TRaversING POSSIBILITY

Our pioneering scholars link the past and present to a better future.
All-American sprinter
Just’N Thymes attacks his studies as if each exam is a track meet.
“I know that if I study hard, just like if I train hard, I will get the results I want,” he said. “It’s simple.”
Thymes, who transferred to USC Dornsife in September from Riverside City College, commented that USC had always been his “dream school” both for athletics and academics.
He majors in sociology because he enjoys analyzing society’s evolution.
“I’m taking an elective anthropology course called ‘Cross-Cultural Research on Urban Gangs,’” Thymes said. “It’s interesting to learn the mindsets of gang members and explore why they do what they do.”
Thymes’ unique name stands out on the Trojans’ roster almost as much as his impressive results.
“I was born just before the Northridge earthquake hit in ’94,” Thymes said. “So my mom chose to spell my name ‘Just’N.’ It is actually written on my birth certificate.”
Crossing the Line

I imagine frontiers as the demarcations between what we know and what we do not know — the line between the familiar and the thrilling space where discovery resides. How we transition between the known and unknown is one of the joys of being a scholar.

But not all frontiers have sharp edges.

It was on Dec. 23, 1971, that President Richard Nixon signed the National Cancer Act, initiating what we know as the “War on Cancer.” In the more than 40 years since, researchers have been in the trenches struggling to conquer one of humanity’s most dire challenges. Now, in 2015, we are finally beginning to step over into a new realm of breakthroughs led by such trailblazers as USC Dornsife’s Peter Kuhn. Peter is revolutionizing methods for the detection and treatment of cancer by identifying malignant cells that have invaded the bloodstream before they can metastasize. His work is bringing us ever closer to a model of precision medicine that allows for tailored care of the individual patient and, it is hoped, improved survival rates.

At USC Dornsife, we are facing new frontiers in every field — from digital humanities to quantitative social sciences to emergent biocenosis, and many others. Of course trying something new can be risky, but taking calculated risks is what effects meaningful change. On a recent trip to Washington, D.C., Peter was in a restaurant, and at the end of his meal he shared lessons from his research: “I recognize you from your picture. Thank you for saving my mother’s life,” and walked away.

We are invigorated by these moments. Sometimes we feel lost in that space between what we know and what we do not know — the line between the familiar and the thrilling space where discovery resides. How we transition between the known and unknown is one of the joys of being a scholar.

Steve Kay
Dean of USC Dornsife
Anna F. Bing Dean’s Chair

Layer by Layer

Inspired by da Vinci and the spirit of the Renaissance, The Bridge@USC scientists work to create the first atomic-resolution model of the human body — from the molecules up.

By Emily Caravantes and Lynell George

Wild for Movies

USC Dornsife researchers explain what it will take for the U.S. film industry to break into China’s notoriously complicated movie market.

By Michelle Salzman Boston

Wonder of the West

The Huntington-USC Institute on California and the West documents the region’s history, from its pioneering roots to its transformative growth into a dynamic, global economic power.

By Susan Bell

At the Edge of the Known World

An excerpt from alumna Laila Lalami’s new book, The Moor’s Account, offers a fresh perspective on the ill-fated 16th-century de Narváez expedition through the eyes of the first black explorer in America.

The Great Explorers

These alumni are bona fide pioneers, either venturing into gender-imbalanced professional territories — and excelling — or forging a secure gig to find a true calling.

By Laura Paisley

THE FRONTIERS ISSUE

Cover Photo courtesy of the Anne T. Kent California Room, Marin County Free Library; Lab photo by Max S. Gerber

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“We have a responsibility to deliver scholarship of consequence to the world.”

MANNIX VETERAN DELIVERED MARKS UPON HIS INSTALLATION AS TURPANJIAN CHAIR IN CIVIL SOCIETY AND SOCIAL CHANGE.

Democratic leader of this is a house of representatives. Nancy Pelosi talks with students about her journey through the American political landscape as part of the Department of Political Science’s political conversations series.

3.9.15

In the days leading up to USC’s 132nd commencement on May 15, valedictorian Alexander Yuen and salutatorian Carrie Ruth Moore shared their journeys of self-discovery. Yuen, a biological sciences and health promotion and disease prevention double major, will enter UCLA’s Geffen School of Medicine, and Moore, a creative writing major, will begin an accelerated M.Ed. program at Stanford University. View their videos at dornsife.usc.edu/yuen and dornsife.usc.edu/moore.

4.24.15

You Tube Class of 2015

In just 15 seconds, glimpse some of the USC Libraries’ more than 5 million volumes, learn the difference between a deflagration and a detonation, and reacquaint yourself with a few of the many “faces” across campus, including that of George Tirebiter. View all of these videos at Instagram.com/USCDornsife.

5.18.15

In tribute to late USC Dornsife alumnus Louis Zamperini ’40, USC mascot Transfer walks as a colorless hero, the traditional symbol of a fallen soldier, during the Tournament of Roses Parade.

5.25.15

April 2015

A LEVAIN INSTITUTE FOR HUMANITIES AND ETHICS Coffeeshop conversations as practical ethics event presents a panel of USC experts speaking on the death penalty.

11.12.15

In honor of Armenian Women, a one-day event organized by the USC INSTITUTES OF AMERICAN STUDIES, celebrates Armenians’ past and continuing contributions to technology, social movements and the arts.

2.15.15

The first IMAGINARY FEASTS, directed by Anne Lebourge, has as its precursor in the German Neuroscience Pavilion’s Jasper J. Lassen’s solar. This was organized by the brain and creativity initiatives and the USC IMAGINARY FONDATION — THE INSTITUTE FOR VISUAL HISTORY AND EDUCATION.

3.21.15

TRAVELER PHOTO COURTESY OF USC MEDIA RELATIONS; PASTOR PHOTO BY STEVE COHN; PELOSI PHOTO BY MATT MEINDL; AWARDS PHOTO BY LETTY AVILA; TYLER PRIZE PHOTO BY STEVE COHN

PHOTOS BY MATT MEINDL

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Hub of Armenian Studies

Celebrating its 10th anniversary, the Institute of Armenian Studies raises awareness of Armenian culture, history and contemporary issues. By Lizzie Hrubik

At a ceremony marking his installation as the inaugural holder of the Tyrnanjan Ecearly Chair in Con-
temporary Armenian Studies in March, Richard Antaramian declared: “It’s a great honor and a great responsibility.”

“Armenians have, over the centuries, ruled over their own kingdoms, been subject to others, circulated through empires, converted to and from different religions, and constructed a worldwide network of churches,” he said. “They have suffered genocide — and survived.”

As a member of the faculty, Antaramian will conduct research and encourage students to investigate long-held beliefs about Armenia’s history and people.

His arrival coincided with the 10th anniversary of USC Dornsife’s Institute of Armenian Studies (IAS), as did that of director Salpa Ghazarian, who is working to fortify the links among the university, the global scholarly community and the Armenian community in Southern California and beyond.

In February, IAS organized “Innovate Armenia,” an all-day event on USC’s University Park campus, celebrating Armenians’ past and continuing contributions to technology, social movements and the arts. More than 2,000 attendees heard contemporary Armenian music and met innovators, such as Alexis Ohanian, co-founder of Reddit, and Raffi Krikorian, engineering lead for Uber.

Honouring the centennial of the Armenian Genocide, IAS launched YEAR100.org, a global directory of events, to boost awareness of the atrocities committed 100 years ago.

On April 24, Armenian Genocide Remembrance Day, Ghazarian joined 10,000 people — Turks, Armenians and members of the academic, media and diplomatic communities — in Istanbul to remember the atrocities committed 100 years ago and their consequences.

Other IAS staff members participated in the symbolic six-mile “March for Justice” in Los Angeles.

This Spring, Ghazarian and Antaramian attended a conference in The Hague Institute for Global Justice in the Netherlands exploring the legacy of the Armenian Genocide from the perspec-
tive of law, humanities, media, politics and education. Also, Antaramian taught a Maymester course on the Armenian diaspora. The forced migration following the genocide led to the expansion of Armenian communities throughout the world, particularly Southern California. Students took field trips to places such as Armenian churches and those of other nationalities, studying the experience of Armenians in the context of different immigrant and minority com-
munities in the L.A. area.

Looking to the future, Ghazarian and Antaramian will continue to promote scholarship and raise awareness of how Armenians are contributing to society on a global scale.

“The three words — USC, Armenia and innovate” — together reflect the institute’s mission in this second decade,” Ghazarian said. “Our goal is to support new multidisciplinary approaches to Armenian studies by cap-
italizing on USC’s tremendous resources.”

IN THE NEWS QUOTABLES

“The more transient the media, the more transient the frame. When there are a lot of people making a public claim for their own impor-
tance, each gets a smaller bite.”

—LEO BRAUDY

University Professor and Lee S. Bing Chair in English and American Literature, in a Feb. 5 Q&A in the Chicago Tribune on the fleeting nature of fame in the Internet age.

“As individuals, we aren’t accorded much attention. As embodiments of culture or something, of course people pay attention to that. But as human be-
ings, we don’t get much ink.”

—DAVID TREUER

Professor of English, in a Feb. 5 Q&A in the Chicago Tribune on his latest novel, Prudence, which explores life on an Indian reservation in the 1940s.

“The three words — USC, Armenia and innovate” — together reflect the institute’s mission in this second decade,” Ghazarian said. “Our goal is to support new multidisciplinary approaches to Armenian studies by cap-
italizing on USC’s tremendous resources.”

“A dedicated multilateralist, Gordon Brown emphasized the importance of developing a global perspective and greater cross-border cooperation in address 21st-century challenges.”


“I was deeply moved by the stories of individuals who tell of their personal suffering during the Armenian Genocide. The human stories are what lie at the core of the problem. I hope the conference will help bring Armenians and non- Armenians together to better understand each other’s experiences.”

—LEO BRAUDY, University Professor and Lee S. Bing Chair in English and American Literature, in a Feb. 5 Q&A in the Chicago Tribune on the fleeting nature of fame in the Internet age.

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—LEO BRAUDY, University Professor and Lee S. Bing Chair in English and American Literature, in a Feb. 5 Q&A in the Chicago Tribune on the fleeting nature of fame in the Internet age.
While participating in a seminar in which they analyze and reflect on their experiences, and ultimately produce a research paper.

First-year student Sharon Dong is among those who have already been attracted to the program. “I’m really into social activism, and seeing all the injustices in society really drives me to want to make a positive impact on people,” she said. "This led me to the new major." Dong said. "I'm hoping it will teach me the skills necessary to help others and affirm my choice in this career." 

Getting Warmed Up

Vitaly Kresin of physics finds that clusters of aluminum metal atoms become superconductive at surprisingly high temperatures.

The reason your laptop heats up when you leave it on for a long time is that electricity meets resistance as it courses through the machine’s circuits, generating heat — wasted energy. When superconductivity is achieved, however, electricity is transmitted without any resistance, and no energy is lost.

While superconductors that work at room temperature were long thought impossible, USC Dornsife scientists may have discovered a family of materials that could make it a reality. A team led by Vitaly Kresin, professor of physics, found that aluminum “superatoms” — homogenous clusters of atoms — appear to form Cooper pairs of electrons (one of the key elements of superconductivity) at temperatures around 300 degrees Kelvin.

“This may be the discovery of a new family of superconductors and raises the possibility that other types of superconductors will be capable of superconductivity at even warmer temperatures,” said Kresin, corresponding author of a paper that was published in Nature.

Beyond the specific applications for which superconductors are already used — MRI machines, particle accelerators and ultrasensitive magnetic-field sensors, to name a few — a room-temperature superconductor would allow engineers to make any electronic device ultra-inefficient. — R.P.

World-Changing Major

A new interdisciplinary degree program examines non-governmental organizations and nonprofits.

According to a 2014 report from Oxford, 85 percent of the world's population now possesses more wealth than the whole bottom half of the population does. Increasingly, private individuals and organizations, rather than democratically elected governments, are controlling wealth. Not surprisingly, interest in the field of sociology has exploded, partly due to this concentration of wealth into fewer and fewer private hands.

“Now, some international NGOs are more powerful than some small governments,” Eliasoph said. “Within the United States, there are also many nonprofits that do certain social services that used to be done by governments. So here’s this increasingly powerful type of organization, but it kind of falls through the disciplinary cracks — it’s not really political science because it’s not really government.”

Seeking to address this gap, USC Dornsife in Spring 2015 launched a new bachelor's degree program in NGOs and social change. The new major focuses on the economic, political and cultural roots of social conflicts, and the varied forms of NGOs that address them. Through interdisciplinary coursework, students learn how these organizations aim to diminish human suffering and environmental destruction around the world.

“This program will give students both practical tools and a broad theoretical, historical and global view,” Eliasoph said. “They will examine not just what organizations have done to try to solve problems, but the problems’ histories, also. If you want to solve a social problem you have to investigate its root causes. Otherwise, it will just come back to haunt you.”

The major's requirements include a one-semester internship in which students work at a local nonprofit or NGO.
Fit as an Astronaut

Students at Norwood Street Elementary School learn the science behind staying fit in space.

Freshman Sophia Nguyen showed fourth and fifth graders how to set a table in space by using Velcro to prevent food packages and trays from floating away. “Look!” said fifth-grader Karla Martinez, proudly displaying a food tray to her classmates.

Nguyen and Martinez were participating in an after-school workshop on health and fitness in space, held at Norwood Street Elementary School near the University Park campus on Nov. 10. An initiative of the Joint Educational Project’s (JEP) Young Scientists Program (YSP), the event was partly funded by USC and JEP alumni donors Michael and Cindy Winn.

“Today I learned astronauts float without shoes because they don’t need them in the space station. But my favorite part was the part where the astronauts make it very far,” said Martinez.

At 29 years old, she has made it as far as marketing and social media, logistical planning and even the artistic confines of a big-name record company. But after a few introductory classes, she realized that studying the mechanics of music removed the mystique.

“I needed my music to be my passion — something fun and magical,” she said. “I didn’t like breaking it down and thinking of it like a business, where music was a product, not art.”

Music, where she has creative control and a more personal kind of control and a more personal way of conducting business.

“Part of college is learning how to manage your time, to be involved with the Asian community,” Grannis said. “Growing up hapa [half Asian, half white] is a big part of my identity.”

In 2007, Grannis graduated from USC Dornsife summa cum laude in social sciences with a minor in psychology.

“Part of college is learning how to learn and discipline yourself,” she said. “On the whole, that’s what I took away from USC: learning how to manage my life and be a grown-up and explore different ideas.”

“I’m so grateful I ended up at USC,” she added. “It was a perfect place for me to grow into an artist.”

KINA GRANNIS ’07

PHOTO BY SUSAN BELL

PHOTO BY YONI GOLDBERG

FROM THE HEART OF USC

In Her Element

In the era of vinyl records, when the album’s lyrics were printed in full on the back cover, it was easy to see what a singer wanted to express. Even cassette tapes included a printed insert of lyrics. These days, with mp3s and iPhones, it’s rare to see lyrics in print.

But guitarist and singer-songwriter Kina Grannis is old-school in that regard. In recent years, the singer has focused on the craft of songwriting, attending writing retreats and pushing herself to write from a more vulnerable place.

With her latest album, Elements, the full lyrics are available on her website.

“I love lyric books and I always want to look at other people’s lyrics,” Grannis said. “As someone who writes them, you always hope at least one person might want to read them, too.”

When room falls down on me so hard
The wind’s unraveling me, don’t start
An ocean’s swelling up my heart
But I’ve made it this far / I’ve made it this far
At 29 years old, she has made it very far.

At 29 years old, the alumna embarked on a second international tour to promote Elements, concluding in Los Angeles, which is now her home. Grannis’ earlier album, Stairwells, features material written in part while she was an undergraduate at USC Dornsife.

The title refers to the refuge and inspiration she found in stairwells across campus for writing and practicing her songs.

“Since then, I’ve experienced a lot of things, both really amazing and really hard,” she said. “I think elements is more mature and more personal. I forced myself to confront things that in the past I would have been afraid to write about.”

She also writes about happy times. In 2013, she married Jesse Epstein, a frequent musical collaborator and longtime friend. The music video for the song “My Bear” features footage from their wedding.

Grannis’ YouTube channel has more than 1 million subscribers, and her music videos, from official videos to live performances, have 145 million views.

She made an auspicious entrance into the music scene in 2005. The Mission Viejo, California, native entered her first music video, “Message From Your Heart,” in the Doritos Crash the Super Bowl contest. She won, scoring a record deal with Interscope Records at age 22.

In early 2005, however, Grannis made a bold announcement: She would forego her record deal to work as an independent artist.

She now runs Kina Grannis Music, where she has creative control and a more personal kind of control and a more personal way of conducting business. She has used social media to create a loyal fan base and success outside the conventional confines of a big-name record label.

“[Creating a label] is a ton of work, but also really rewarding,” she said. “It’s like being a manager, which is a lot of work, which has been great. But as far as a marketing and social media, logistical planning and all of the creative stuff, it’s pretty much my manager and my office and occasionally my family brainstorming about what I should do next.”

Grannis recently participated in a creative digital project, The Mobile Mix, sponsored by AT&T and International Secret Agents (ISAtv). The latter is an artistic platform to celebrate Asian youth culture and its global influence.

“It’s important for me to be involved with the Asian American community,” Grannis said. “Growing up hapa [half Asian, half white] is a big part of my identity.”

Grannis admitted the Internet has benefited the Asian American arts community.

“YouTube has given Asian American artists a platform to share their talents in a world where somehow mainstream media still hasn’t fully embraced them,” she said. “It’s a powerful thing.”

Grannis entered USC thinking she would major in music. But after a few introductory classes, she realized that studying the mechanics of music removed the mystique.

“I needed my music to be my passion — something fun and magical,” she said. “I didn’t like breaking it down and thinking of it like a business, where music was a product, not art.”

“For my major, I wanted something that fueled me intellectually. As a songwriter, I’m fascinated by people, and in my psych classes I got to learn and think about people all the time.”

In 2005, Grannis graduated from USC Dornsife summa cum laude in social sciences with an emphasis on psychology.

“Part of college is learning how to learn and discipline yourself,” she said. “On the whole, that’s what I took away from USC: learning how to manage my life and be a grown-up and explore different ideas.”

“I’m so grateful I ended up at USC,” she added. “It was a perfect place for me to grow into an artist.”

— J.P.
Courage, Faith and Service

Former U.S. Representative Gabrielle Giffords and her husband, retired U.S. Navy Capt. and astronaut Mark Kelly, deliver the 14th annual Carmen and Louis Warschaw Distinguished Lecture.

Kelly said the couple’s determination to take action on gun laws came about “not because she was injured in that horrific attack in January 2011, but because Gabby is about service. When she saw that 20 little kids needed lessened fear in their classroom, she thought that maybe, just maybe, she could be a little bit helpful in trying to prevent that from happening again.”

At the event, Hope Warschaw reflected upon the legacy of her parents, whose endowment gift established the lecture series in 1999. “My parents always thought there was something in Jewish culture that led people to participate in civic life,” she said. “My mother, in particular, loved to hear people’s stories, where they came from and how they got to be who they were. So to continue this lecture series, I thought, was very important.” — S.B.

Money Talks

The Martens Economic History Forum examines current economic issues through the lens of history.

“In every attempt since the 18th century to explain the ascent of Great Britain to unprecedented wealth and global power, Parliament has played a central role,” said Paul Seaward, director of the History of Parliament Jobsite. “What happened that day would certainly become the biggest challenge we would ever face,” Kelly said as the couple spoke to more than 500 people at Town & Gown Hall on March 8. The two delivered the 14th annual Carmen and Louis Warschaw Distinguished Lecture, which focuses on how Jewish life and culture have shaped the lives of political figures.

“My spirit is strong as ever,” said Giffords, descendent of a long line of Lithuanian rabbis. “I am still fighting to make the world a better place and you can, too. Get involved with your community, be a leader, set an example. Make the world a better place and you can, too. Get involved.”

Compared to his wife, Mark Kelly thought he had the riskier job: combat pilot and astronaut. Instead it was Gabrielle Giffords, the former U.S. representative, who nearly died serving her country on Jan. 8, 2011, when a would-be assassin shot her and killed six others at an outdoor “Congress on Your Corner” event in a Tucson, Arizona, suburb.

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100 Survivors Gather

Seventy years after the Auschwitz death camp was liberated, the USC Shoah Foundation helps bring survivors, teachers and others to a milestone anniversary in Poland. By Robin Mignot

On a bitterly cold day in January 1945, the Soviet Army — pushing across Nazi Germany as the Allies drew closer to victory in Europe and the end of World War II — arrived at a Nazi concentration and extermination camp in southeastern Poland called Auschwitz-Birkenau. Some 1.1 million people died within the barbed-wire fences of Auschwitz during the Holocaust, but those who lived through the suffering and death have witnessed how many have made sure Auschwitz is never forgotten.

On Jan. 27, 100 of these survivors and their liberators, along with thousands of attendees from around the world, returned to Auschwitz for the official commemoration of the liberation.

“Just to be alive 70 years after we were liberated from this — excuse me for the expression — hell on earth, is already an accomplishment in itself,” said Eva Kor, an 80-year-old survivor. “To be able to come back and retell this story of the Holocaust is a way of illuminating the world, a way of healing and a way of empowering people to repair the world.”

Housed at USC Dornsife, the USC Shoah Foundation — The Institute for Visual History and Education partnered with the Auschwitz-Birkenau State Museum, Discovery Education and the World Jewish Congress to plan a four-day observance of the milestone called “Auschwitz: The Past Is Present.”

The program also brought 25 teachers to Poland for professional development activities aimed at engaging a new generation of educators and their students in remembering, and learning from, the Holocaust. For example, USC Shoah Foundation education staff instructed the teachers in using the institute’s Visual History Archive, a collection of more than 53,000 audiovisual testimonies from genocide survivors and witnesses.

Those who lived through the Holocaust have carried the burden of remembering long enough,” said Stephen D. Smith, the institute’s executive director. “It’s up to us now to lift it off their heavy weight off our shoulders. We are ready to take on the responsibility of ensuring that this tragic chapter of human history is never repeated.”

Diplomatic Chess

Brian Rathbun focuses on 1920s Europe to examine diplomacy and its ripple effect on negotiating styles today.

In 1946, a trio of scientists won the Nobel Prize in chemistry for their discovery of Bucky-paper, a form of nanotubes. “Buckyballs” or buckminsterfullerene — soccer ball-shaped spheres of 60 joined carbon atoms that exhibit special physical properties. Now 20 years later, scientists have unraveled how to turn these Bucky-balls into Buckybombs.

These nanoscale explosives show potential for use in surgery, oncology and may one day be used to eliminate cancer at the cellular level — triggering tiny explosions that kill cancer cells without affecting surrounding tissue.

Future applications would probably use other types of carbon structures such as carbon nanotubes, but we started with Bucky-balls because we know how to make them and we know how to eliminate cancer,” said Oleg Preti, professor of chemistry and corresponding author of a paper on the explosives that was published in The Journal of Physical Chemistry.

Carbon nanotubes, close relatives of Bucky-balls, are used already to treat cancer. They can be accumulated in cancer cells and heated up by a laser, which penetrates through surrounding tissues without affecting them and directly targets the carbon nanotubes. Modifying carbon nanotubes the same way as the Buckybombs will make the cancer treatment more efficient, Preti said.

“Building miniaturized explosives, Preti and his colleagues attached 12 nitrous oxide molecules to a single Bucky-ball and then heated it. Within picoseconds, the Bucky-ball disintegrated — increasing temperature by thousands of degrees in a controlled explosion.”

The source of the explosion’s power is the breaking of powerful carbon bonds, which snap apart with energy from the nitrous oxide, resulting in the creation of carbon dioxide, Preti said. “It’s up to us now to lift it off their heavy weight off our shoulders. We are ready to take on the responsibility of ensuring that this tragic chapter of human history is never repeated.”

Viewpoint

“Surely, 147 years after the Dred Scott case was overturned, the time has come to put an end to this farce.”

NATHAN PERL-ROSENTHAL
Assistant professor of history and political science, in an April 19 CNN op-ed, co-authored with Sam Geenan of the USC Gould School of Law, on the time has come to put an end to the Dred Scott case.

“Even serious news analyses that confront myths with facts backfire as time passes.”

ROBERT SCHWARZ
Provost Professor of Psychology and Marketing, in a March 19 The Conversation op-ed, co-authored with research associate Elyse Newman, on how the media has failed to challenge myths they often believe.

“If the wall came about because of the complex interplay among Soviet revisionism, Eastern Europe’s incompetence and, crucially, rising opposition from everyday Germans.”

MARY ELISE SABOTTE
Dean’s Professor of History, in a Nov. 6 Chicago Tribune op-ed, challenging her research on the true cause of the fall of the Berlin Wall.

Spring / Summer 2015 15
The Bench

INTERACTIVE MAPS FOR THE BRAIN

What’s the route between smell and memory? Where’s the connection between habits and Parkinson’s disease? How does habit detour into addiction?

To answer these and other complex scientific and medical questions, University Professor Larry Swanson and neuroscience graduate student Rammy Brown have built Golgi, an interactive map of a rat brain that makes exploring the brain as easy as using Google Maps.

The new web application offers details at the click of a button about how the regions of the brain communicate and interact. Golgi will help accelerate the research and aid treatment of ailments such as Parkinson’s disease by layering complex scientific data onto a single simple brain map that provides information to doctors and researchers quickly and intuitively.

“We have a big advantage because we’re the only group—really in the world—that has a flat map of the rat brain,” said Swanson, Milo Don and Lucielle Appleman Professor of Biological Sciences. Swanson, a longtime pillar of neuroscience community, collaborated with Brown, who designed the program while an undergraduate in Swanson’s laboratory.

“Larry and I have learned so much from each other while building Golgi,” Brown said. “Having a product design into his immense knowledge of neuroanatomy let us build something really special.”

Golgi is based on a decade’s worth of neurological data that the Swanson lab has pioneered and collected.

HOW IT WORKS

Golgi takes the existing pool of knowledge about the brain and makes it easily accessible to scientists and doctors. It uses research on rat brains, which are close enough to human brains to offer valuable insights but are far easier to study and therefore represent a larger pool of research data. To display each neuron’s three-dimensional structure on two-dimensional sections, Swanson and Brown used the embryonic brain — which begins as a flat sheet of cells — as a guide. This flattens the brain and keeps related portions of it close together, flattening the brain lets users click around and display connections and other data directly in regions they’re interested in learning about for research or treatment.

“We designed an intuitive way to explore the nuanced details of the brain and connections,” Brown said. “Making this data simple and accessible will improve how scientists and doctors explore, explain, and treat human conditions and restore quality of life.”

Brown and Swanson think this program is just the beginning. Connectomics, the field of detailed studies and maps the brain’s wiring, is advancing quickly and providing better maps as the technique evolves. Programs such as Golgi will help doctors and researchers make sense of these new maps and make better medical and scientific decisions faster.

The map’s creation was supported by funding from the National Institutes of Health. The map can be found online at useGolgi.com.

There are more than 1,000 disorders involving the nervous system, including autism, schizophrenia and stroke. Many researchers believe that combating these neurological disorders will require a deeper understanding of the brain’s circuitry.

10 years

70k+

Golgi’s mapping function draws on more than 70,000 data points showing connectivity in the molecules and cells that make up the brain.

1,000+

Documentation of the brain has never been easier.

Hidden Costs

A new study led by biologist Donal Manahan finds that organisms defend themselves against climate change — to a point.

Stresses from climate change such as rising temperatures and increasing ocean acidity can edge an organism closer and closer to the brink of death without visible signs. But a team of researchers led by USC Dornsife’s Donal Manahan was surprised to learn just how good organisms can be at hiding the stress they are under.

The group’s findings, published in the Proceedings of the National Academy of Sciences in March, showed that when carbon dioxide levels in water are increased to those expected by the end of this century, the sea urchin — a commonly studied model organism — more than doubles the amount of metabolic energy it spends. This includes protein synthesis, the most basic function needed for the urchin to stay alive, without showing visible evidence of the distress.

“Think of a metabolic budget like your household financial budget,” said Manahan, professor of biological sciences. “Protein synthesis, one of the most basic things an organism does to stay alive, is like your rent. Added stresses from climate change cause that rent to get more and more expensive. You can still survive, but that money has to come from somewhere. And without increasing your budget, you get closer and closer to the brink of disaster, unable to cope with any unexpected crisis.”

Calculating the metabolic budgets took two years of work, including overseeing the early stages of sea urchin development at the USC Wrigley Marine Science Center on Catalina Island — one of the few places in the United States with the facilities needed for such large-scale culturing experiments, Manahan said.

Now, the team is building upon its new understanding of cellular metabolism and stress by studying the genetic and environmental (nature and nurture) bases of physiological responses to global change.

“We think that variation in the ability to allocate cellular energy within a fixed budget may be a key basis of resilience to environmental change,” Manahan said. — R.P.

1,000+

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A Digital Revolution

Like a jaguar, digital humanities springs to life.

Centuries ago, the vibrant reds, blues, greens and oranges of the jaguar painted on the walls of a palace in the ancient city of Teotihuacan, near present-day Mexico City, glittered in the natural sunlight. At twilight on the summer solstice, shadows crept up making it appear as if the jaguars were leaping out of the wall.

Justin Underhill, USC Mellon Postdoctoral Fellow in Digital Humanities, is using computer software to reconstruct buildings and archaeological sites such as the Palace of the Jaguars to show how light would have interacted with the structure. As the sun rose and set, shadows crept up making it appear as if the jaguars were leaping out of the wall.

“Clearly, it is not safe to give every museum visitor a candle and have them walk in front of a devotional icon,” he said. “But it is possible to mount a video next to a work of art and show how it would have looked. I think this melding of technology and art history will enfranchise people’s ability to fully appreciate art in a way that was never before possible.” — L.H.
years later, the well in Morrungulo is thriving. Parents who couldn’t embrace their dead children one last time before burial was one of many tough challenges humanitarian aid workers faced during the crisis. Bob Hemingway, a former Marine who led the U.S. response to Ebola in West Africa, is still haunted by such memories.

As a USAID regional advisor, Hemingway had carved out a career as one of the government’s most experienced disaster-response experts. "Basically, I worked on just about everything that’s made front-page news over the past 10 to 15 years from Afghanistan, Iraq, Yemen, Darfur and Congo," Hemingway said. In Liberia, persuading people to relinquish cherished traditions to conduct safe burials was a key step in reducing infection. Another challenge Hemingway faced was creating sufficient numbers of treatment centers.

Credit: The broad-based liberal arts education he received as an international relations major, Hemingway said, “My experience at USC Dornsife helped me know what to share with folks back home in Los Angeles. That footage would evolve into Arana’s documentary, My Name Is Water. Sharon Stone and Justin Arana in Northern Uganda. Stone produced Arana’s documentary, My Name Is Water.

As a former senior advisor to the U.S. Department of Defense and an ex-State Department official, Fields said he exposed to the highest levels of power has given him specific insight into the inner workings of government. "This is a wonderful opportunity to bring my experience in international relations and professor of theatre. Smith noted that while delivering the 2014 Oxford Wells Shakespeare Lectures at the University of Oxford. Titled "Shakespeare: Cut: Forms and Effects Across Four Centuries," Smith’s series of lectures explored the multiple forms of cuts in Shakespeare’s works as it appears in plays, engravings, photographs, cinema and video games. Smith's book of the same title will be published this fall in 2014, the 400th anniversary of Shakespeare’s death.

Before her sophomore year at USC Dornsife, Stephanie Erwin signed a contract committing to Naval Reserve Officers’ Training Corps, an intense military preparation program requiring post-graduation service. She spent her summer in college touring the world on submarines and aircraft carriers. After getting a taste of all that mentor every role, she knew that she wanted to be a pilot and after graduating in 2014 with a bachelor’s in international relations and political science, Erwin went to flight school.

The Last Places on Earth: Journeys in Our Disappearing World

That’s one lesson Gary Mancuso discovered when he left behind a lucrative finance career to journey the world and see the Earth’s remaining intact cultures and wildernesses. Discouraged by the rate at which biological and cultural diversity is vanishing due to globalization, Mancuso departed the United States in November 2005 and set off on an arduous 12-year journey to capture his disappearing destinations. Midway through his quest, Mancuso wound up in Myanmar, shortly after the devastating Cyclone Nargis in 2008. His local guide asked Mancuso how he could get himself and his possessions out of the country. Mancuso replied that he didn’t have any possessions. The guide then asked how he could get himself and his family out of the country. Mancuso replied that he didn’t have a family.

It’s hard to fathom anyone actually wanting to go to prison. But for people in some parts of the world, the idea of getting three hots and a cot in an American prison is Shangri-La compared to their disadvantageous lives.

In a life-changing leap of faith, Gary Mancuso ’95 set out to witness the planet’s remaining wildernesses while providing valuable learning and networking experiences. "Fields said. As a former senior advisor to the U.S. Department of Defense and an ex-State Department official, Fields said he exposed to the highest levels of power has given him specific insight into the inner workings of government. "This is a wonderful opportunity to bring my experience in international relations and professor of theatre. Smith noted that while delivering the 2014 Oxford Wells Shakespeare Lectures at the University of Oxford. Titled "Shakespeare: Cut: Forms and Effects Across Four Centuries," Smith’s series of lectures explored the multiple forms of cuts in Shakespeare’s works as it appears in plays, engravings, photographs, cinema and video games. Smith's book of the same title will be published this fall in 2014, the 400th anniversary of Shakespeare’s death.

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Part meticulous study, part eloquent homage, Leonardo da Vinci’s *Vitruvian Man* is considered not only a seminal work of art, but the very embodiment of the boundary-breaking, outward-looking curiosity of the Renaissance period. Based on the work of a first-century Roman architect, Vitruvius, the intricate sketch of a man—arms outstretched, torso floating within a circle balanced nearly within a square—is a poetic rendering of symmetry and proportion. However, what the image and accompanying text most vitally illustrate is an intrinsic bridge between the arts and sciences. It underscores that humans are microcosms of the universe itself. “Man,” da Vinci wrote, “is the model of the world.”

Five hundred years later this rendering continues to loop through the minds of a group of leading biomedical researchers at USC Dornsife—both as a challenge and an inspiration.

“One of the biggest scientific accomplishments in history was da Vinci’s *Vitruvian Man*,” began Raymond Stevens, Provost Professor of Biological Sciences and Chemistry. “Although da Vinci originally created the painting for the sake of art, he was one of the first to create a map of the human body and started a path toward deciphering everything we are made up of.”

“The connection between the ‘everything’ Ray just referred to—biology, chemistry, engineering, medicine—has long since frayed,” added Peter Kuhn, Dean’s Professor of Biological Sciences. “This approach has been replaced by modes of inquiry characterized by highly individualized research and specializations. Scholars often work in isolation.”

Since da Vinci’s time, the sciences in particular have diverged into myriad subdisciplines.

“While this splintered approach has led to significant advances in our fundamental understanding of the world,” explained Scott Fraser, Provost Professor of Biological Sciences, “it has also resulted in silos of expertise that run deep and often aren’t adequate in addressing the complex challenges we now face, especially those in human health.”

**Inspired by da Vinci and the spirit of the Renaissance, USC Dornsife researchers are combining the best minds from the arts and sciences to create a virtual model of the human body—from the molecules up. But their vision extends further, as The Bridge@USC aims to catalyze a new era of biotech leadership in the Los Angeles area.**

By Emily Cavalcanti and Lynell George
USC Dornsife has established The Bridge@USC as an antidote to this silo culture. Stevens, Kahn and Fraser are among a founding group of top USC scientists who have joined forces to set a new paradigm for how 21st-century research is conducted and applied.

In launching The Bridge@USC, they are uniting outstanding minds in chemistry, biology, medicine, mathematics, physics, engineering and nanoscale — as well as experts in such areas as animation and cinematography — to build the first atomic-resolution model of man.

The team’s first step, though, has been to determine how their areas of expertise best correspond to the targeted layers of the bottom-up study, which will ultimately allow doctors to better detect and treat human disease.

The Bridge@USC aims to bring together scientists from across USC Dornsife, the USC Viterbi School of Engineering, Keck School of Medicine of USC and USC School of Cinematic Arts.

“Using our various expertise, we’re trying to develop a bridge among different types of researchers: engineers, scientists, artists, medical doctors,” Kay said. “Everybody wants to work together, but it’s often difficult for a variety of reasons ranging from funding to different scientific languages and data types. So we are helping to provide the unifying framework that makes this possible.”

The university’s support of such entrepreneurial endeavors is exactly what attracted this cluster of pioneering scientists to USC.

Stevens, who earned his Ph.D. in chemistry from USC Dornsife in 1988, returned in Fall 2014 and serves as founding director of The Bridge@USC. He is joined by associate directors Kahn and Vadim Cherezov, both of whom were his former colleagues at The Scripps Research Institute, along with Vsevolod “Seva” Katritch, assistant professor of biological sciences at The August, Valery Fokin, who was also previously at Scripps and earned his Ph.D. in chemistry from USC Dornsife in 1998, arrives as professor of chemistry.

“A group of like-minded faculty, supportive and dynamic administrators, and visionary and generous supporters — it is a rare opportunity for that to happen,” Fokin said. “A combination of all these is rare, and USC is at this unique point now.”

Together their laboratories bring a cohort of approximately 70 researchers to the university.

In addition, Kay and Fraser have joined the initial Bridge@USC founding team, which will grow to include eight additional faculty hires over the next three years. They will also continue to forge new collaborations with partners across USC Dornsife, the USC Viterbi School of Engineering, Keck School of Medicine of USC and USC School of Cinematic Arts.

LEVEL 1: MOLECULES

Molecules are formed when two or more atoms join together chemically. Stevens and Cherezov, professor of chemistry, image their molecules as the proteins in the lipid membrane involved in cellular communication, to see how individual proteins bind with signaling molecules or drug candidates. Katritch’s expertise is in developing and applying computational tools to study key biological phenomena — including signaling and drug screening and understanding the molecular basis of drug action. Katritch then uses computer modeling to infuse potential drug treatments into those protein-binding sites that Stevens and Cherezov have observed.

“Until those gaps are spanned,” he said, “the most effective and efficient ways to develop new drugs and understand diseases will continue to confound and occupy us.”

“Therapeutically, however, isn’t occurring in a vacuum. The European Commission has launched the Human Brain Project, which aims to deliver a ‘scaffold’ model of the human brain in the next decade, and President Barack Obama has created the BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative. Google recently announced a multi-billion dollar investment to embark on a quest to create a more complete picture of the human brain, hoping to pinpoint how diseases might be prevented rather than merely treated. While these are both ‘top-down’ approaches, The Bridge@USC aims to do the opposite, working up from the molecule to the cell to the entire human body.

“I think our uniqueness is that we combine structure on the human, cellular and molecular scales. Both static and dynamic-structure tools are available at all levels and the time is now right to pull this together,” said Stevens, who holds joint appointments at USC Viterbi and the Keck School.

“While incredibly exciting, the opportunity to work with the digital arts faculty in the USC School of Cinematic Arts who are unlike No. 1 in the world, and the USC Institute of Creative Technologies. Furthermore, we are excited to work with and enable our colleagues at USC Viterbi and the Keck School with the breakthrough information that comes out of this endeavor.”

The team’s first step, though, has been to determine how their areas of expertise best correspond to the targeted layers of the bottom-up study, which will ultimately allow doctors to better detect and treat human disease.

Construction of The Bridge@USC’s virtual model of the human body needs to be approached from three different levels simultaneously — molecules, cell and whole body — while connecting the different scales together, Stevens explained.

LEVEL 2: SIGNALS

Signals mediate practically every essential physiological process, from immune system function to taste and smell to cognition to heart beat.

With nearly 1,000 members, GPCRs constitute the largest protein family in the human genome — and a key avenue to medical progress. These receptors are responsible for 80 percent of cell membrane signaling, some 40 percent of all pharmaceuticals act by binding to GPCRs. The techniques developed by Cherezov have enhanced the biophysical characterization and crystallization of membrane receptors for the most important structural studies of GPCRs, whose malfunctions often result in a range of diseases and conditions.

This work, however, isn’t occurring in a vacuum. The European Commission has launched the Human Brain Project, which aims to deliver a ‘scaffold’ model of the human brain in the next decade, and President Barack Obama has created the BRAIN (Brain Research through Advancing Innovative Neurotechnologies) Initiative. Google recently announced a multi-billion dollar investment to embark on a quest to create a more complete picture of the human brain, hoping to pinpoint how diseases might be prevented rather than merely treated. While these are both ‘top-down’ approaches, The Bridge@USC aims to do the opposite, working up from the molecule to the cell to the entire human body.

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To next synthesize new compounds that most effectively target specific diseases, all these benefits from Fokin’s click chemistry methodology that allows them to develop new chemical probes — substances that alter specific protein function — and better understand receptors in the human body.

Two new developments that hold promise for that of USC Dornsife chemists Charles McKenna, Surya Prakash and Nicos Petasis.

Stevens, Cherezov and their research teams have already unlocked the biomedical potential of several G protein-coupled receptors (GPCRs) by determining their structure. GPCRs serve as the cell’s gatekeepers and messengers, receiving and sending information in the form of light energy, peptides, lipids, sugars, and proteins. Their signals mediate practically every essential physiological process, from immune system function to taste and smell to cognition to heart beat.

With nearly 1,000 members, GPCRs constitute the largest protein family in the human genome — and a key avenue to medical progress. These receptors are responsible for 80 percent of cell membrane signaling, some 40 percent of all pharmaceuticals act by binding to GPCRs. The techniques developed by Cherezov have enhanced the biophysical characterization and crystallization of membrane receptors for the most important structural studies of GPCRs, whose malfunctions often result in a range of diseases and conditions. He likens his approach from the molecule to the cell to the entire human body.

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other cells to create tissues, organs and whole organisms. When something goes awry on the molecular level, this affects the cells, which can impact tissues, organs and the whole body. The realm of the cellular is Fraser’s expertise. He specializes in imaging the fine details from the cellular level all the way to the organs. Fraser collaborates with biologists, engineers, chemists and physicists to build new technologies for imaging biological structures and function. These state-of-the-art devices allow researchers to explore, in real time, the inner workings of such complex events as embryonic development and disease progression. By better observing the basic behaviors of cells, Fraser strives to improve regenerative, preventive and personalized medicine.

For example, he constructs microscopes that allow scientists to watch as cells interact with one another to form the heart muscle and valves. Understanding this process — how cells give off signals, respond and collaborate to build an embryonic heart — may offer keys to rebuilding heart valves in vivo.

“With USC’s recruitment of Arthur Toga and Paul Thompson from UCLA to image the brain, Andrew McMahon from Harvard University to focus on stem cells, and Stevens, Fokin, Kuhn, Chernoff, and Katritch from Scripps, I am in a perfect situation to realize a scientific dream of connecting molecules to man at the atomic level,” said Fraser, who holds joint appointments at USC Viterbi and the Keck School.

LEVEL 2: CELLS

Molecules — billions of them — then make up cells, the essential building blocks of all living organisms. Each cell acts as a house that organizes the molecules’ functions and determines how these will communicate with each other.

For example, he constructs microscopes that allow scientists to watch as cells interact with one another to form

HE ART OF THE TRANSITIONAL Imaging Center at USC, Scott Fraser (left) helps fellow faculty members such as Owen Smith, Kay (right) accelerate their research by providing access to technologies for the intravital imaging of cells and cellular processes. • PHOTO BY MAX S. GERBER

Eventually, scientists will be able to see molecules in motion and observe changes in proteins as they occur.

Cherezov sees the magnitude of The Bridge@USC’s goal to create an atomic-resolution model of man as more complex compared to the ambitious Human Genome Project in the 1990s.

“With the scientific field moving so fast, although it sounds absurdly ambitious, it is now feasible for us, with all of the tools and data available, to visualize the structure and dynamics of individual molecules, to build blocks of the cell, and then to start assembling them together in space and time,” Cherezov said.

Utilizing structural bioinformatics and integrative molecular modeling approaches to decipher the intricate mechanisms of GPCR signaling, Katritch identifies new venues to precisely modulate GPCRs by ions and small molecular modeling approaches to decipher the intricate physical structure of the human form — is where Kay, Kuhn and Hicks are focused.

Kay’s research homes in on how the body’s timing of the periodicity of the biological clock in predictable ways. Kay’s laboratory to identify molecules that regulate the biological clocks of plants, insects and mammals could improve the health of diabetic mice. Like mice and other animals, humans have evolved complex biochemical mechanisms to keep a steady supply of glucose flowing to the brain at night, when we’re not eating or active.

Moreover, Kay and his team used high-throughput screening to discover a novel small molecule, KL001, which controls the intrinsic molecular clocks and timeskepping mechanisms of cryptochrome in a way that can express the production of glucose. This finding opens potentially groundbreaking avenues for the development of drugs to treat diabetes and other metabolic disorders. The serendipitous discovery occurred during a parallel effort in Kay’s laboratory to identify molecules that regulate the periodicity of the biological clock in predictable ways.

“Once our aim is to understand how KL001, and similar molecules that affect cryptochrome, function in whole animals,” said Kay, who holds joint appointments at USC Dornsife and the Keck School. “We are going to investigate how such compounds affect other processes besides the liver as we believe our work holds promise not only for diabetes, but also for diseases such as asthma and some cancers.”

By examining the circulatory system and detecting how molecules traverse the body, both Kuhn and Hicks are zeroing in on a better understanding of how unwanted molecules or single cells might cause diseases such as cancer, particularly with the power of single cell genomics. And they point to the distinct advantage they have at USC because of the strength of its single cell genomics program — led by University Professor Michael Waterman and Andrew Smith, associate professor of biological sciences.

“The beauty of our team is that it’s a super highway that connects the entire body,” said Kuhn, who holds joint appointments at USC Viterbi and the Keck School. “A cancer cell that breaks away from the primary tumor gets exposed to the whole body through the circulatory system in just one minute — the time it takes for blood to circulate.” Kuhn decided to exploit that super highway, believing that analysis of cancer cells in the blood can be a complement to traditional imaging techniques that provide information about the tissue parts of tumors.

How cancerous cells gain the ability to exit tumors and populate distant organs is a fascinating yet poorly understood biological question of immense clinical importance. Kuhn has set out to find that “needle in a haystack” by working with oncologists, a mathematics modeling group, and a single-cell genomics group led by Hicks.

Their subsequent method for detecting cancer cells with just a blood sample has yielded a minimally invasive, noninvasive test that differentiates circulating tumor cells (CTCs) — which break away from the primary tumor to metastasize to other parts of the body — from ordinary blood cells using a digital microscope and image-processing algorithm. This advance is expected to achieve
...convergence, innovation will again flourish, this time creating a
landscape of biotech and information technology so great that
the combination will be a new source of breakthroughs..."Each of us has distinct strengths and weaknesses as
perspectives so when gaps in technology or dead-ends in
understanding are evident, we can link our knowledge to expedite problem-solving.

A New Era
by Harris A. Joffe

A CONVERGENCE NOT SEEN SINCE THE RENAISSANCE PERIOD
will revolutionize the treatment of human disease.

1400–1600 | Emerging from centuries of intellectual darkness, the Renaissance saw humankind’s eyes again opened to the wonders of the physical, natural and artistic worlds. More important, it brought those worlds together in a convergence that fueled extraordinary scientific and technological innovation. Artisticians both informed and drove from leasings in human biology and structure. Engineers combined aesthetics with physics to create architectural masterpieces. Humanity reached an unprecedented peak of innovation.

1600–1900 | As the Renaissance period gave way to the industrial and scientific revolution, engineering, science, medicine and the arts began to diverge. This led to greater specialization, which in turn led to the scientific method of collaboration. Innovation waned; however, deeper scientific study led to new revelations that would impact human progress.

1900–1953 | The molecular and cellular biology period stemmed from the disassociation of the structure of DNA and greater understanding of the basic molecules of life. Genes became the focus of scientific inquiry and engineering began to take the center stage as a more integrated and interdisciplinary approach to understanding the human body.

1953–1980 | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

To achieve this goal, biomedical researchers needed new technologies. Engineers combined advanced chemistry and physics with a deep knowledge of biology. Their work opened doors to previously unimagined health benefits — and in the process pointed the way to a new convergence of fields not seen since the Renaissance period.

1980– | Humankind is now poised to revolutionize the way disease is detected, treated and prevented. Building upon the scientific and technological progress of the last century, converging disciplines have made clear the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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1990–2010 | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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2015– | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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2020– | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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2025– | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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2030– | While the molecular and cellular biology period brought about the benefits of understanding individual genes, it also granted the world a new view on how cells operate. Individual genes are but pieces of a greater whole that controls delicately balanced life processes. The new view of the genes controlling this system was crucial, so scientists set about sequencing the human genome.

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As domestic box office returns plateau, Hollywood is setting its sights on China — the second largest film market in the world. USC Dornsife professors Stanley Rosen and Brian Bernards explain what it will take for the U.S. film industry to break into China’s notoriously complicated movie market. 

By Michelle Salzman Boston

Marketing rule No. 1: When trying to make a buck, don’t alienate one of your largest audiences.

Case in point, in 2012, when MGM planned a remake of the 1984 Cold War film *Red Dawn*, in which a midwestern town is invaded by Soviet forces, they decided to recast the enemy with a more contemporary antagonist — China. Critics rushed to point out the flaws in MGM’s thinking. Among them was the fact that China has the second largest film market after North America, and getting the picture — or any films made by MGM — into the country would be impossible if China was cast as the adversary.
The People’s Republic of China, in a process overseen by the State Administration of Press, Publication, Radio, Film and Television (SAPPRFT), maintains a complicated quota system that allows only 34 foreign films into the country per year. Of those, 14 must be either IMAX or 3-D. Each film permitted to play in Chinese cinemas must also meet a certain set of standards, including casting the country in a positive light when there is a Chinese component.

In an effort to claim a foothold in China, MGM made an unprecedented move. In post-production, the studio replaced China with North Korea as the foe.

“The studio spent a considerable amount of money to digitally alter the film,” said Stanley Rosen, professor of political science. “But with North Korea as the enemy there was no challenge since there’s really no market for U.S. films there.”

For the U.S. movie industry, China is a critical market to crack. Domestic box office numbers have been floundering in recent years and engaging Chinese audiences may be the key to keeping the U.S. market afloat.

“It used to be that as much as 50 percent of the total box office for a film would come from the U.S. and Canada, but it’s not the case anymore,” said Rosen, an expert in Chinese politics and the relationship between Hollywood and China. “Now, a blockbuster film will make as much as 70 percent of its return outside of North America.”

China jumped ahead of Japan as the second-largest film market after North America in 2012. The following year, China’s box office receipts tallied $3.6 billion, and 2014 saw that figure increase 34 percent to $4.8 billion — making China the first international market afloat.

North America as the top annual movie market within five years.

For now, North America’s box office is still leading the way in modern times. In his course “Politics and Film in the People’s Republic of China,” Rosen plays film clips that illustrate how movies cater to Chinese audiences. Many clips feature the use of product placement. In one, Stanley Tucci’s character takes a drink of Yili, a popular Chinese brand of milk. In another, Mark Wahlberg’s character in Transformers: Age of Extinction, which grossed $2.3 billion worldwide, was included in the cast.

China’s State Administration of Press, Publication, Radio, Film and Television limits the number of foreign films shown each year in the country to 34. Fourteen of these must be either IMAX or 3-D.

For now, North America’s box office is still leading the charge with a $10.3 billion payout last year — though that figure is down from $10.9 billion in 2013. To maintain its lead, the North American market will need first revenue sources.

In February 2015, thanks to the movie-going boom during the Lunar New Year, Chinese box office revenues exceeded those of the United States for the first time ever — $655 million versus $640 million, respectively, according to data from research firm EntGroup. Experts estimate that China will overtake North America as the top annual movie market within five years.

“Your strategy in China should go to China.”

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Transformers Attack the Red Dragon

When it comes to the types of films that do well in China, big blockbusters are typically the most successful. “Blockbusters are the big hits all over the world and China is no different,” Rosen said. “But, there’s a lot of piracy in China and people can get films online or in very high-quality hard copies.”

So when it comes to enticing theatregoers, splashy visuals are key to shell out cash for a movie ticket. “With a blockbuster that’s 3-D or IMAX, or has a lot of special effects, viewing it in a theatre makes a big difference,” Rosen said. “People are going to want to watch it in the best-quality presentation, not on an iPhone or at a home device.”

**TO CASH-IN, CO-PRODUCE**

Another option for gaining traction in the Chinese film market is for Hollywood studios to co-produce films with Chinese production companies. To placate SAPPRT, those films must include a certain amount of Chinese content, but there are still perks. “One of the benefits of a co-production is that Hollywood studios can get as much as 45 percent of the box office receipts, whereas films that are solely American enterprises only take away 25 percent,” Rosen said. “That’s much less than anywhere else in the world for Hollywood, but in China they can still do very well and make money.”

Recently Kung Fu Panda 3 (2016), a joint venture between DreamWorks Animation, its Chinese unit Oriental DreamWorks and their Chinese partners, was granted co-production status by SAPPRT.

Bernards, an expert in modern Chinese and Southeast Asian literature and cinema, notes how DreamWorks Animation last year to speak about Chinese cinema and culture. He touched on how films, such as Kung Fu Panda 3, which target younger audiences, are a winning strategy for the Chinese market. Not many Chinese films are geared toward children.

“Using such animation techniques to transform China’s national animal icon into an anthropomorphic good-natured clown who dreams bigger for himself than being a noodle vendor hit home on different levels for many young Chinese,” Bernards said. “Using such animation techniques to transform China’s national animal icon into an anthropomorphic good-natured clown who dreams bigger for himself than being a noodle vendor hit home on different levels for many young Chinese viewers,” Bernards said. “What was remarkable about Kung Fu Panda was that it combined such a story with high quality animation and directed it toward children.”

The two elements of content and co-production status may be a winning combination for the third film in the franchise. “Kung Fu Panda 3’s status as a co-production should allow it to circumvent some of the restrictions in terms of screening and increase its share of the domestic box office in China. It will also have greater access to the domestic Chinese market.”

“Of course, because it’s a sequel it still needs to bring something novel to the table to attract the audiences,” Bernards added.

**BREAKING INTO HOLLYWOOD**

Meanwhile, as China’s film market continues to grow, Chinese filmmakers are attempting to gain more market share in Hollywood. However, China faces an uphill battle to gain a foothold in the U.S.

“There’s investment in both directions, but it doesn’t change the fact that Chinese films don’t really have a market outside of China and some Asian territories,” Rosen said.

It’s hard for Chinese films to get into theaters aside from those considered art houses, which are a small fraction of the market, he said. “Almost no foreign language films are successful in the U.S. market. Not just Chinese films, but French films or anything else. It’s a niche market. Anything that’s foreign language is arthouse by definition.”

One way that Chinese investors are making inroads is by buying their way into the North American market so they can put their films in front of American audiences. The Dalian Wanda Group, China’s largest entertainment group, purchased the AMC Theaters chain in 2012 for more than $2.6 billion. So far the theatre chain, which shows films on more than 4,900 screens in the U.S., has successfully climbed on the New York Stock Exchange. However, it has experimented with bringing Chinese films to American audiences with limited success.

“They took the film Lost in Thailand, which broke all box office records in China and put it on select screens at AMC Theatres,” Bernards said. “In the movie, three Chinese men tour Thailand and, somehow, they happen. They advertised it as China’s version of The Hangover. No one came. Box Office Mojo reported that Lost in Thailand made only about $750,000 in the U.S. However, there has been some headway in stimulating business interests between the U.S. and China.

In November 2014, President Obama announced that both countries would begin granting each other’s citizens longer visas.

For the film industry, it might not have much of an immediate impact, Rosen noted. Most major movie studio offices in Beijing or Shanghai tend to be headed by Chinese officials who hold green cards with a lot of exceptions in the U.S.

But, he added, the new visa regulations are an important step forward. “It promotes a sense of sustainability and permanence in the relationship, and should be valuable for Americans who, for business reasons, will be based in China for a considerable period of time,” he said. “With more Chinese investment coming in to the U.S., it should help on that end as well.”
Wonder of the West

The rugged beauty of Big Sur. The innovative spirit of Silicon Valley. The hotbed of creativity that is the Hollywood dream machine. The Golden State is endowed with an iconic, almost mythical stature. Unlocking the mystique is The Huntington-USC Institute on California and the West. By Susan Bell
A sepia Los Angeles carnival image reveals an early 20th-century settlement on the brink of metamorphosis into a cityscape. Country-store nostalgia still takes center stage, but encroaching urbanization and ubiquitous utility poles announce the advent of a burgeoning metropolis.

The journey from California’s early mining era to the state’s dramatic urban and suburban explosions occurred within just three generations. California exuberantly exercised its increasing clout on the national political scene and emerged as a dynamic global economic power.

Building on the success of its first 10 years, The Huntington-USC Institute on California and the West (ICW) continues to document the myriad aspects of that compelling journey through its richly fertile collaboration between USC faculty and students and the historical archives and curatorial expertise at The Huntington Library, Art Collections, and Botanical Gardens. By utilizing its archival sources to weave our histories, the ICW apprentices young scholars, transforming them into the nation’s leaders in furthering our collective understanding of how the history of California and the American West shapes the present, and, in turn, all of our futures.

“Making sense of the remarkable history of the American West requires us to think big: about landscapes, demographic change, challenges and conflicts.”

—WILLIAM DEVERELL
professor and chair of history, director of The Huntington-USC Institute on California and the West
While Southern California Edison’s photographers recorded power generation and distribution, from monumental dams to tall transmission lines, they also illustrated electricity’s myriad uses, from bold neon advertisements and signage, to the domestic comfort and convenience of the gleaming modern home.

Providing a unique opportunity to explore the birth of a modern metropolis, the innovative 2013 digital exhibition Form and Landscape: Southern California Edison and the Los Angeles Basin, 1940 – 1990 was an ICW project and part of Pacific Standard Time Presents: Modern Architecture in L.A., an initiative of the J. Paul Getty Trust. Artists, authors, critics and scholars were invited each to curate an exhibit on a chosen theme using photographs drawn from The Huntington’s Southern California Edison archive. ICW Director William Deverell, professor and chair of history, described the 70,000-image archive as a “historical gold mine.” The exhibition was organized by Deverell and history scholar Greg Hise.

“The history of the West is electrifying. Harnessing electricity to our cultural values and expectations changed the West forever.”

—WILLIAM DEVERELL
Southern California’s historical trajectory has been shaped and transformed by its dynamic aerospace industry. This phenomenon attracted surprisingly little scholarly attention, however, until the ICW launched the Aerospace History Project in 2006. Directed by award-winning science historian Peter Westwick, assistant professor (research) of history, this multi-faceted research, curatorial, pedagogical and publishing effort is dedicated to creating an archive of documents, photographs and oral histories of key institutions and personalities. It traces the remarkable velocity of the region’s aerospace evolution, from post-Civil War ballooning that inspired early aviation technology, to the Southern California aerospace industry’s role in winning World War II and the Cold War, to jet engine ambitions and beyond to the next frontier—space travel.
At the Edge of the Known World

An excerpt from alumna Laila Lalami’s new book, The Moor’s Account, offers a fresh perspective on the ill-fated 16th-century de Narváez expedition through the eyes of the first black explorer in America.
Imagine what it was like for the first African to explore the New World in the 16th century. For Estebanico, a Moroccan slave, arriving from Spain in 1527 to what was now the United States’ Gulf Coast was bittersweet. Laila Lalami’s historical novel, The Moor’s Account (Pantheon, 2014), documents how Estebanico, a voyager with the famed Pánfilo de Narváez expedition, bears witness to the atrocities of conquistadors claiming land for the Spanish crown.

Within a year, the 600 members of the initial crew had been whittled down to four survivors, including Estebanico. From the coast, the small band made its way west across America’s vast interior to Mexico, pretending to be faith healers to survive. Originally, the group’s experiences were chronicled by one of the survivors, a Spanish nobleman, who made no mention of women and little of Native Americans. Lalami, who earned her Ph.D. in linguistics from USC Dornsife in 1997, recasts the expedition through Estebanico’s eyes.

“The facts are the same, but the truth is different because you’re looking at it from a different perspective.” Lalami said.

In this first chapter of The Moor’s Account, Estebanico chronicles his initial encounter with the lush, sandy shores of “La Florida” and its peoples, after sailing for months through treacherous conditions.

As I stood with my master outside one of the huts, I noticed a pile of fishing nets. It was while lifting one up to look at its peculiar threading that I found an odd little pebble. At first, it seemed to me that it was a weight, but the nets had been marred by all the difficulties to be expected of such a passage: the hardtack was stale, the water murky, the latrines filthy.…
This land had become for me not just a destination, but a place of complete familiarity, a place that could have existed all those things too. So I had never been able to shake the appearance, yet he was also capable of the same coarseness and appearance, but I envied the way he spoke about his hometown—it was, always, with the expectation of a glorious return. It is nothing, Señor. Nothing? Just a pebble. Let me see. He scratched at the pebble with a finger-nail, revealing, under the layer of dirt, a brighter shade of yellow. He was an inquisitive man, my master, always asking questions about everything. Perhaps this was why he had been able to decide that part of his stately home in Seville was, always, with the expectation of a glorious return. It is nothing, Señor. It is a pebble, and so it is. I am not so sure. It must be pyrite. But it might be gold. He turned the pebble around and around between his fingers, unsure what to do with it. Then, suddenly making up his mind, he ran up to Señor Narváez, he unrolled a scroll and began to read in his own handwriting:

Fac-tory, a sword, a steel-pointed lance, a dagger, or even a butcher’s hatchet. Then there were the settlers, among them carpenters, metalworkers, cobblers, bakers, farmers, merchants, and many others whose occupations I never determined or quickly forgot. There were also ten women and thirteen children, standing in throngs beside their wooden chests. But the fifty or so slaves, including women and thirteen children, standing in throngs beside their wooden chests. But the fifty or so slaves, including women and thirteen children, standing in throngs beside their wooden chests. But the fifty or so slaves, including women and thirteen children, standing in throngs beside their wooden chests. But the fifty or so slaves, including women and thirteen children, standing in throngs beside their wooden chests.

Señor Albaniz stopped speaking now and, without asking for permission or offering an apology, he took a sip of water from a flask hanging from his shoulder. I watched the governor’s face. He seemed annoyed with the interruption, but he held back from saying anything, as if it would only delay the proceedings further. Or maybe he did not want to upset the notary. After all, without notaries and record-keepers, no one would know what governors did. A measure of patience and respect, however small, was required.

Unbarringly, Señor Albaniz wiped his mouth with the back of his hand and resumed speaking. If you do as we say, you will do well and we shall receive you in all love and charity. But if you refuse to comply, or maliciously delay in it, I inform you that we will make war against you in all manners that we can, and shall take your wives and children, and shall make slaves of them, and shall take away your goods, and shall do you all the mischief and damage that we can. And if this should happen, we protest that the deaths and losses will be your fault, and not that of these Highnesses, or of the cavaliers here present. Now that we have said this to you, we request the notary to give us his testimony in writing and the rest who are present to be witnesses of this Requisition. Unless Señor Albaniz had arrived at the promises and threats, I had not known that this speech was meant for the Indians. Nor could I understand why it was given here, on this beach, if its intended recipients had already heard it in their village. How strange, I remember thinking, how utterly strange were the ways of the Castilians—just by saying that something was so, they believed that it was. I know now that these conquerors, like many others before them, and no doubt like others after, gave speeches not to voice the truth, but to create it.

At last, Señor Albaniz fell silent. He presented the scroll and waited, head bowed, while Señor Narváez signed his name on the requisition. Facing the crowd, the governor announced that this village would henceforth be known as Portillo. The captains inclined their heads and a soldier raised the standard, a green piece of fabric with a red shield in its center. I was reminded of the moment, many years earlier, when the flag of the Portuguese king was hoisted over the fortress tower in Acorce. I had been only a young boy then, but I still lived with the humiliation of that day, for it had changed my family’s fate, disrupted our lives, and cast me out of my home. Now, halfway across the world, the scene was repeating itself on a different stage, with different people. So I could not help feeling a sense of dread at what was yet to come.
The Great Explorers

These alumni are bona fide pioneers, either venturing into gender-imbalanced professional territories — and excelling — or forgoing a secure gig to find a true calling. By Laura Paisley

Score one, make that two, for women in the workforce. Although born generations apart, Virginia Carter and Alexia Tsotsis let their passions be their guide and broke through in male-dominated fields. Carter earned her wings in the aerospace industry before taking an unexpected turn into television entertainment in the ’60s. Tsotsis has traversed the digital frontier and is thriving in the startup capital of the world. Rodney Swan is another intrepid alumnus who wasn’t afraid to go out on a limb — he bade farewell to a job as an office-bound chief financial officer to run his own farm.
Seven percent of venture capital investments in 2014 went to women. In fact, a recent study by pony ventures found that Silicon Valley’s venture capitalists are 95 percent male. It’s a problem that is particularly acute in the field of technology. "Part of the problem is that there’s a lack of women in tech, but across industries. In the last five years I’ve watched as women in tech go from something you don’t want to talk about to an ongoing conversation. And that’s huge," said Tsotsis.

Tsotsis recalled arriving at TechCrunch five years ago and feeling that the ratio of men to women was staggering. "I thought, ‘Wow, I’m not represented here.’ But I firmly believe that all different kinds of people should have a voice, so I made a pact with myself that I would not leave this job."

Eventually she began to see other women in the industry talking about these issues. The 2013 book Lean In: Women, Work and the Will to Lead by Sheryl Sandberg, chief operating officer of Facebook, became her road map. "We are in debt to Sandberg because she has given us a framework for conversations around gender — not only in tech, but across industries. In the last five years I’ve watched as women in tech go from something you don’t want to talk about to an ongoing conversation. And that’s huge."
Rodney Swan is most comfortable in jeans and a T-shirt. Raised on his family's small cotton farm near Blythe, California, he worked in the fields of several local farms as a young man. But for years he donned a suit every day as the chief financial officer for Cigna Healthcare of California, a career he pursued after earning bachelor's and master's degrees in economics from USC Dornsife in 1989. Despite the success, something was missing. “Over the years, I came to feel that I wanted to do something more with my life,” Swan said. “So nine years ago, I bought a farm.”

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Swan has spent extensive time studying the results of conversion of arid farm land to drip irrigation systems, their least productive ground, maximizing efficiency and productivity. Swan has spent extensive time studying the results of conversion of arid farm land to drip irrigation systems, their least productive ground, maximizing efficiency and productivity. Swan has spent extensive time studying the results of conversion of arid farm land to drip irrigation systems, their least productive ground, maximizing efficiency and productivity.

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“Over the years, I came to feel that I wanted to do something more with my life,” Swan said. “So nine years ago, I bought a farm.”

Later, he fostered a fascination with the science and economics of water. “A few years ago, I bought a farm,” Swan said. “I was worried about water use as well as production and quality cycling methods. I look forward to what’s ahead five or 10 years from now — there are so many enhancements that can be made. There’s just going to be a significant financial investment. So, a fundamental shift is needed in how we think about and share water.”

“The reality is, there is a finite amount of water, and California’s population is growing. So we’ll just have to get more efficient in using it.”

Swan advocates water conservation while he oversees land restorations on behalf of the U.S. Department of the Interior’s Bureau of Reclamation. The bureau’s Lower Colorado River Multi-Species Conservation Program was created to balance the use of Colorado River water resources with the preservation of native and endangered species — plants, birds, mammals and other wildlife — and their surrounding habitats.

“The basic economic tenet of supply and demand is, every single day, the basis of what I deal with,” he said. “Strategizing, planning and all the things I learned are fundamental not only to what I do for my work, but also to my sitting on charitable, corporate or government boards. No matter where you are or what situation you’re in, you always find yourself using these fundamental skills learned in the classroom.”

Swan entered USC on a scholarship through the Resident Honors Program. Not sure what he wanted to study, Swan took an economics class his first semester. It immediately clicked.

As a sophomore, he enrolled in the progressive master’s degree program in economics, allowing him to earn both a bachelor’s and master’s degree in 4 1/2 years.

Swan has come full circle in his life’s work, from the fields to sitting behind a desk and back again. But whatever he’s been, the strategic and analytical tools he gained as part of a liberal arts education have proven paramount. “On the farm there are all these moving parts, and I spend a tremendous amount of time planning and mapping it all out, making sure we hit our targets.”

Creating the highest-quality product is the end goal, he said.

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With agriculture and land restorations, you’re always trying to improve and enhance your production, looking at what works, doing more of that, trying new things and getting rid of the things that don’t work. Just as efficiency is crucial in his work on the farm, so it must be for the future of water use in the state. “I think public and private policy companies need to work together to try and develop new technology and re-cycling methods. I look forward to what’s ahead five or 10 years from now — there are so many enhancements that can be made. The reality is, there is a finite amount of water, and California’s population is growing. So we’ll just have to get more efficient in using it.”
Both faculty and students offered intellectual support, and find herself among gifted and collaborative peers at USC. “It was a different era.”

But I was essentially the only girl in my class — it was a degree in physics so she could better her chances for a career. Virginia Carter was ready for the job market. She applied those skills to the entertainment industry — she executive produced

“Working in science is working in a field where the rules are set... Working in the world of entertainment is guided by just one rule: The audience must be entertained.”

In 1973, Carter began working with Lear, or, as she put it, “sitting at God’s right hand.” She was hired as director of creative affairs, and once she adapted to her new role she discovered a sense of authority and respect that had been lacking in her previous career.

Within a few years, Lear had the top seven shows on TV. In 1976, Carter was promoted to vice president for creative affairs. “Norman’s shows periodically touched on all kinds of delicate subjects, raising awareness on a wide range of issues from rape to women’s rights. He selected subjects his audience was already concerned about and hit them head-on. We wanted not only to entertain, but also to create positive change.”

In the early 1980s, Carter created a new division that focused on movies for TV. She executive produced The Wave in 1981, which earned Emmy and Peabody awards. The following year she produced Eleanor: First Lady of the World about Eleanor Roosevelt. It was nominated for an Emmy and a Golden Globe.

With all of her fascinating turns in life, Carter thinks back to her years at USC as a time when she learned how to hold her own.

“The critical part of getting a science degree is the exactitude, the training, the necessity of linear logic,” she said. “You just have to sit there and figure it out.”

She applied those skills to the entertainment industry — staying calm and trying to find the right answer is exactly what one does in physics, she said.

“Working in science is working in a field where the rules are set. They are determined by theory, which is tested, and there is really no flexibility in this process. Working in the world of entertainment is guided by just one rule: The audience must be entertained.”

Carter was captivated by the power and flexibility in this other world, and amazed and sometimes confounded by the lack of calm in the environment. Dealing with actors, directors, producers and delivery schedules, and with large sums of money on the line, her ability to stay calm was a major virtue. But there was more to it than that.

“I wanted, as Norman Lear did, to make the material not only hugely entertaining, but also to make it matter. It was the hardest job I ever had, but it was worth it.”
Beginning in 1972, Barbara Myerhoff—an up-and-coming anthropologist at USC Dornsife—collaborated with the USC Andrus Gerontology Center on a grant from the National Science Foundation to document the lives of elderly Jews. Myerhoff’s work didn’t take her to Israel, Poland or Germany. Instead, she focused the fieldwork in her own backyard: Venice, California. Myerhoff spent years interviewing and interacting with members of the Israel Levin Senior Center, and it was there, in her fieldwork in her own backyard, that she began to see herself as a sociologist, rather than a historian, and embarked upon an ongoing research project that would define her career: the ethnographic study of Southern California. Basha, the center’s former director, said she died on Jan. 5, 2015, at age 89. Myerhoff was also familiar with today due to contemporary examples of religious extremism,” he said.


“Myerhoff’s work didn’t take her to Israel, Poland or Germany. Instead, she focused the fieldwork in her own backyard: Venice, California.”

“This phenomenon, and the extent of damage caused as a result of religious intolerance and lack of respect for others’ belief systems, is something we are only too familiar with today due to contemporary examples of religious extremism,” he said.

“Every morning I wake up in pain.”

Grotesque yet Beloved

Richard Fox’s new book explores Abraham Lincoln’s impact via his looks, his accessibility and his sacrifice.

Addressing an 1856 convention of newspaper editors, Abraham Lincoln told this tale — thought to be a personal reminiscence. Riding a horse, a man Lincoln described as “the homeliest man I ever saw.”

“No, madam, but I cannot help it.”

“No, I suppose not,” she said, “but you might stay at home.”

“Yes, madam, but I cannot help it.”

“Visions are thriving online,” she said. “With a little work and motivation, we can harness this phenomenon.”

Amid the desolate beauty of the California desert, hundreds of people raise instant cameras to snap pictures of a cloudborn, surreal scene.

Gathered at this remote spot in the Mojave Desert north of Los Angeles, these modern-day pilgrims have followed self-proclaimed visionary Maria Paula Acuña to watch her see what they cannot — the Virgin Mary, who Acuña claims appears in the sky here on the 23rd of each month.

While Acuña sets and speaks with the Virgin, onlookers scan the horizon for signs from heaven, watching for what they believe are subtle clues to Mary’s presence, such as the unexpected scent of roses or a cloud in the shape of an angel.

Our Lady of the Rock: Vision and Pilgrimage in the Mojave Desert (Carnell University Press, 2015), the culmination of six years of observing this phenomenon, combines more than 60 evocative photos by USC alumnus Matt Gainer, a research associate at USC Dornsife’s Center for Religion and Civic Culture, with textual analysis by Lisa Bitil and Matt Gainer’s new book explores a contemporary visionary ritual devoted to the Virgin Mary in California’s Mojave Desert, using it as a model to understand the long history of spiritual looking.
Thomas Williams ’08 raised himself up from draft day, “Williams said. — — permission to dream. — — Permission to Dream.

After an injury that ended his NFL career, Thomas Williams ’08 raised himself up to launch a successful new profession as a motivational speaker and author. Williams turned a devastating setback into a victory. His new career as a motivational speaker and author has blossomed. Williams has also designed a development program to help student-athletes focus on success after sports, long before that transition becomes a reality.

He recently published autobiography, Permission to Dream (Thomas R. Williams, Inc., 2014), traces his path to success and the obstacles he overcame to get there. “I want to inspire the entire world to feel the sense of accomplishment I felt on draft day,” Williams said. — — Permission to Dream.

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Kickflipping the Story

With her training in narrative studies, alumna Amelia Brodka ’12 exposes the real story behind women in skateboarding.

A professional skateboarder since age 16, Amelia Brodka was invited to compete as an alternate in the 2010 X Games’ skateboarding competition for women. Although the then-sophomore at USC Dornsife didn’t participate that year, she hoped to compete the following year. When the time came, she heard the word: “Women’s skateboarding was actually growing,” said Brodka, who earned her bachelor’s in 2010.

Professional skateboarder and alumna Amelia Brodka wrote Kickflipping the Story.

“I applied what I learned in narrative studies in terms of story structure and film, ‘It got me thinking about how I could convey the message to a greater audience that women in skateboarding,’ Brodka said.

Recently, Brodka launched the nonprofit Exposure Skate with partner Lesli Cohen. The organization, ‘is a nonprofit organization working to structurally demarcate resistance against women and minority communities globally.’

Alumni News

View from the Hill

One of a handful of Latinos in American history to serve as a chief of staff on Capitol Hill, alumnus and lawyer Sam Jammal, who is also of Arab-American descent, is determined to help increase diversity in government while giving minority groups a greater political voice.

“My parents came to this country with very little, but they told me that education is the key to success,” Jammal said. “I want to give back and ensure others have the same opportunities to succeed.” —S.J.

For more news online at dornsife.usc.edu/alumni-news

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Trombley Joins The Huntington

Laura Skandera Trombley ’89 is named incoming president of The Huntington Library.

As a child, Pitzer College president and noted Mark Twain scholar Laura Skandera Trombley played on the grounds of The Huntington Library. Art Collections and Botanical Gardens. Her life has now come full circle as she is named president of The Huntington Library.

Trombley, who earned her Ph.D. in English from USC in 1989, said she is determined to use her new wealth of information, context and relevancy.

In Memoriam


Robert Auger (S., international relations, ’45) R.H. Male, international business, ’49, lived a life of service to others.

Vincent Staunton (S., international relations, ’69) Hawai’i, born in 1944; lived a long and happy partnership with USC, she said. —S.B.

P S P I T Z E R C O L L E G E

Winter 2015

In Memoriam

Salvador Jesus Gaytán

In 1975, when Viet Luong was 9 years old, he escaped war-torn Vietnam aboard a U.S. aircraft carrier, along with his parents and seven sisters. The following day, Saigon fell.

“We barely escaped,” Luong said. “We were scared to death. Our father told us we were on a U.S. carrier. We said, ‘What does that mean?’ He replied, ‘It means nothing to the world you can harm you now.’ ”

Luong realized that he wanted to serve in order to give back to the nation that had saved him and his family from almost certain death.

Thirty-nine years later, both Goi, Brun, Viet Luong pinned on his first star during a ceremony held on Aug. 6 at Fort Hood, Texas, becoming the first Vietnamese-born general officer in the U.S. military.

Luong is the 1st Cavalry Division’s deputy commanding general for maneuver. The infantry officer commanded a手机版 of 2nd Infantry Division paratroopers in Iraq from 2007-08 and led the 101st Airborne Division’s 3rd Brigade Combat Team, the storied Rakkasans, into combat in Afghanistan from 2010-11.

A biological sciences major, Luong graduated from USC Dornsife in 1987. “Being a science major taught me to think critically,” he said. “I can cut through fluff and get to the root of the problem and that has been one of my greatest strengths in my career.” —S.B.
REMEMBERING

Intraterrestrial Investigator
A geomicrobiology innovator, the professor of biological sciences and earth sciences pioneered explorations to understand the subseafloor biosphere.

Katrina J. Edwards, professor of biological sciences and earth sciences at USC Dornsife, a leader in the field of geomicrobiology, died on Oct. 24, 2014. She was 46.

Edwards made significant advances in understanding “intraterrestrial” — microbes living miles below the ocean’s crust and sediment. Her trailblazing research illuminated the reciprocal interactions among microbes, rocks and minerals in the ocean crust and how these interactions influence global biogeochemical processes.

“A gifted scientist, Katrina was bright, vibrant and at the helm of her chosen field,” said Steven Lamy, USC Dornsife’s School of Policy, Planning and Development alumnus and faculty member at USC Dornsife’s School of Policy, Planning and Development. “Forster’s subatomic particle — the forerunner of the neutron — was named in her honor.

In 2012, Edwards received the Royal Society of Canada’s A.G. Huntsman Award for experimental nuclear physics, and later focused on underwriting teaching and her duties as the department’s director of undergraduate affairs. She retired in 2014. One of few women physicists of her time, Forster published more than 50 papers on nuclear physics and mentioned 24 doctoral candidates.

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On the Banks of the Yalu River

Kaitlin Solimine ’06 discovers she is both lost and found in China.

Two years ago, I stood on the easternmost section of China’s Great Wall looking across a narrow sliver of the Yalu River. There it was: North Korea — an empty landscape of white-capped mountains and snow-covered fields. A border I couldn’t cross. My sole companion on the journey was a gloved hand atop mine and said: “It looks like the world in its natural state, before mankind arrived and ruined it.”

As if hearing my thoughts, Teacher Fang placed a gloved hand on mine and said: “It looks like the world in its natural state, before mankind arrived and ruined it.”

I visited Dandong that summer, stood on the Yalu’s shores and looked across at the same border I would revisit a decade later. Safe within China’s borders, there was something fascinatingly appealing about North Korea: a forbidden country. It was a place I knew so little about, so closed off from the rapid modernization occurring just a stone’s throw from its shores.

A few years later, when I enrolled in the master’s program in East Asian area studies at USC, I knew that I was still obsessed with all things China. Some people call us “China hands,” but I didn’t know what I wanted to do with my knowledge. At USC, I took classes in everything from Chinese political theory and urban design to Taoist literature. The brilliant thing about a degree like East Asian area studies is you can learn the foundations of several different disciplinary approaches to a topic as complex and amorphous as “China.”

Professor Stanley Rosen schooled me with his perfectly fluent Mandarin and knowledge of every Chinese film produced, Professor Gene Cooper pressed me to examine the veracity of my ethnographic sources. Everyone in the program supported my pursuits, even if I meant I’d write a master’s thesis on the failures of Chinese baseball and soon later academia and the East Asian studies world behind.

As China had grown up, so had I. No longer were my flights to Beijing via four stopovers, but non-stops. When I landed, familiar faces greeted me. My WeChat filled with messages. I Skyped with friends and family back home.

“Not till we are lost, in other words, not till we have lost the world, do we begin to find ourselves, and realize where we are and the infinite extent of our relations,” Henry David Thoreau writes in Walden. Despite China feeling so much closer to home, I was more lost in the country than I had ever been. I couldn’t do anything but write about the experience of losing a home that was never technically mine to begin with. So that’s what I did.

Based in Singapore, Kaitlin Solimine splits her time between running the online academic magazine Hippo Reads and finishing her first novel based on the history of the host family she lived with in Beijing during her high school years. Solimine earned her master’s in East Asian area studies from USC Dornsify in 2006.

Without the Internet or mobile phones, living in China then felt as distant from my life in the United States as the moon. Having grown up in rural New England, there was something deeply appealing about immersing myself in such a foreign, far-off culture.

So I studied as much as I could about China, taking language, culture and history courses in high school and then college. I traveled alone throughout northeast China for a summer when I was 18, researching and writing for the travel guide Let’s Go: China in a pre-Google age when travelers actually had to go to a place to know if the hotel was still in existence.

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Life Moment

TAYLOR BOWER ’15

WATCH A VIDEO ON THE DORNSIFE IN D.C. PROGRAM, INCLUDING TAYLOR’S EXPERIENCE, AT DORNSIFE.USC.EDU/DCPROGRAM