El-Naggar is exploring the remarkable potential for a new category of hybrid fuel cells and wastewater treatment systems that harness the sustainable power produced by these microorganisms.

Turning Over a New Leaf
Digitally identifying changes in historical images, experts at the Spatial Sciences Institute (SSI) revealed that new construction in 20 cities across the L.A. Basin has caused shade loss at a rate of more than 1 percent per year. The findings provide support for the city’s urban forest plan to restore tree cover to help filter CO2 and cool neighborhoods. SSI Director John Wilson is creating an app that Angelenos can use to report damaged or dying trees so the city can preserve these vital resources.

A Breath of Fresh Air
Poverty and poor air quality impact children in Long Beach, California. Many have one-third the lung capacity of their peers living in Santa Monica. Citi Community Development funded a report from PolicyLink and the USC Dornsife Program for Environmental and Regional Equity, providing equity guidelines for Long Beach city support systems and government agencies. From investing in nearby job centers that reduce the need to drive to building a compassionate police force, our experts are helping the city move toward a more just and sustainable future.

USC Dornsife

CREATE, CONNECT, INSPIRE —

The Unexpected Value of Online Learning

How USC Dornsife beat the odds to transform online learning into a vibrant virtual experience with almost unlimited educational potential.

By Susan Bell

If you could listen to a 95-year-old Holocaust survivor, compete for a license to perform on the Elizabethan stage during an outbreak of plague, virtually meet the authors of the books you’re studying or learn tips from a legendary Tahitian big-wave surfer, wouldn’t you leap at the chance? USC Dornsife students got the opportunity to do all this and more following the switch to online learning in the Spring semester.

It was exciting, engaging, inspirational and — perhaps surprisingly — a success.

However, there’s no point pretending otherwise: Switching all USC Dornsife courses online halfway through the Spring semester — as the pandemic threatened the safety of our students, faculty and staff on campus — was a challenge of Herculean scope.

That the College was able to achieve so much is thanks to the resourcefulness, perseverance and — above all — creativity of both USC Dornsife faculty and students who worked so hard to make the most of online learning. While on-campus education remains the gold standard for USC and its peer universities, the online experience nevertheless proved to be much more effective than many had expected, opening surprising new avenues through which to engage students.

That the College was able to achieve so much is thanks to the resourcefulness, perseverance and — above all — creativity of both USC Dornsife faculty and students who worked so hard to make the most of online learning. While on-campus education remains the gold standard for USC and its peer universities, the online experience nevertheless proved to be much more effective than many had expected, opening surprising new avenues through which to engage students.

Andrew Stott, college dean of undergraduate education and academic affairs and professor of English, credited USC Dornsife faculty, staff and administrators with doing “a great job.”

“In the space of three days, we took 3,500 courses online,” he says. What began as an emergency response moved to refining and improving teaching methods and then on to exploring the creative and innovative things possible through online learning, he added.

Given that at least some portion of teaching will remain online in the fall, the next step for USC Dornsife over the summer is to move beyond comfort with the technology to an even higher standard of academic excellence in online education.

To that end, Stott says USC Dornsife is investing in technology, software and tools to ensure this is a truly great experience for students. “We’ll be spending a great deal of time, attention and effort on making sure we’re ready for the fall, so students have academic continuity and the academic rigor they expect from a USC Dornsife education.”

In reflecting upon what we learned in the rapid transition, Stott observed that professors were able to enhance education in new and unexpected ways, and even provide benefits for students that differed from those of on-campus learning. For example, professors invited leading thinkers from outside the campus community and also built online collaborations that fostered new forms of innovation and creativity.

NEW LESSONS LEARNED

“What the move to online has shown us is that we have a lot more flexibility in the way that we can enrich the educational experience than perhaps we realize,” Stott says.

While acknowledging that it’s painful to be away from campus, Stott argues that the lockdown requires us to be creative and flexible in new and innovative ways.

“We’ve really been able to leverage what it is about the USC Dornsife faculty and education that makes it so special,” he says. “It’s not the bricks and mortar — even though that’s important to us and important to our tradition. It’s the people, it’s the community and it’s the ideas, and that can also live online.”

Stott emphasizes the temporary nature of the current situation, however, reminding us that we all hope to return to on-campus learning as soon as it is safely possible.

“The important thing to remember in the meantime is that the spirit of USC Dornsife, and the spirit of the liberal arts, has always lived in the circulation of ideas.”

After all, Stott notes, books are the original “distance learning,” allowing us to commune with the minds of Aristotle,
William Shakespeare, Frederick Douglass or Aphra Behn across centuries and continents.

As for the Trojan Family, Stott notes it’s still very much alive and well.

“The idea of family has always contained this idea that we can be far apart, but still connected to one another,” he says. “We meet continually in virtual spaces and in terms of our shared endeavor and our shared commitment to our College and its traditions. Even though we’re far apart right now, we’ll be back again soon enough and this will seem like a dream.”

MEET THE EXPERTS

Among the benefits of online learning are the unprecedented opportunities to invite influential outside figures into the virtual classroom, enabling students to learn from the insights of experts beyond the USC community.

Stott notes that students at USC Dornsife are particularly privileged in this regard as the world-class faculty can help them connect with members of their own academic, intellectual and professional networks.

Sandra Ferrari Disner, associate professor (teaching) of linguistics, invited the world’s most renowned sociolinguist, William Labov, to “Zoom” into her “Language and Society” course.

Described by Linguistics Department Chair and Professor of Linguistics Andrew Simpson as “a living legend,” Labov was awarded the prestigious Talcott Parsons Prize by the American Academy of Arts and Sciences this year — only the 11th recipient since the prize was created in 1974. When the awards ceremony was postponed due to COVID-19, Labov offered to deliver his acceptance speech to Disner’s class instead.

“In addition to being a deep thinker, he’s a wonderful raconteur,” Disner said. “The experience was a real treat for our students.”

Students taking “Mexican Immigrants in Sociological Perspective,” a course taught by Florence Everline Professor of Sociology Pierrette Hondagneu-Sotelo, gained unique perspectives on their study materials when their professor invited the authors of the books they were reading into their Zoom classroom. “It was inspiring for the students — themselves mostly Latinx first-generation college students from working class families — to ask Latinx sociologists not only about their research, but how they had navigated higher education,” Hondagneu-Sotelo said. “This allowed them to imagine their own future educational possibilities.”

In a history research seminar on Jewish resistance during the Holocaust, students were able to hear first-hand from 95-year-old Holocaust survivor Zenon Neumark, who Zoomed into the class taught by Wolf Gruner, Shapell-Guerin Chair in Jewish Studies and professor of history.

“Zenon told the students how he managed to escape from several camps, joined three resistance groups and saved several fellow Jews in Nazi-occupied Poland,” Gruner said. “He left the class with this advice: ‘To fail is not a crime, but failing to try is.’”
CREATIVITY RULES

In his course “English Literature to 1800: Stages of Power,” Stott created a “Reacting to the Past” game, set in 1592. Students divided into three teams to compete for a license to perform on the Elizabethan stage during an outbreak of plague. They experienced the business and politics of Elizabethan drama in character and performed Shakespeare’s Richard III and Christopher Marlowe’s Doctor Faustus. They also wrote and presented a pageant in praise of Elizabeth I.

Students taking the general education seminar “Modern Russian Culture,” offered by the Slavic Languages and Literatures Department, also participated in a “gamified” simulation titled “Persecution in Putin-Era Russia.” First, they researched opponents to Russian President Vladimir Putin’s authoritarian practices who’ve been jailed or harassed, then presented their findings via wiki pages they created in the virtual learning environment, Blackboard. In the simulation, five dissidents were “arrested” each week. Working in teams, students read each other’s wiki pages to identify those imprisoned and to earn points to free them. The team with the most points — and fewest members in jail — at the end of the semester won.

How will the world rebuild after the pandemic? In his course “The Global South in World Politics,” USC Dornsife’s Douglas Becker, assistant professor (teaching) of international relations and environmental studies, teamed up with a colleague at South Korea’s Hankuk University of Foreign Studies to create a mock G20 summit. “This was a great opportunity to use the online lecture format to bring two student populations together, enabling them to work together with partners from different cultural, educational and political backgrounds,” Becker said.

Students in Derek Grossman’s course “Introduction to Asian Security Affairs” participated in mock National Security Council briefings where they acted as policymakers who must brief President Donald Trump (played by Grossman) on issues throughout the Indo-Pacific, including India-Pakistan nuclear tensions, the South China Sea, Taiwan, North Korea and whether the president can “punish” China for “hiding” COVID-19. “Mock presentations are a frequent teaching tool in international relations, and National Security Council briefings work well online because they are realistic in today’s environment,” says Grossman, adjunct professor of the practice of political science and international relations and a senior defense analyst at the Rand Corporation.

ALL WORK AND NO PLAY …

Research shows that having fun is conducive to enhanced learning. USC Dornsife students certainly experienced that firsthand in their online classes. In her “Drunk History” course, which explores the history of beverages through the ages, Lindsay O’Neill, associate professor (teaching) of history, and a British history specialist, held
an impromptu tea party with her students via Zoom as a jumping off point to discuss the history of the much-loved brew.

Students in Professor (Teaching) of Writing Mark Marino’s class provided a stress-relief session by teaching dance classes and leading meditation sessions, while lecturer in physical education Ian Culbertson invited legendary Tahitian big-wave surfer Raimana Van Bastolaer to share stunts and tricks with his surfing class. “Students gained valuable insight into the Tahitian surf culture, listened to personal accounts of the awe-inspiring yet intimidating world of big wave surfing, and heard firsthand stories from a surfing legend,” Culbertson said.

All these experiences helped raise morale, boosted class connections and enabled students to engage creatively with new technologies.

MAXIMIZING RESOURCES
Faculty also motivated students with inspiring course materials by maximizing the use of USC Dornsife’s rich resources.

For instance, Professor of Anthropology Erin Moore changed the fieldwork assignment in her “Body, Mind and Healing” course to enable students to use USC Shoah Foundation — The Institute for Visual History and Education’s Visual History Archive to explore questions of sickness, disease and medicine in periods of genocide.

Many faculty encouraged students to take advantage of the broad array of cultural experiences that have moved into cyberspace. Language students watched theatre performances and concerts and attended online museum tours and then reported on their experiences in class.

“I’m particularly impressed by the creative force this format of teaching has awakened — not only in me, but also in my students,” says Ivette Gomez, associate professor (teaching) of Spanish, citing a humorous Spanish conversation skit inspired by the hit show Tiger King, that two of her students created for their final exam. “Some of my students have been highly creative, using props found at home, backrop music, themes and stories that a class presentation simply wouldn’t allow.”

Moving Online:
The Graduate Experience

by Susan Bell

“ONLINE LEARNING IS REMARKABLY AMENABLE TO THE WAY WE TEACH IN SMALLER SEMINARS AT THE GRADUATE LEVEL,” SAYS STEVEN FINKEL, COLLEGE DEAN OF GRADUATE AND PROFESSIONAL EDUCATION AND PROFESSOR OF BIOLOGICAL SCIENCES.

Finkel cites two professors who were particularly nimble in adapting their graduate teaching to online learning.

Assistant Professor of Earth Sciences Seth John found his plans for his Spring semester course, “Analytical Chemistry of the Los Angeles Urban Environment,” derailed by the pandemic.

“The two key components of the class were field trips around L.A. to sample local rivers and streams, then working together to learn to use our new ICP-MS and ICP-OES instruments to analyze these samples,” John says. “Needless to say, neither of these activities was in any way compatible with the stay-at-home and social distancing guidelines implemented mid-semester.”

The solution? The group opted to switch the course focus to learning computer modeling skills after John asked students to build computer models of virus spread in a community. By the end of the semester, students had acquired the skills to successfully model a wide range of chosen projects.

“We had everything from geologists modeling the diffusion of elements between garnet crystals and the host rock, to hydrologists modeling the uptake of calcium and magnesium from soils into tree leaves, to ocean chemists modeling seawater alkalinity,” John notes. “It wasn’t the material we’d originally intended to study, but we learned other tremendously useful skills.” He now intends to incorporate this learning into a new course.

“Seth John basically had to throw out his playbook,” Finkel says. “He came up with something that turned out to be of incredibly high quality, intellectually rigorous and challenging to the students in a way that was still accessible to them. In the process, he identified a skill that we haven’t been formally teaching and realized that it would be highly beneficial to do so.”

When Professor of Biological Sciences and Chemistry Lin Chen’s structural biology course went online, he switched its focus to COVID-19.

“I focused on the recent structural studies of SARS-CoV-2, the virus that causes COVID-19, and asked the students what questions they had about the virus and disease that they wished to learn from the structural perspective,” Chen explains. He then went on to show how the crystal and electron microscopy structures could be used in combination with the students’ respective areas of expertise to study the questions they have.

“The students were really into it,” Finkel says. “They’re still learning the same fundamental material, but because Professor Chen made it more relevant and gave it that sense of connection and immediacy, the online classes were more successful than he ever imagined.”

Chen agrees, adding that he found Zoom to be a very efficient way of teaching computation. “The unexpected plus is that students are actually more engaged than during in-person class, perhaps because they don’t have the inhibition of speaking in front of a large audience,” he says.

Chen was not alone in reaching this conclusion, Finkel notes: Many faculty were pleasantly surprised at how successfully online instruction worked as students and faculty discovered a new sense of community online.

“I think people expected there to be a real deficit, but again and again I’ve heard faculty say, ‘I was surprised at how connected I felt to the students and how connected the students in the field were to each other,’” Finkel says of USC Dornsife’s switch to online learning. “We had to think outside the box a little bit and, again, it’s not that we want it this way. But until we’re able to return to campus, we’re going to be just fine.”

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A Brighter Tomorrow

From environment to family, transportation to health care, from work and leisure to what we’ll eat and how we’ll age, USC Dornsife faculty share how they think our future world will look. By Margaret Crable

As the 19th century drew to a close and a new era dawned, an American civil engineer named John Elfreth Watkins consulted experts at the nation’s “greatest institutions of science and learning” for their opinions on 29 wide-ranging topics. Watkins, who was also a contributor to the Saturday Evening Post, then wrote an extraordinary magazine article based on what these university professors told him.

Published on Page 8 of the December 1900 issue of Ladies Home Journal — a sister publication of the Post — it was titled “What May Happen in the Next Hundred Years.” Watkins opened the article with the words, “These prophecies will seem strange, almost impossible.” In fact, many of his far-sighted predictions for the year 2000 — which included the invention of digital color photography, television and mobile phones — proved remarkably accurate.

For this issue of USC Dornsife Magazine, we have repeated the experiment by inviting 10 scholars drawn from USC Dornsife faculty and representing diverse disciplines to predict what the world will look like in the year 2050 and the year 2100.

Here, we offer you their expert opinions.
A BLUER PLANET
Astronauts circling the globe in 80 years may find our blue planet looking quite a bit bluer, says Naomi Levine, assistant professor of biological sciences and Earth sciences.

“The middle of the Pacific or Atlantic oceans are what we call the ‘deserts’ of the ocean. They’re really low in nutrients, and things that live there are usually small. As a result, these areas look very blue because there isn’t much there except water,” Levine explains. “As the climate warms, we predict that these desert areas are going to expand. So, ocean waters will look bluer from space.”

A BRIGHTER SHADE OF GREEN
Our planet may also look a bit greener. Travis Williams, professor of chemistry, says that without an active plan for removing the carbon clogging our atmosphere, nature could step in.

“If we don’t choose a biomass that’s going to utilize higher temperatures and that atmospheric carbon, nature is going to choose on our behalf, and I don’t think we’re going to like it,” he says. To avoid harmful organism explosions like algae blooms, Williams foresees a human-led reforestation of the planet, at a scale several times the size of the Amazon rainforest.

WHAT’S ON THE MENU?
A greening planet could also be due to changes in our agricultural systems. A move away from monoculture farming and a return to an ancient polyculture approach might be on the horizon, says Sarah Portnoy, associate professor (teaching) of Spanish. Portnoy researches indigenous food cultures of Mesoamerica and suggests that in the future we could adopt the milpa food system. “Animals would be grazing on the same land where there are cover crops and squash, corn, beans and all kinds of herbs growing together,” she says.

This isn’t just a utopian pipe dream. Governments will have to seriously rethink agriculture if they want to reduce rising rates of chronic disease such as obesity, especially among the poor. “The agriculture that is supported by the government now is skewed toward crops like soybeans and wheat. Our food system is geared to the cheapest calories,” Portnoy says.

The high-calorie, processed foods produced from these monoculture, subsidized crops are less expensive than fruits and vegetables, but do little for our health. Unless we reprioritize which crops get government cash, we can expect disparities in health between economic classes to continue. By 2050, only the privileged might be able to afford strawberries or carrots.

Food supplies will alter in other ways as well, thanks to climate change. The bluer oceans will be less friendly to bigger marine organisms, which means fewer large fish to harvest.

“When you change ocean temperatures, it changes what types of organisms can grow, and that cascades up the food web,” says Levine. Sushi chefs in 2050 might dish up more avocados and scallops than tuna rolls. This could work for future diners, Portnoy thinks. “There’s a move toward being a lot more intrepid as an eater, and toward plant-based diets,” she says.

ONE BIG, HAPPY FAMILY
Starting off your day in 2050 could mean wheeling your toddler to the state-funded neighborhood day care center. Birth rates are currently plummeting across the industrialized world and governments may soon need to tackle the problem as a public health priority, says Darby Saxbe, associate professor of psychology and director of the USC Center for the Changing Family.

“We’ll realize that, when the birth rate goes down, that affects our future workforce,” she says. “When we’re not able to replace our population, it ultimately becomes a national security issue.” Child care benefits, family leave and subsidized, part-time work schedules for parents could be the government’s strategy to encourage a new baby boom.

We may be well into the digital age, but you might not find too many iPads in the nurseries of the future. Increased awareness of the pitfalls of screen time could change our approach to parenting via device. The original scions of social media themselves now admit to limiting their own children’s time online, observes Saxbe. “In fact, in some of the more expensive private schools in Los Angeles, you have to sign a no screen time pledge.”

The keywords there might be “expensive” and “private.” A movement away from childhood spent online could leave behind children from poorer families as technology becomes cheaper and the cost of human labor rises. It will likely soon be less expensive to instruct classrooms of kids via lessons on tablets than by engaging a human teacher.

“You might end up with a two-class system,” Saxbe warns. “You have more kids having a digital childhood that’s a little less regulated, especially in neighborhoods where it’s not safe to play outside. Wealthier families are going to be able to afford more hands-on child care and more hands-on educational activities, instead of leaving kids alone with their technology.”

However, technology can still benefit the family in the coming decades. In fact, Saxbe believes this is a largely untapped opportunity with great potential. Silicon Valley technologists — primarily childless young men — still haven’t tackled devices like the breast pump or baby monitor, which could both use a redesign.

“Has there been a real focus on innovation and investment when it comes to things that serve parents and families yet?” asks Saxbe. “I think there’s a big market there.”

WORKING 10-TO-4
After dropping your child off at day care, you head to work. You likely won’t be putting the keys in the ignition of your own car, though. Kyla Thomas, sociologist at the USC Dornsife Center for Economic and Social Research and director of LABarometer, a quarterly internet-based survey of approximately 1,800 L.A. county residents, says that by 2030 commuters will probably rely more on public transit and shared, autonomous vehicles to get around.

“Public transportation will be faster and more convenient, and increased density in neighborhoods will mitigate sprawl. Parking will be more expensive and harder to find. By 2100,” Thomas says, “private car ownership will be a thing of the past.”

Hopping out of your driverless commuter van, you clock in at the office for your six-hour work day. Patricia Grabarek, lecturer with USC Dornsife’s Online Master of Science in Applied Psychology program, believes that the traditional 40-hour work week could get phased out by 2050.

“We are in the midst of a job revolution that’s on the scale of the Industrial Revolution,” Grabarek says. “The entire nature of work will change.”

Automation promises to replace many jobs, and streamline others. Combine this with the growing emphasis on work-life balance, embodied by current millennials pushing
Aging in the New Age may mean more nontraditional family units. “Older adults prefer to age and die at home, but what happens when you don’t have a big family network to support that? It may mean people might be more invested in friend networks, or the idea of chosen family,” says Saxbe. Cue *The Golden Girls* theme song.

Sean Curran, associate professor of gerontology and biological sciences, believes that a focus on increasing our “health span,” the period of life during which one is free from serious disease, rather than simply elongating our life spans, will improve the quality of our longer lives as we age.

“The goal is to have a personalized approach to aging that takes into account an individual’s genetics, environment and life history,” explains Curran. “The assisted living facility of the future will be patient-centered, with each resident having a personalized prescription to maintain optimal health.”

Eli Levenson-Falk, assistant professor of physics and astronomy, predicts that quantum computing could unlock the development of those drugs.

Quantum computers solve problems much more swiftly and with higher information density than today’s computers. Although the technology is still in its infancy, Levenson-Falk predicts that by 2050, practical quantum technologies will be used commercially by major drug companies for research and development.

Enormously complicated computational tasks like simulating a chemical’s molecular structure are much more achievable through this technology.

“The idea is that with a quantum computer you can sort of emulate nature,” he explains. “We might have the canonical example for this by 2050: the physical shape of a protein molecule.”

Predicting the shape is nearly impossible with a classical computer, Levenson-Falk says.

“Measuring it is difficult and requires you to predict the shape first. With a good quantum simulator, we can emulate the protein and just let quantum mechanics do the processing for us, then measure the result at the end.”

THE QUANTUM AGE

Indeed, quantum computing might solve questions that relate to the very fabric of the universe. Or at least get us closer to the answers.

“Dark energy, dark matter, quantum gravity and the quantum classical transition are the principle problems existing in physics today. Quantum technologies are the best bet to solve the last one,” says Levenson-Falk. “Quantum sensors will probably also be used to help detect dark matter, or at least falsify some theories. And there are some proposals for using quantum technologies to poke at quantum gravity.”

We cannot, of course, predict our shared future with 100 percent accuracy, but one thing we can be sure of is that it will be filled with new challenges and opportunities to create a better tomorrow. Although advances in technology will certainly help determine our future, how equitably those advances are shared in our interconnected world will also play a dominant role in shaping it.

“This is a tale of two societies: You could either see things get better and more supportive for families, or you might see two-class stratification,” Saxbe warns.

As the future unspools, we are given both the invaluable gift and the tremendous responsibility of deciding how we want it to look. Whether our world in 2100 takes on the dystopian qualities of *Blade Runner* or embodies the utopian, egalitarian ideals of *Star Trek* remains in the terrestrial hands of those already building that future.

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“The goal is to have a personalized approach to aging that takes into account an individual’s genetics, environment and life history.”
Resilience is in USC’s blood. The university has persevered, survived — and thrived — through two world wars, a great depression, a great recession, uprisings, earthquakes and, following the Spanish flu of 1918-20, is now living through its second pandemic. Our nickname, “Trojans,” an ode to the fighting spirit of the mythological Trojan army, could not be more apt.

It is not just our perseverance that matters, but also how we adapt. Catastrophic events can help forge character, toughen spirits and strengthen our resolve to shape the world.

“Some of the most interesting forms of resilience are seizing the most unexpected moment to make something of it that wasn’t there before,” says USC Dornsife Professor of Philosophy Mark Schroeder.

Beth Meyerowitz, professor of psychology and preventative medicine, agrees. Her research on how cancer survivors cope, finds many feel they benefited from the experience. “Resilience is not something a person either has or doesn’t have, it’s how the person responds to, or handles, a stressful situation,” she says.

The same can be true for institutions, and right from the beginning, resilience was built into USC’s DNA. The university was founded in 1880, occupying a single building erected on acres of mustard fields, in the middle of the raw frontier town of Los Angeles. The railroad linking the town to San Francisco had arrived four years earlier, but early USC students still walked dirt roads to class.
L.A. UPRISINGS

Protests against systemic racism and police brutality have deep roots in L.A. Recent uprisings have historical parallels, among them the 1992 protests over the acquittal of four police officers involved in the violent arrest of Rodney King.

When looting and fires swept perilously close to campus in 1992, USC implemented a robust emergency plan. No buildings were damaged and students helped with clean-up once the protests subsided.

Seven decades later, alumna Peggy Kalpakian Johnson remembered the chilling experience of watching those active duty students head to war from USC. “Buses were parked along University Avenue and the men slowly entered them, single file,” she said. “World War II changed the entire world, but on a very personal level it changed the lives of everyone who stood there in the sunshine at USC bidding silent farewell.”

Many USC Dornsife alumni also fought in World War II, among them Louis Zamperini, an Olympic runner turned WWII bombardier who survived two years in a Japanese prison camp, showing exemplary Trojan commitment to service on the frontlines. The 2014 film Unbroken, produced and directed by Angelina Jolie, was based on Zamperini’s life.

When the war ended, USC rebounded and by 1948 surpassed its record for student enrollment.

WORLD WAR II

The shadow of global conflict returned to campus in December 1941, when the U.S. entered World War II. More than 70 faculty members marched off to service and by 1945, three-quarters of male students were in uniform.

Young men studied at USC while training to become officers in the U.S. Army, Navy or Marines. In 1943 and 44, hundreds of students in the enlisted reserves and officer training corps were suddenly called to active duty, many before graduating.

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WILDFIRE

In 2007, USC was again under threat. On May 10, 2007, a wildfire roaring across Santa Catalina Island came within 10 miles of the USC Wrigley Marine Science Center. Power and phone lines were incinerated. Staff worked tirelessly to save animals and valuable frozen specimens threatened by the loss of power, even improvising a “bucket-brigade” system using a truck battery to keep water fresh for a tank of sea bass.

Although it would take months for full communications to be restored, the center continues to thrive today, while its scholars make crucial progress on issues of sustainability and environmental preservation through classwork and a host of research projects.

CORONAVIRUS

Now, the COVID-19 pandemic has brought new challenges to USC. In order to maintain safety, students, faculty and staff adapted to virtual classes, a postponed commencement and a near-empty campus. Many USC Dornsife alumni continue to tackle the virus on the frontlines. The Trojan Family has stepped up to support one another, forging a world-class online education, donating personal protective equipment to hospital workers and contributing funds to help Trojans worst affected by this crisis. Meanwhile, tens of thousands came together to enjoy an inspirational virtual celebration of the Class of 2020 in May, with the promise of reuniting on campus next year for commencement.

For those searching for hope on the horizon, consider these words from a Daily Trojan editorial from February 1919. Just a few months earlier, the influenza outbreak had brought the city to its knees. War had darkened the campus for more than a year. Despite this almost unimaginable intersection of events, Trojans were ready to rebound.

“The war in Europe is over, each day the campus gets a new thrill from a newly returned uniform. Influenza is passé. And besides all this, “spring is cub” and every student, from the lowliest freshman to the mightiest senior, has a perfect right to be happy.”
Dr. Cool
A chemist by training and an entrepreneur by trade, Tony Atti ’00 has transformed a discarded 200-year-old invention into cutting-edge technology that promises to revolutionize the future of cool in our warming world. By Michelle Boston

You know the clunky, old-fashioned technology that keeps your food cold and your home heated? Tony Atti has a high-tech, environmentally friendly solution to replace it that fits in a chip the size of your fingernail.

The USC Dornsife alumnus is the CEO of Phononic, the company he co-founded to advance this thermoelectric technology. Named after a phonon, the basic particle of heat, Phononic is poised to upend the $30 billion-a-year market for compressor-based cooling.

Here’s an example. Say you drop by a convenience store to grab a cold soda or a carton of milk. Typically, you’ll head to the large refrigerators in the back of the store to select your beverage.

While you’re choosing between cola and iced tea, what may not occur to you is the reason for the refrigerators’ size and location: The compressors that make them run have significant energy needs that require special electrical connections and a large amount of space to contain and ventilate their machinery.

A typical refrigerator uses a compressor to circulate a liquid refrigerant like Freon, which sets off a series of thermo-dynamic changes through a system of coils and condensers, creating cold by removing heat and transferring it elsewhere.

Now imagine a small refrigerated box, a little bigger than a microwave oven, that is cooled using a thermoelectric chip, which creates cold by moving heat from one side of the chip to the other, a process known as solid-state technology. Using about 30 percent less energy and without toxic refrigerants, it can be placed on a checkout counter where customers can grab drinks, ice cream bars or other cold fare at the point-of-sale.

Phononic has already put these countertop freezers in stores around the country for a major food and beverage retailer, merchandising several ice cream brands. Atti’s company is also attracting clients in health care, fiber-optic communications and climate-control markets — an area that’s becoming increasingly important as global temperatures rise.

While these opportunities are incredibly exciting, it hasn’t been easy, Atti admits. Bringing a potentially game-changing technology to market and going up against a 200-year-old incumbent has been “backbreaking work,” he says.

“It’s romantic to talk about disruptive companies. But you’ll find every obstacle in your way to prevent change.”

So far, Phononic has been able to make meaningful inroads in diverse markets. This is largely thanks to Atti, whose scientific knowledge and dedicated focus has pushed thermoelectric cooling and heating technology to an exciting turning point that could revolutionize the way we make things hot or cold, while substantially improving sustainability.

GO WEST, YOUNG MAN

Atti’s entrepreneurial spirit has deep roots. He jumped feet first into the working world as a young boy delivering newspapers in his Buffalo, New York, neighborhood.

“That area of the state has a reputation for being a blue-collar, very hard-working town,” he says. “It’s something that I’ll take with me throughout my life.”

Now 45 and living in Durham, North Carolina, with his wife and three children, he keeps a piece of a wagon used to pull papers from house to house mounted on his wall as a reminder of his work ethic — and to inspire his kids.

“I tell them all the time about what I did ‘back in my day,’” Atti says with a laugh.

Friendly and charismatic, he’s as relaxed chatting about Phononic’s thermoelectric technology in a television interview as he is in a one-on-one conversation.

That’s because in addition to having the business acumen needed to run the company, he’s also extremely comfortable explaining the science behind the technology. Atti earned a Ph.D. in chemistry from USC Dornsife in 2000, an unexpected twist in what started out as a very specific — and very different — career plan.

Atti is the eldest of three siblings in what he characterizes as a “pretty large, fun and loud Italian American family.” His father, now retired, sold insurance and his mother is a nurse. She still practices. Because of his mother’s career, Atti spent a lot of time around medical professionals. Entering college, he was determined to become a doctor.

He earned his undergraduate degree in biochemistry
Entrepreneurship doesn’t have to be a lonely journey — the Trojan Family shows that doesn’t have to be the case.”

CLEAN ENERGY PIONEERS
At USC, Atti went to work with renowned chemists G. K. Surya Prakash and George Olah, leaders of the USC Dornsife Loker Hydrocarbon Research Institute. Olah won the 1994 Nobel Prize in chemistry for his groundbreaking work on superacids and his observations of a fleeting chemical species known as carbocations. Together with Prakash, the two pioneered the visionary concept for creating renewable energy sources known as the methanol economy, a model in which chemistry is used to produce methanol in place of fossil fuels for energy storage, fuel and feedstocks.

When researching Ph.D. programs, Atti had still been committed to the pursuit of medicine, but after talking to Olah and Prakash, he switched his plans and made synthetic, organic and polymer chemistry the focus of his research. “They put the hard sell on me that it would have a much broader applicability in all areas of science, and be a smart way to approach my career,” he says. “It made sense to me.”

At USC Dornsife, Atti joined a high-profile research partnership between the institute and the NASA Jet Propulsion Laboratory. The effort looked at methanol-powered fuel cells. To be commercially viable, advances in performance and cost were necessary. Atti worked on developing chemistry — specifically, solid polymer electrolytes — with the right conversion efficiencies, and weight and cost benefits.

The program was very focused, disciplined and accelerated, Atti said. “It was a privilege for me to work on it. I was, and still am, unbelievably grateful.”

SOMETHING COMPLETELY DIFFERENT
The methanol fuel cell program introduced Atti to the world of technology commercialization and how to take an idea from concept and research to market.

It also made him realize that venture capital and technology commercialization were his passions. “Keep in mind this was the late ’90s, early 2000s — the dot-com era,” he says.

“In light of the opportunity to take incredible work done by others and bring it into the public or commercial domain, the thought of being a research scientist or taking a purely technical career path was just not for me.”

Though his career took him out of the lab and Olah passed away in 2017, Atti stays in touch with his former Ph.D. adviser Prakash to this day, stopping by the Loker Institute when he’s in L.A.

Atti has also returned to USC Dornsife to address students at a career symposium. “They were highly inspired by his talk,” notes Prakash, George A. and Judith A. Olah Nobel Laureate Chair in Hydrocarbon Chemistry and professor of chemistry.

The Trojan Family continues to be an important part of Atti’s professional life. He’s tapped into the university network throughout the years, but a current collaboration with a fellow former member of the Loker Institute exemplifies the tremendous value of the worldwide network of alumni.

Tim Londergan, who earned his Ph.D. in chemistry in 1998 from USC Dornsife, has spent years as an entrepreneur specializing in technology licensing. Now, his firm, Wavefront Venture Partners, is helping Phononic launch its climate control program in Singapore.

“Entrepreneurship can be a lonely journey — the Trojan Family shows that doesn’t have to be the case,” Atti says.

BACK TO THE FUTURE
In his early years as a venture capitalist, Atti found that his counterparts were reluctant to go to universities to talk to academics because they didn’t understand the culture.

It was an environment in which Atti, of course, was very comfortable. “That was my super power,” he says. “My experience at USC was essential to that professional ability.”

With thermoelectric technology, Atti has the opportunity to bring a whole new approach to two very basic challenges: How to keep things cool or make them hot.

Ironically, Phononic’s approach dates back nearly two centuries to its discovery by French physicist Jean Charles Athanase Peltier in 1834 — around the same time that vapor compressor technology was established.

But imperfections in the metals used at that time made the process, dubbed the Peltier effect, inefficient and unreliable. To find a solution for today’s world, Atti visited scholars at research universities around the country to learn how to make the technology commercially viable. In 2009, he brought a list of pitfalls, and the names of university partners who could address them, to his investor group.

“Quite literally the next day, two investors gave me a term sheet and Phononic was founded that afternoon.”

According to Atti, what makes solid state compelling is that without moving parts you have a complete inversion of the way cooling is conventionally provided.
"A vapor compression system uses a motor and mechanical parts along with toxic refrigerants that contribute to global warming to artificially create cold. It’s brute force, but it’s effective," he says.

Phononic’s chip and subsystems function differently, pulling heat out of an appliance instead of pushing cold into the cabinet in the way that compressors operate. “You get a much more uniform, stable and responsive level of cooling that has superior performance and efficiencies,” he explains.

Atti believes his company is on the cusp of ushering in a new future in cooling and heating solutions — one that’s far more sustainable than the dated model we have depended on for so long.

The technology has already been adopted by network equipment manufacturers driving 5G cellular expansion. These users rely on the technology to cool fiber optic and wireless infrastructures — a process of tremendous importance. “If those optics and wireless components are not kept at a very careful temperature, there goes your data,” Atti notes.

A number of health care and pharmaceutical science companies have also adopted refrigerators and freezers that use Phononic’s technology to store drugs and vaccines in hospitals, clinics and pharmacies around the world.

But Atti sees the biggest potential for growth in the cooling market in Southeast Asia. Keeping things cool in this hot and humid part of the world — whether it’s products in transit or the temperature in someone’s home — is a challenge.

However, there are countless ways to reimagine how to address basic heating and cooling needs and potential new products with more sustainable, less toxic and more efficient technologies. Atti is up for the challenge.

“There are an unbelievably eclectic group of markets dependent on a centuries-old technology, and their thermal needs tend to be very similar to one another,” he says. “We believe they’re reaching the tipping point where the incumbent solutions are no longer getting it done.”
The Future School of Letters, Arts and Sciences

By Meredith McGroarty

A revamped curriculum, a reimagined first-year experience and the creation of the Dornsife Toolkit are some of the ways that USC Dornsise is forging an innovative new model for an education in the humanities, social sciences and natural sciences — one that will best prepare the students of today to be the leaders of tomorrow.

Today’s college student may look nothing like the typical undergrad of 50 years ago. A member of the class of 2024 is more likely to be a woman, to be a person of color, to be a first-generation college student and to be relying more heavily on scholarships and student loans to pay the tuition bill. Despite the changes in student demographics, not to mention shifts in the curriculum, career paths and preferred fields of study, the goal of a liberal arts education has remained the same — to provide timeless values and skills so that the student of today can be a leader tomorrow.

But that doesn’t mean it can’t be improved, which is exactly what USC Dornsish is out to do.

The College has recently implemented major changes to overhaul the undergraduate experience. These changes will ensure that today’s student body is educated in the way that best meets their needs and that of today’s job market while holding true to the core facets of a liberal arts education, which at USC Dornsise encompasses the humanities, social sciences and natural sciences.

“We live in an environment in which the liberal arts are not as appreciated as they should be. Our argument is that a liberal arts degree is a professional degree that not only grants you tools for citizenship but is also something that can be translated in a variety of professional settings,” says USC Dornsise’s College Dean of Undergraduate Education and Academic Affairs Andrew Stott.

No matter a student’s major, the skills that come with an education in the humanities, social sciences or natural sciences — critical thinking, analytical reasoning and the ability to clearly communicate one’s goals, expectations, findings and opinions — will prepare them to be a leader in virtually any profession, from journalism and diplomacy to medicine, law and business leadership. The values are not simply career-focused: Having a strong education in these areas helps individuals build confidence, self-awareness and decisiveness, allowing them to be more effective problem-solvers and organizers.

“The liberal arts provide essential skills — the ability to write, the ability to speak and the ability to tell stories — that empower people to realize they have a strong measure of control over their own lives,” argues Divisional Dean for the Humanities Peter Mancall. Having this control, and the confidence to exert it, are essential to becoming a leader, he says.

The interdisciplinary nature of such an education, where students are taught to view issues from various angles — looking at climate change from a philosophical and economic angle, for example — allows people with this education a greater “freedom to pivot” that makes them more prepared for a wider variety of career paths, explains USC Dornsise Dean Amber D. Miller. Weaving programs and opportunities together and setting them against the vibrant cultural and entrepreneurial background of Los Angeles give USC Dornsise an edge over its peer institutions, Miller adds.

“The secret sauce of a USC Dornsise education is that it isn’t what our students study with us that matters,” she says. “It’s the way that they learn to think, to explore, to analyze, and to take problems apart that gives them a leg up on the competition.”

CHANGING NEEDS
The values of the liberal arts may be timeless, but student needs have shifted dramatically over the past several decades, and USC Dornsise has been making some big changes to ensure students have the proper information and support to navigate its broad, interdisciplinary curriculum.
“We have a lot more evidence that suggests that young students and those transitioning to USC’s academic rigor need more help than they did 10 or 20 years ago,” says Stott. “They have more social needs and social anxieties, and we want to support them.”

To meet the needs of today’s — and tomorrow’s — students, USC Dornsife is redesigning the way it approaches higher education. New initiatives include providing better guidance for undergraduates, particularly first-year students; linking courses that examine one topic from different angles; and supplementing purely academic content with classes that teach students career-oriented skills, such as how to establish work-life balance or write a grant.

“The wonderful thing about USC Dornsife is it’s full of opportunity. With all of that complexity, the College is too big to embrace sometimes,” Stott notes. “Part of our project is developing ways to better communicate to all our students — whether they are studying East Asian languages or organic chemistry — that they are part of a community of scholars who are all being trained to be thinkers and doers.”

Stott and Associate Dean for Undergraduate Programs Richard Fliegel worked together with these goals in mind to develop “The Dornsife Idea.” This reimagining of the undergraduate experience focuses on making students aware of the diverse array of courses USC Dornsife offers, provides more comprehensive advising services for first-year students and offers guidance and instruction on how an undergraduate degree from USC Dornsife can translate into a career.

THE RIGHT TOOLS
An undergraduate student concerned about how her degree in economics or biological sciences will help her get a job at an international NGO, or another student seeking advice on presenting himself more professionally in job interviews, can now find guidance through the new Dornsife Toolkit, a collection of classes teaching valuable life and career skills such as grant writing, personal finance management, work-life balance, self-presentation and advocacy.

“When they are being most candid, business leaders emphasize the need for critical thinking and communicative skills among their employees — both of which are central to a Dornsife education,” Fliegel notes. “USC Dornsife is committed to student learning in those areas, but also to their practical application in an interconnected world. These Dornsife Toolkit classes help our students transition to jobs and graduate programs that lead ultimately to rewarding personal lives and successful careers.”

Gabrielle Fabrikant-Abzug, a senior majoring in psychology with a minor in public health, took several Toolkit courses during her time at USC Dornsife. She notes that the classes helped her feel more prepared for her future. Fabrikant-Abzug, who plans to pursue a Ph.D. in clinical psychology, says the Toolkit courses taught her about managing personal finances, writing a cover letter and interviewing for jobs.

“These classes are different from more traditional college courses because they focus on teaching students basic, real-life skills that we may not have learned in any other setting,” Fabrikant-Abzug notes. “I have a much greater sense of confidence in my ability to lead a balanced, comfortable and successful life after college than I did before taking these courses.”

NAVIGATING THE PATH
Today’s students may feel compelled to stick to subjects and courses they consider to be “practical,” thereby missing out on the range of exciting learning opportunities available to them. Providing students — especially first-year students — with better guidance that allows them to confidently explore the full extent of the College’s curriculum is the other main goal of the new USC Dornsife project, Stott explains.

“We heard a lot of people felt disappointed they didn’t take certain classes sooner,” he says.

Now, students will be exposed to a wide range of everything USC Dornsife has to offer earlier in the structure of the curriculum. Special advising services, courses and programs that encourage first-year students to interact and explore different subjects are just a few ways USC Dornsife will work to broaden students’ engagement across the College.

Interdisciplinary courses are also a vital element of greater integration, and USC Dornsife will be offering more linked courses, in which two classes related to one topic are taught together. For example, a class
looking at the economic impact of climate change might be linked to a course exploring the ethical problems of an ecosystem in crisis, which leads to crises like mass migration and food scarcity. For political science, one course might focus on rhetoric and another on polling and data sampling. Each of the classes would satisfy at least one general education requirement, Stott says.

Another approach involves expanded advising services for undergraduates, particularly new ones. A first-year student who wants to go into marketing as a career, but also thinks she might like to know more about the philosophy of Baruch Spinoza and baroque art, could meet with her core adviser to discuss how to map out a curriculum that will get her to a major while still allowing time for plenty of learning in other areas.

THE ROAD AHEAD
Like many in their field, Stott and Mancall are concerned that there is a misunderstanding about the core values of the liberal arts — curiosity, exposure to a broad spectrum of disciplines and the ability to analyze and translate knowledge into behaviors that are both individually and socially beneficial — at a time when students and parents are understandably looking for a return on investment.

Miller agrees, citing a 2018 study by the Association of American Colleges and Universities in which executives listed the top six skills they valued in employees: communication, critical thinking and analytic reasoning, teamwork, information literacy, complex problem-solving skills and creativity. All of these, she notes, are the very foundational blocks of a liberal arts education. Moreover, they are important for leadership: Nearly 60 percent of American CEOs hold a bachelor’s degree in a humanities field.

“If you look at the United States census for the undergraduate degrees of today’s top 1 percent of salary earners, the top dozen or so fields are all in the liberal arts and sciences,” Miller says. “Yet, still I get questions about the value of a liberal arts education.”

Stott agrees that the liberal arts are valuable for nearly every career, adding that faculty and administrators also aim to help students “develop a rich interior life” that will serve them well for the rest of their lives.

Looking Beyond the Doctorate
by Meredith McGroarty

Undergraduates are not the only ones who need help charting a course for life outside the university.

Today’s doctoral candidates, faced with a hyper-competitive academic job market, need to acquire skills in areas such as leadership and management. USC Dornsife’s Ph.D. Academy focuses on honing those skills through a structured series of workshops and discussions, offered over the five years of a graduate program and covering such topics as professional budgeting, grant writing and public speaking. It is the first such program to train Ph.D. students across an entire school of letters, arts and sciences.

Steven Finkel, college dean of graduate and professional education and one of the creators of the Ph.D. Academy, says that the skills the program aims to enhance, such as leadership and communication, will be useful for employment in both academic and nonacademic environments.

“No matter the sector — academic, nonprofit, private — we want our doctoral students to be comfortable being leaders and managing groups of people effectively,” he says. “We also want them to be able to address a diverse audience, not just audiences of experts.”

USC Dornsife Dean Amber D. Miller agrees.

“We need to make sure that we’re giving our students a competitive edge and preparing them for the full range of job opportunities both inside and outside academia,” she says. “The Ph.D. Academy is designed to help our students land the very best faculty positions or find rewarding careers in other sectors. The choice should be up to them.”
Defining a New Future for Research Universities

by Stephen Koenig

USC Dornsife launches Public Exchange to facilitate and streamline partnerships between academic experts and private and public sector leaders.

When the New York City Police Department engaged an experimental astrophysicist at Columbia University to serve for two years as its chief science adviser, it wasn’t interested in finding out what set off the Big Bang. However, the NYPD did need help calibrating and implementing new technological equipment such as cameras and sensors designed to detect chemical and biological weapons.

Piloting new sensors and instrumentation was something that Amber D. Miller, now dean of USC Dornsife, did routinely in her laboratory. Her role advising the NYPD caused Miller to wonder why the full range of creativity and expertise in research universities wasn’t being tapped by civic and business leaders all the time.

“Today’s problems like sustainability and economic inequality are tremendously complex,” Miller says. “Universities have not only natural scientists, but also economists, psychologists, political scientists and many other experts who can help tackle these issues from any angle.”

When Miller arrived at USC Dornsife in 2016, she announced her ambitious vision to change the way that research universities and the public work together. Her signature initiative, the Academy in the Public Square, encourages USC Dornsife scholars to expand their scholarly interaction with local, national and global communities.

By demonstrating that faculty can spend part of their time helping to solve tangible problems while continuing to work on their highly specialized research and teaching commitments, Miller believes that universities will increasingly become go-to sources for expertise.

“We need to reach out to the business community and to our governments and ask, ‘If you could call on an expert of any type, what problems could they help you solve?’” says Miller. “People need to know they can count on us to work on big, thorny problems.”

A cornerstone of the Academy in the Public Square is the newly launched Public Exchange, an office that facilitates and streamlines partnerships. After matching leaders with the right experts at USC Dornsife, Public Exchange, led by Executive Director Kate Weber, provides the researchers with tailored project management support from start to finish.

“Our partners in the public and private sectors are facing so many complex questions,” Weber notes, “from how to design cities to lower greenhouse gas emissions and make public transit more accessible to how to gauge the spread of infectious diseases in real time. Our researchers have the deep expertise to dig into these problems and provide the data, analysis and ideas that lead to real solutions.”

Miller hopes that Public Exchange will help define the future of research universities and that the model will be adopted at other top institutions throughout the nation.

“Just imagine how much collective impact can be made when every other university adopts our model,” she says. “Tens of thousands of faculty experts around the country engaged in the same way, helping to solve problems and driving progress.”

“People need to know they can count on us to work on big, thorny problems.”

AMBER D. MILLER,
Dean, USC Dornsife College of Letters, Arts and Sciences
Anna H. Bing Dean’s Chair

“Illustrations by Dennis Lam for USC Dornsife Magazine
A century ago, Angelenos were wrestling with another pandemic — the deadliest on record: the Spanish flu. The 1918–20 outbreak claimed 50 million lives worldwide — almost 700,000 of them in the United States — more than the military and civilian casualties of World War I combined.

Los Angeles’ first case was reported on Oct. 1, 1918. Within 10 days, more than 680 were recorded.

The city lost no time in imposing strict measures designed to halt the spread, including social distancing and quarantine.

By mid-October, “flu squads” made up of armed police were preventing groups from congregating on sidewalks. USC closed its doors, schools and movie studios shut down and crowds were banned from churches, saloons, theatres and concert halls, while boxing matches, wedding receptions, indoor dances and meetings were canceled. Meanwhile, L.A. children entertained themselves by skipping rope to this popular rhyme:

I had a little bird,  
Its name was Enza.  
I opened the window,  
And in-flew-Enza.

Public transportation vehicles were disinfected daily, people were urged to shop by phone and the wearing of face masks was strongly encouraged. Flu victims were quarantined at home. Three makeshift emergency hospitals opened for critical cases. The city council created a health advisory board composed of local physicians. Anyone violating the board’s emergency laws was subject to a misdemeanor charge. A conviction carried a maximum $500 fine and a six-month jail term.

The stringent measures paid off: Fewer than 70 deaths a week per 100,000 people were recorded from October through December in L.A. — less than half the death rate in San Francisco, where officials reacted more slowly and residents took warnings less seriously. Toward the end of the crisis, California’s Board of Health dubbed L.A. the safest large city in America.

“As this photograph shows us, people took seriously their role in trying to prevent disease spread,” says Professor of History William Deverell, director of the Huntington-USC Institute on California and the West. “They understood the obligation of individuals to the group, to their loved ones and to people they did not and would never know.” — S.B.

During the 1918–20 Spanish flu pandemic, Pasadena, California, ordered mandatory wearing of masks in public, prompting smokers to cut holes for cigarettes, cigars and pipes. Chicago tourist Henrietta Lockwood “went insane from sheer fright” when she stepped off the train and “beheld the masked city,” the Los Angeles Times reported in 1919.
Faculty News

STEPHEN BRADFORTH, divisional dean for natural sciences and mathematics and professor of chemistry, was elected a Fellow of the American Association for the Advancement of Science.

RICHARD BRUTCHEY, professor of chemistry, was awarded an Inorganic Nanoscience Award from the American Chemical Society.

MARK CHAISON, assistant professor of biological sciences, received a 2020 Sloan Research Fellowship.

LUIS CHIAPPE, adjunct professor of Earth sciences and biological sciences, was elected a fellow of the American Association for the Advancement of Science.

ANN CRIGLER, professor of political science and policy, planning and development, received the 2019 Murray Edelman Distinguished Career Award from the American Political Science Association’s Political Communication Section.

WILLIAM DEVERELL, professor of history, received an Ozzie Award from Folio in the category Long-Form Feature Content – City and Regional for his feature story “A Little Girl, a Deep Well and a Big Story” in Journal of Alta California.

STEVEN FINKEL, college dean of graduate and professional education and professor of biological sciences, was named president-elect of the American Society for Microbiology.

VALERY FOKIN, professor of chemistry, was elected to the American Institute for Medical and Biological Engineering College of Fellows. He also received the G.A. Clemmow Award from the Russian-American Science Association and was also awarded the Markovnikov medal by the Department of Organic Chemistry at Lomonosov Moscow State University.

CARLY KENKEL, Gabian Assistant Professor of Biological Sciences, received the Early Career Award from the International Coral Reef Society and was named a fellow of the society.

ANNA KRYLOV, professor of chemistry, was awarded the 2020 Earle K. Plyler Prize for Molecular Spectroscopy and Dynamics by the American Physical Society.

AARON LAUDA, professor of mathematics, was elected a fellow of the American Mathematical Society.

Voyage of the Stable Venus (knopf, 2015) by ROBIN COSTE LEWIS, writer in residence, was named one of the 10 best poetry collections of the decade by Literary Hub.

ANDREW McMAHON, W. M. Keck Provost Professor of Stem Cell Biology and Regenerative Medicine and Biological Sciences, was elected to the National Academy of Sciences.

VIET THANH NGUYEN, University Professor, Aerol Arnold Chair of English and professor of English, and American studies and ethnicity and comparative literature, received the Literature Award from the American Academy of Arts and Letters. His book The Sympathizer (Grove Press, 2015) was named one of the 10 best debut novels of the decade by Literary Hub.

MANUEL PASTOR, Distinguished Professor of Sociology and American Studies and Ethnicity and Turpanjian Chair in Civil Society and Social Change, was named a member of California Governor Gavin Newsom’s newly created Council of Economic Advisors. He was also appointed to a new Task Force on Business and Jobs Recovery by Newsom.

ALEXANDRE ROBERTS, assistant professor of classics, received a Humboldt Research Fellowship from the Alexander von Humboldt Foundation.

HUBERT SALEUR, professor of physics and astronomy, was named the 2018 Laureate of the Jean Richard Prize by the Société Française de Physique.

NORBERT SCHWARZ, Provost Professor of Psychology and Marketing, was elected to the Academia Europaea.

ANDREW STOTT, professor of English and college dean of undergraduate education and academic affairs, won the 14th annual Marfield Prize for outstanding writing in 2019.

MARK THOMPSON, Ray R. Irani, Chairman of Occidental Petroleum Corporation, Chair in Chemistry and professor of chemistry and chemical engineering and materials science, was elected to the National Academy of Engineering.

DAVID TREUER, professor of English, was selected for the 2019 National Book Award in Nonfiction shortlist.

SHERRY VELASCO, professor of Latin American and Iberian cultures and gender and sexuality studies, was inducted into the Phi Kappa Phi Honor Society.

ARIEH WARSHEL, Distinguished Professor of Chemistry, Biological Sciences, Biochemistry, and Chemical Engineering and Materials Science, and Dana and David Dornsife Chair in Chemistry, was elected a Foreign Member of the Russian Academy of Sciences.

Continued on page 48.

HONORS

Historian thrice garners prestigious recognition

Two prominent fellowships and a noted book prize recognize exceptional scholarship.

Maya Maskarinec, assistant professor of history, received several esteemed accolades: a 2020 fellowship from the National Endowment for the Humanities (NEH); a Humboldt Research Fellowship from the Alexander von Humboldt Foundation; and the 2019 Hagiography Society Book Prize.

The NEH Fellowship supports Maskarinec’s efforts to research and write a book about prominent families in late medieval and early modern Rome. The work will explore how those families appropriated Christian saints and the saints’ life stories into their own family histories to further their moral and political authority.

Maskarinec’s Humboldt Research Fellowship supports her project “Monasteries and the Development of Legal Science in Tenth- and Eleventh-Century Italy,” work she will undertake at the Freie Universität Berlin (Free University of Berlin).

The Hagiography Society prize honors her monograph City of Saints: Rebuilding Rome in the Early Middle Ages, which explores how Rome interacted with the wider Mediterranean world in the Byzantine period to become a spiritual center of Western Christianity in the early Middle Ages. —D.S.J.
In 2003, Kathy Saade Kenny, the granddaughter of Palestinian immigrants, stumbled upon a mysterious cache of letters stored in an old See’s Candies box in her mother’s Los Angeles home.

Inside were more than 130 letters written by her grandmother, Katrina Sa’ade. A successful businesswoman, Sa’ade had migrated to California from Palestine via Mexico.

Suspecting the letters could provide a treasure trove of information about her family history, Kenny was intrigued. However, as a third-generation immigrant, she didn’t possess the key to unlock their secrets: The letters were written in Arabic.

Enlisting the help of a Palestinian historian and translator, Kenny was able to uncover an untold family drama — helping her connect to her sense of Arabness and refine her identity as an Arab American.

Sarah Gualtieri describes this scene in her latest book *Arab Routes: Pathways to Syrian California* (Stanford University Press, 2019), which explores how an Arab American community came into being in Southern California.

At a period in history when we are facing increased Islamophobia and increased hostility to immigrants, Gualtieri, associate professor of American studies and ethnicity, history and Middle East studies, says she would like people to take away the idea that there are different ways to be American.

“Too often we think of Arabic-speaking migrants and their children as being somehow more connected to the region of origin than they are to the region of settlement,” Gualtieri says. “This book offers a rich history of how integrated Arabs are into the Southern California fabric.”

The cover — an iconic image of California leisure showing acrobats performing at Santa Monica’s Muscle Beach in the 1940s, set against the backdrop of Khoury’s, a Syrian American café — perfectly illustrates this.

“I want readers to obviously be struck by the tumblers,” Gualtieri says, “but also to look beyond them and to see another layer — this Syrian American café where people probably went to buy a soda while they watched the acrobatics.” —S.B.
When Alex Chang ’11 first arrived at USC Dornsife, it wasn’t a career in food that was on his mind. An avid baseball player in high school, he had decided to major in kinesiology and was considering a career in sports medicine. Life at USC intervened, however. In his sophomore year, he moved into a campus apartment with several other students, including Robert Kronfil, a music major. While Chang’s major may appear unrelated to his passion, USC students arrived at Paladar in droves as they elbowed up to the homemade table for dishes like squid-ink pasta and duck-leg confit that Chang prepared in a small kitchen adorned with USC flags.

Gil Freston, a student at USC School of Cinematic Arts, shot a documentary of the supper club that debuted at the Tribeca Film Festival. Despite the increasing demands of Paladar, Chang maintained a full course load at USC Dornsife. He also switched majors, graduating with a degree in international relations.

After graduation, Chang jetted first to Europe for chef apprenticeships that bolstered his classic cooking techniques, then back to Los Angeles to work at the James Beard Award-winning Animal before landing in Miami to help open the Vagabond Restaurant and Bar. In 2017, he returned to L.A., where he is now head chef at the Freehand hotel.

While Chang’s major may appear unrelated to his passion, the classroom experience, he says, was formative. “You learn how to work and the kind of work that it takes to be successful. And, you learn how to think for yourself, make your own decisions, and also think critically.” —M.C.

Alumni News

1960s
GAIL KENNA (B.A., English, ’65) won first or second place in five categories in the National League of American Pen Women’s Biennial Letters Competition. She is a creative nonfiction judge in the Soul-Making Keats Literary Competition.

1970s
GARRY KIEF (B.A., psychology, ’70) was elected to the board of directors of the Barbara Sinatra Children’s Center in Rancho Mirage and The McCallum Theatre in Palm Desert, both in California.

DONALD LAPLANTE (B.A., political science, ’76; B.A., journalism, ’76) has been elected president of the Board of Education for Downey Unified School District in California. This is his seventh term.

1980s
JOSEPH ARLETH (B.A., economics, ’84) recently completed his Ph.D. at George Washington University where he researched “Improving Federal Employee Engagement Through First-Level Supervisors.”

PAUL BARTON (B.A., psychology, ’84) was promoted to Americas Region Sales Manager for HP Specialty Printing Systems, responsible for covering North, Central and South American sales.

DASHA NISULA (Ph.D., comparative literature, ’82) translated from Croatian into English a recently published second edition of You With Hands More Innocent by Vesna Parun.

1990s
BEN AMMERMAN (B.A., political science, ’97) has joined Fisher Phillips, a national employment and labor firm.

CHRISTINA CONLEY (B.A., history, ’94) was appointed to the executive board of the Ventura County Sheriff’s Foundation and serves as the marketing chair and the Shop with a Cop chair.

2000s
ARABA NAYENA BLANKSON (M.A., psychology, ’03; Ph.D., psychology, ’07) was promoted to full professor at Spelman College in Atlanta, GA.

MOLLY CLAFLIN (B.A., political science, ’05) won the 2020 Stevens Award presented by the Truman Foundation.

2010s
WAVERLY MIDDLETON (B.A., international relations (global business), ’18) was awarded second place and named fan favorite in the Goldman Sachs Gives Analyst Impact Fund competition.

ERIC HOYEON SONG (B.A., biochemistry, ’14) received the 2020 Paul and Daisy Soros Fellowship for New Americans.

MICHAEL ZOBEL (B.A., biological sciences, ’11; M.D., ’15) completed a Pediatric Surgery Research Fellowship at Children’s Hospital Los Angeles. He is now completing his residency in general surgery at the University of California, San Francisco.

Births
REBEKAH OLKOWSKI (B.A., international relations, ’09) and Gary Olkowski, welcomed twin daughters, Elena Bernadette and Gwendolyn Michelle.

Continued on page 50.
EXPOSING SLAVERY: PHOTOGRAPHY, HUMAN BONDAGE, AND THE BIRTH OF MODERN VISUAL POLITICS IN AMERICA
Fox-Amato (Ph.D., history, ’13) argues that photography has been used as an oppressive force in the fight for social justice, helping slaveholders defend slavery and enabling soldiers in the Civil War to visualize racial hierarchy.

INNOVATION IN STAINED GLASS
Judson (B.A., international relations, ’96) traces a family history of working with stained glass.

PREPARED: WHAT KIDS NEED TO LIVE A FULFILLED LIFE
Tavenner (B.A., psychology, ’92) advises parents on how to help them prepare their children for the future.

TOO STICKY! SENSORY ISSUES WITH AUTISM
Malia (Ph.D., English, ’09) explores sensory issues in autistic children with this picture book for kids.

HOME REMEDIES
Tavenner (B.A., psychology, ’92) explores sensory issues in autistic children with this picture book for kids.

THE DATA CATALOG: SHERLOCK HOLMES DATA SLEUTHING FOR ANALYTICS
O’Neil (B.A., psychology, ’76) helps contextualize working with data, aiding data scientists.

THE BEST WEEK THAT NEVER HAPPENED
Woodburn (B.A., English (creative writing), ’09) penned this mysterious coming-of-age fantasy romance set in Hawaii.

ALUMNI AND STUDENT CANON

ARROYO Convergent Books / Chip Jacobs (B.A., social science and communication, ’83) tells parallel stories of a young inventor and his clairvoyant dog in 1913 and 1999 and their relationship with Pasadena’s landmark Colorado Street Bridge.

JUDSON

THE BEST GRAPHY, HUMAN BONDAGE, AND THE BIRTH OF MODERN VISUAL POLITICS IN AMERICA

TO SHAKE THE SLEEPING SELF
Jenkins (B.A., English (creative writing), ’09) chronicles his cycling trip from Oregon to Patagonia and his resulting journey of self-discovery.

BEAUTY AS IT IS
Benito (B.A., French, ’19) writes about fostering a more inclusive and authentic view of beauty.

PREPARED: WHAT KIDS NEED TO LIVE A FULFILLED LIFE
Tavenner (B.A., psychology, ’92) explores sensory issues in autistic children with this picture book for kids.

NEW DEGREE BEAUTY AS IT IS
Rodriguez-Benito (B.A., French, ’19) writes

In Memoriam

FAROKH SHAD AFSAHI (M.A., economics, ’67; Ph.D., urban studies, ’79) of Laguna Niguel, CA (5/13/2020) at age 84; vice president at Union Bank; loved playing Persian and country music on his violin, traveling and spending time with grandchildren.

MARY ELIZABETH ZOLA (B.A., geography, ’66) of Monrovia, CA (4/14/2020) at age 77; worked for the U.S. Social Security Administration; loved all things Disney; enjoyed traveling the world, especially Africa.

NANCY AJEMIAN (B.A., biological sciences, ’82) of Grosse Pointe Shores, MI (4/7/2020) at age 60; board certified physician; enjoyed spending time with family at Canadian Lakes, MI.

THEODORE CAROTHERS (B.A., economics, ’55; M.S., education, ’61) of Pasadena, CA (3/2020) at age 90; served in the U.S. Army Corps of Engineers in the Korean War; avid RV traveler; loved reading and writing fiction; tennis and baseball fan.

JAMES CARRICK (Ph.D., chemistry, ’00) of San Diego (1/4/2019) at age 48; scientist and senior product development manager at Gen-Probe Inc.; contributed to 20 patents, named inventor on seven.

GEORGE MYERS (B.A., chemistry ’48; M.A., chemistry ’50) of Portland, OR (2/24/2020) at age 93; worked as a research chemist with the USDA Forest Products Laboratory; loved traveling to Europe.

ARROYO Convergent Books / Chip Jacobs (B.A., social science and communication, ’83) tells parallel stories of a young inventor and his clairvoyant dog in 1913 and 1999 and their relationship with Pasadena’s landmark Colorado Street Bridge.

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GEORGE MYERS (B.A., chemistry ’48; M.A., chemistry ’50) of Portland, OR (2/24/2020) at age 93; worked as a research chemist with the USDA Forest Products Laboratory; loved traveling to Europe.
Alumnus John Bitzer Jr., a former business owner and philanthropist, died at his home in Fort Worth, Texas, on March 18, 2020. He was 83.

A native of Hartford, Connecticut, Bitzer earned a bachelor’s degree in economics from USC Dornsife in 1961. The following year, he earned a master of business administration in finance from USC Marshall School of Business. He became president of the family business ABARTA in 1972 and was named chairman and CEO in 1986, serving until his retirement in 1999.

“He believed that a well-rounded liberal arts education is the best foundation for life,” Bitzer’s son John Bitzer III said. John Bitzer Jr. gave back to USC in various ways throughout his life. In 1999, he created the John Elliott Distinguished Chair in Economics, named after his favorite professor at USC. John Bitzer Jr. also served on the USC Dornsife Board of Councilors and was involved in Swim With Mike, a USC scholarship initiative that supports student-athletes with physical disabilities.

This experience and others were influential in convincing two of his children — John Bitzer III and his brother, Charlie Bitzer — to attend USC Dornsife, where they earned bachelor’s degrees in English and history, respectively. (His third child, Polly, died in 2018). Two of his 14 grandchildren — Alice and Elizabeth Bitzer — also graduated from USC Dornsife. In a nod to the family’s multigenerational legacy at the College, John Bitzer Jr. established the Bitzer Family Scholarship in 1983 to support promising students in the humanities.

“He always felt a strong need to give back to USC,” John Bitzer III said. “He was an enthusiastic student and an enthusiastic alum.” —M.M.

Richard “Dick” Cone helped raise JEP to national prominence. He is shown here with Barbara Seaver Gardner, who preceded him as JEP director.

Community Advocate

A deeply empathetic man, longtime JEP director Richard “Dick” Cone was passionate about public education and creating more university-community partnerships.

Richard “Dick” Cone, former director of the Joint Educational Project (JEP) at USC Dornsife and a lifelong advocate for public education and greater interaction between universities and their surrounding communities, died at home on April 3. He was 77.

After graduating from California State University, Long Beach, Cone took on teaching assignments in the United States and in countries around the world, including Turkey, Brazil, Iran and Jamaica. Upon returning to California, he earned his master’s and Ed.D. in educational psychology at UCLA.

Cone joined JEP in 1976 and was named its director in 1980, a position he would occupy until his retirement in 2002. At JEP, he brought more academic rigor to the idea of service learning and built lasting partnerships with local schools.

Under Cone’s direction, JEP experienced a great deal of growth in terms of both student participation and national recognition. When USC was named “College of the Year” by the 2000 edition of the Time/Princeton Review College Guide, the editors cited the school’s service-learning program as their reason for doing so.

JEP Executive Director Susan Harris said that in addition to his professional accomplishments, she most remembers Cone for his empathy.

“He was a very moral person guided by his own sense of principles of reciprocity and respect and sense of community,” she said. “He was a role model of how to be in the world and interact with people in a way that was compassionate and stimulating.” —M.M.
EXPERIENTIAL LEARNING
Established in 1972, USC Dornsife’s award-winning Joint Educational Project (JEP) is one of the oldest and largest service-learning programs in the United States. Each year, more than 2,000 USC students enroll in JEP’s service-learning, work-study and volunteer programs, many of which benefit the USC Family of Schools — 15 neighborhood schools surrounding the University Park and Health Sciences campuses. Here, grade-school students enjoy participating in a range of JEP initiatives, including the Young Scientists Program, USC ReadersPLUS and Little Yoginis.
SERENITY

A moment of peace invites reflection as a fountain outside Doheny Memorial Library is bathed in evening sunshine on USC's University Park campus.
Life Moment  PHYSICS 430: GENERAL RELATIVITY AND GRAVITATION