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UNIVERSITY
OF
CHICAGO
MAGAZINE**

MAY-JUNE 2015, VOLUME 107, NUMBER 5



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THE UNIVERSITY OF CHICAGO MAGAZINE

MAY–JUNE 2015
VOLUME 107, NUMBER 5



Water covers 71 percent of the earth's surface, yet only 2.5 percent is fresh. In an era of growing scarcity, UChicago scientists are tackling the "grand issue" of making clean water plentiful. See "Thirsty Planet," page 26. Photography by Anthony Arciero.



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Water is life, but ever scarcer. The most promising approaches to a mounting global problem may be molecular. *By Richard Mertens*

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Return to the fold: Recreate some of UChicago's most iconic buildings in miniature using templates from the College admissions office.



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The UChicago-built South Pole Telescope (SPT, above left) became part of the Event Horizon Telescope this January. The array of radio telescopes is connected using a technique known as very long baseline interferometry, which allows multiple instruments to act like a single telescope as large as the separation between them. The telescopes in the array are located in the South Pole, Mexico, Arizona, California, Hawaii, Spain, and Chile (including APEX, the Atacama Pathfinder EXperiment telescope, above right). Their primary target is the Milky Way's black hole, known as Sagittarius A* (pronounced "A-star").



Legacies

BY LAURA DEMANSKI, AM'94

Volume 107, Number 5, May–June 2015

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Clair C. Patterson, PhD'51, is the subject of this issue's Legacy ("Immeasurable," page 42), but for him we could have used the plural: the iconoclastic geologist had twin legacies, both of them enormous.

His first was to identify the age of the earth, work that began when he was a graduate student at UChicago. In the course of that research, Patterson came to suspect that high levels of lead were poisoning the atmosphere, and poisoning people. His conviction growing as he investigated, Patterson became a singular, determined force against the use of the harmful metal in gasoline and other consumer goods. His efforts led to legislation, and the reversal of the deadly accumulation of lead around us and in us. Read the whole story. You may find yourself, like me, with a new personal hero.

At the University of Chicago Patterson befriended Saul Bellow, X'39, who fictionalized him in the 1983 novel *The Dean's December* as Beech, a scientist seeking public support for his campaign against lead use. "You would never have divined that this dry, long, stooped cactus, this scientific Beech, would at last cough up so large and exquisite a flower," Bellow wrote. A lonely voice against a whole industry, Patterson appeared scholarly and unassuming. But both as a scientist and as a public advocate, he proved fearless.

In such cases, the battle for hearts and minds, Bellow observed, is uphill. "It wouldn't be easy," he wrote

of Beech's campaign. "The public was used to doom warnings. Seasoned, hell—it was marinated in them." Some things don't change: the welter of crises vying for our attention only grows.

One crisis has caught the attention of scientists at UChicago's Institute for Molecular Engineering and their international partners: the growing demand for clean water, against shrinking supplies. Like the lead crisis that Patterson battled, water raises problems that are both scientific and social. Here, however, the search for solutions is far from lonely. In "Thirsty Planet" (page 26) you can read about some of the six project teams in the Institute for Molecular Engineering's Water Research Initiative and the new technologies they're developing to generate, clean, and manage fresh water. Their work, like Patterson's, has life-sustaining potential.

STORY MAN

As we sent this issue to the printer, the *Magazine* staff also said goodbye to **Jason Kelly**, who will begin as associate editor for *Notre Dame Magazine* this month. We'll miss the wit and eloquence he brought to stories like "Immeasurable." In six years as associate editor, Jason wrote many memorable stories: "The Fighter Still Remains," about an alumnus overcoming addiction through boxing (July–Aug/09); "Back to the Future," profiling College dean **John W. Boyer**, AM'69, PhD'75 (Nov–Dec/12); and "Point Man," on the UChicago origins of the point spread in gambling (Sept–Oct/13). We could go on—for Jason, we definitely have to use the plural. ♦

LETTERS

Difference maker

I wanted to commend Michael Murphy, AB'02, the subject of "Social Constructs" (Mar–Apr/15), and its author, Michael Washburn, AM'02, who wrote the story in such an informative and affirmative way. I love that Murphy's MASS Design Group is trying to make a difference in unsung places (his northern Rwanda and downtown Poughkeepsie), and I appreciate the very human and circuitous path that Murphy has taken to get to this point, and especially that he remained open to new experiences—including Renaissance poetry and study in Cape Town—and new hurdles along the way.

Add a little Donne and District Six and you have the mental tools to accomplish a great deal.

Washburn describes how Murphy abandoned one dream to attend to his sick father and kept him alive by working with him on house restoration, and those two elements—family and manual labor—don't often feature prominently in the *Magazine*, but they are part of all of our lives. Add a little Donne and District Six and you have the mental tools to accomplish a great deal, as Murphy shows. I wish him good luck and look forward to following MASS Design's projects somehow, even if they don't make the headlines. Great article!

Catherine Skeen, AB'01, AM'02, PhD'03
NARBERTH, PENNSYLVANIA

Glass's journey

The excerpt from Philip Glass's (AB'56) memoir ("The Great Escape," Mar–Apr/15) brought back wonderful memories of the near-final days of the Hutchins plan version of the College back in the 1950s. Although my travels through the comprehensive exam system were not without some serious hiccups, the breadth and depth of the curriculum, and the engagement of the professors, have served me well over a long and varied career. When I veered from my original career as an experimental physicist into energy and envi-

ronmental studies, the transition into social science perspectives was greatly assisted by the basics of sociology and anthropology I so fervently absorbed during my undergraduate years. Remarkably, the broad and demanding curriculum that was the foundation of our education continued to shape my life for many years thereafter.

It was, perhaps, too small and demanding of resources to be continued, a small college embedded in a rapidly expanding research university. Those of you who attended the College after it became more "conventional" have

certainly not been treated badly but may never fully appreciate the deep and abiding love and respect I and many others have for our undergraduate years in that unique environment. It did engender real affection; when I heard that the last of the circular seminar tables had finally been disassembled, it was like losing an old and valued friend. Nei-

ther time nor space has diminished the memories. Or the love.

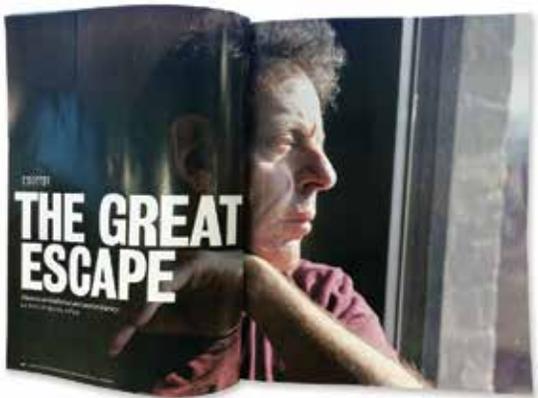
Gene I. Rochlin, SB'60, SM'61, PhD'66
BERKELEY, CALIFORNIA

I went through the same process and did pretty much what Philip Glass did, with possibly fewer of the Core courses (you took entrance exams then and could pass out of some comp courses), but quite enough to make me think hard and then some. He is right: you worried about the comp and knew that a few rarified exotics existed who had just sat down, taken them all, and gotten their PhBs. Stunning. I learned that you never can learn enough, that this is both a metaphysical and a practical issue, and that ontology also kicks in, especially today. One always remained a bit confused, but intuited that this experience was profoundly important: there it was, the horizon of knowledge. And there always was someone (most likely sitting next to you in class) who could do it, whatever it was, better. I think we learned respect for the universe.

And yes, we could audit just about anything, including Richard McKeeon's legendary intro Greek philosophy grad course, which figures so strongly in Robert Pirsig's *Zen and the Art of Motorcycle Maintenance*. I did audit McKeeon and topology and anthropology, and the last won over premed. And I did go that distance; the beauty of Chicago was also its richness of choice. Enough; Glass's account is fine and wondrous true in his own harmonic. That's how it was and that's how Chicago should and can be.

I am concerned about one matter, a major one: the Senior Thesis (I choose to capitalize it). I attended my 50th reunion, a definitely great and superbly orchestrated event. At one of the tastefully lubricated revels during the reunion, I sat next to three new U of C graduates. One was in economics, one in biology, and one entering law. Only one had done a senior thesis.

The undergraduate thesis is profoundly significant because it integrates your studies and your skills into a particular focused experience, set at a professional level. It is a powerful ritual and a significant symbol in a major *rite de passage* (I am obviously an anthropologist) that prepares you for the next step of—whatever. I also believe it is a useful achievement and



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LETTERS

rewarding in itself. I sensed that it was seen as becoming an obstacle, and we all realize the American cultural mandate for near-neurotic achievement at warp speed over purported hurdles.

The senior thesis is not a hurdle, and it should be kept. No parboiled simulacrum from someone else's work: do your own, and do it in a recognized, assessable, and respected format with someone aware of and helping you.

K. J. Pataki, SB'60
PORTLAND, OREGON

I enjoyed Philip Glass's description of his experience at the College in the 1950s. He obviously received a fine education and a wealth of experience in the arts and sciences by his broad contact with Nobel laureates and internationally acclaimed scholars, entertainers, and philosophers. His description of how he navigated the course work and comprehensive exams brings back many memories. I was in the Class of '52 and observed many bright 16-year-olds, away from home for the first time, who also managed to pass the comps but ignore the classes and quarterly exams and actually avoided receiving an education. Several of my acquaintances majored in bridge and/or pool at the Reynolds Club.

As a premed student, I was one of the people Glass never met, who did all the class work plus some additional science courses and was able to continue at the University in the medical school. I think we both had fulfilling experiences at the University. His experience was filled with considerably more

breadth, but my goals required more than a B-minus grade point average.

Paul R. Kuhn, AB'52, SB'54, MD'56
NEWPORT BEACH, CALIFORNIA

Radio days

Herbert Gans's (PhB'47, AM'50) report on Mike Nichols, EX'53, at WFMT ("Mike Nichols's First Career," Peer Review, Mar–Apr/15) was a fine introduction to his life beyond the U of C. May I add my recollections?

I believe I first saw Nichols in a production of *R.U.R.* in Mandel Hall. He was well suited for the robot part, as a result of his hairstyle (none). Do any other alumni recall that performance?

WFMT had previously been WOAK, but after new management of what had been a classical station shifted it to pop music, Bernie and Rita Jacobs took over and insisted on a name change, restoring quality radio programming to the Chicago area. The Jacobses also pioneered such innovations as having advertisements read by the announcers, publishing a monthly fine-arts program guide supported by subscriptions, and carrying slick color ads as well as articles of interest to their listeners.

Of course, all but one of the previous advertisers left, thinking there was no interest in classical music in Chicago. The Jacobses broadcast a plea for contributions. I called in to say that, as a student, I didn't have any money but would like to volunteer my time (I had done engineering at WUCB, the "underground" station at Burton-Judson Courts, and happened to have a commercial radio license).

I started as a volunteer engineer the same week that Mike was hired as an announcer. I regularly came to the station during Mike's time, keeping the

Our competitors observed us studying on the hill or in the lodge. They often wondered aloud about how we were nerdy and winners.

required logs and doing technical maintenance after the sign-off.

The growth of WFMT over the years was a very eventful experience. There are tales I could tell of his sojourn at the station. One evening, having reviewed the teletype printout, Mike announced, "There is no news tonight!"

Mike also helped create the *Midnight Special* program, beloved by folk music fans for many years. For the same audiences, I recorded concerts by Pete Seeger and many others, at Mandel Hall and elsewhere.

Cal Herrmann, AB'51, SM'56
RICHMOND, CALIFORNIA

Après-ski

I was so happy to see J. V. Prunskis's (AB'77) letter about the Ski Team in a recent issue of the *Magazine* (Letters, Jan–Feb/15). After John graduated, we carried on and won the 1979 Illinois Governor's Cup. It was good fun. Our team included future CFOs, MDs, polyglots, and research scientists. Some had never skied before joining the team. At the Governor's Cup, teams from Minnesota and Wisconsin were sure that they would come down for easy pickings at Galena. But I won the slalom by seven seconds. Mitch Levine, AB'81, MBA'83; Doug Warren, AB'80; Dave Murdy, AB'79, SM'81, MBA'82; and Jeff Guterman, SM'81, all did their bit to bring a cup back that now languishes in an attic somewhere in Ida Noyes.

The most amusing moments during the races came when our competitors observed us studying on the hill or in the lodge. They often wondered aloud about how we were nerdy and winners.

Abdulkader Thomas, AB'79
SAFAT, KUWAIT

A block busted

I experienced one of the first instances of "block busting" (Letters, Mar–



BLAST FROM THE PAST

The Winter/84 issue's photo caption on page 23 for the brass plaque in front of Hutchinson Commons contains a sad commentary on the lack of respect for later generations. It reads, in part, "In past days, tradition required that one not step on it." One of the first things I learned as a matriculating freshman was that you NEVER EVER stepped on that plaque! Apparently, present-day students have no qualms about helping wear out a unique bit of the University's history. O tempora! O mores!

—George F. Dale, SB'33, Spring/84

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LETTERS

Apr/15) in 1954 when our landlord sent a letter to the renters at 1165 East 52nd Street informing us that he had rented an apartment to a Negro lawyer and his family, but that we could break our lease with 30 days' notice. People had lived there for decades, but in a short time my husband and I, both UChicago graduates, were the only whites renting. The rents were raised for black families that took their place.

Jean O'Leary Brown, PhB'47
OAKLAND, CALIFORNIA

Good reads

A decade ago the *University of Chicago Magazine* was a romanticized, Keatsian version of an "Ode to a Grecian Urn" or of an inanimate school. Today this outstanding magazine profiles College students, postgraduates, and teachers influenced by the school's approach, warts and all. Your article on Senator Bernie Sanders, AB'64 ("A

Political Education," Jan–Feb/15), brought me beyond his media celebrity to see a humanistic, socially aware individual whom I would want to know more about. In the next issue an article by composer Philip Glass, AB'56 ("The Great Escape," Mar–Apr/15), showed the ability of a broad liberal arts education to allow his mind to later create multiple operas. If there are prizes for best alumni magazines, yours should be in the running. In the future an interview with Cass Sunstein, who taught for 27 years at Chicago, would be intriguing.

My suggested experiment is that an issue should go to 50 percent of the College applicants you accept. I suspect that a greater number of high schoolers who chose to accept the University of Chicago offer will be influenced by reading the *Magazine*. I assume that the acceptees are already aware of UChicago's presentation of original thinkers in its Core program. The *Magazine* presents a further vision of originality and innovation in its students and later in its productive and intellectually contributing alumni

and teachers who benefited by their UChicago experience.

Leonard Friedman, AB'56
MIDDLETOWN, MASSACHUSETTS

House hecklers

Fascinating to hear about the two couples "heckling" the Robie House ("Eyes Wide Open," Editor's Notes, Jan–Feb/15). I'm curious to know what you gathered was the basis of their laughter? It is old, vintage, weird because not Kentlandish? Unrecognizable nonsuburban? Couldn't be seen as a mansion? Seemed out of place, unlike anything in their experience? And were they University types? From Seattle? Another country? Thanks for this anecdote and your column.

Bob Garlitz, AM'69, PhD'69
PLYMOUTH, NEW HAMPSHIRE

Corrections

On page 84 of the Mar–Apr/15 issue is a photograph of Wayne C. Booth, AM'47, PhD'50, teaching a class. The student to Booth's right is me, so the photograph does not date from 1984, as indicated in the caption, but from either the fall quarter of 1977 or the winter quarter of 1978, when I was a student in his class.

Kurt P. Wise, AB'81
CLEVELAND, GEORGIA

On pages 32 and 33 of "Object Lessons" (Mar–Apr/15), you refer to telegraphed messages as "telegraphs." The term should be "telegram," defined as "a message sent by telegraph and then delivered in written or printed form." Telegraph refers to the system or to the device used for transmission.

Ruth Curd Dickinson, AB'52
TOPEKA, KANSAS

We regret the errors and thank our readers for pointing them out.—Ed.

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SOCIAL UCHICAGO



Elias Muhanna @QifaNabki • Apr 21
I have a crush on @UChicagoMag. It looks too well-designed and sharply produced to be an alumni magazine. I'm confused by it, in a good way.



Courtney Wilhelm @WilhelmCourtney • Apr 12
"Words to live by," the effects of poverty on children. Great read! <http://mag.uchicago.edu/science-medicine/words-live> #FHSPAW15 #BeTheChange



Left Shark @nrubio428 • Apr 11
A slightly delayed glimpse into my insanely wonderful college life. 🐋👉 <http://mag.uchicago.edu/university-news/all-nighters>



Autodesk Foundation @AutodeskFdn • Mar 31
Michael Murphy's @MASSDesignLab strives to make an #architecture of community cohesion: <http://autode.sk/1xFZ3RG>

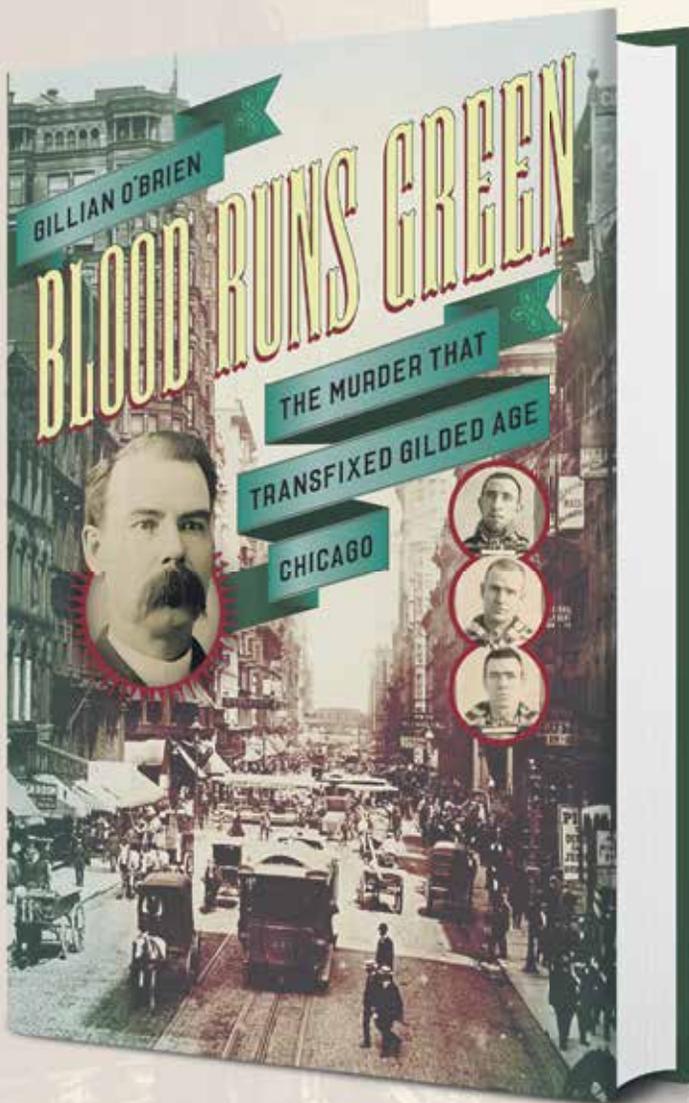


UChiPhysicalSciences @UChicagoPSD • Mar 25
.@UChicagoCollege alum compares #math to #bodybuilding: "It's about persistence." <http://goo.gl/RbrQsk>



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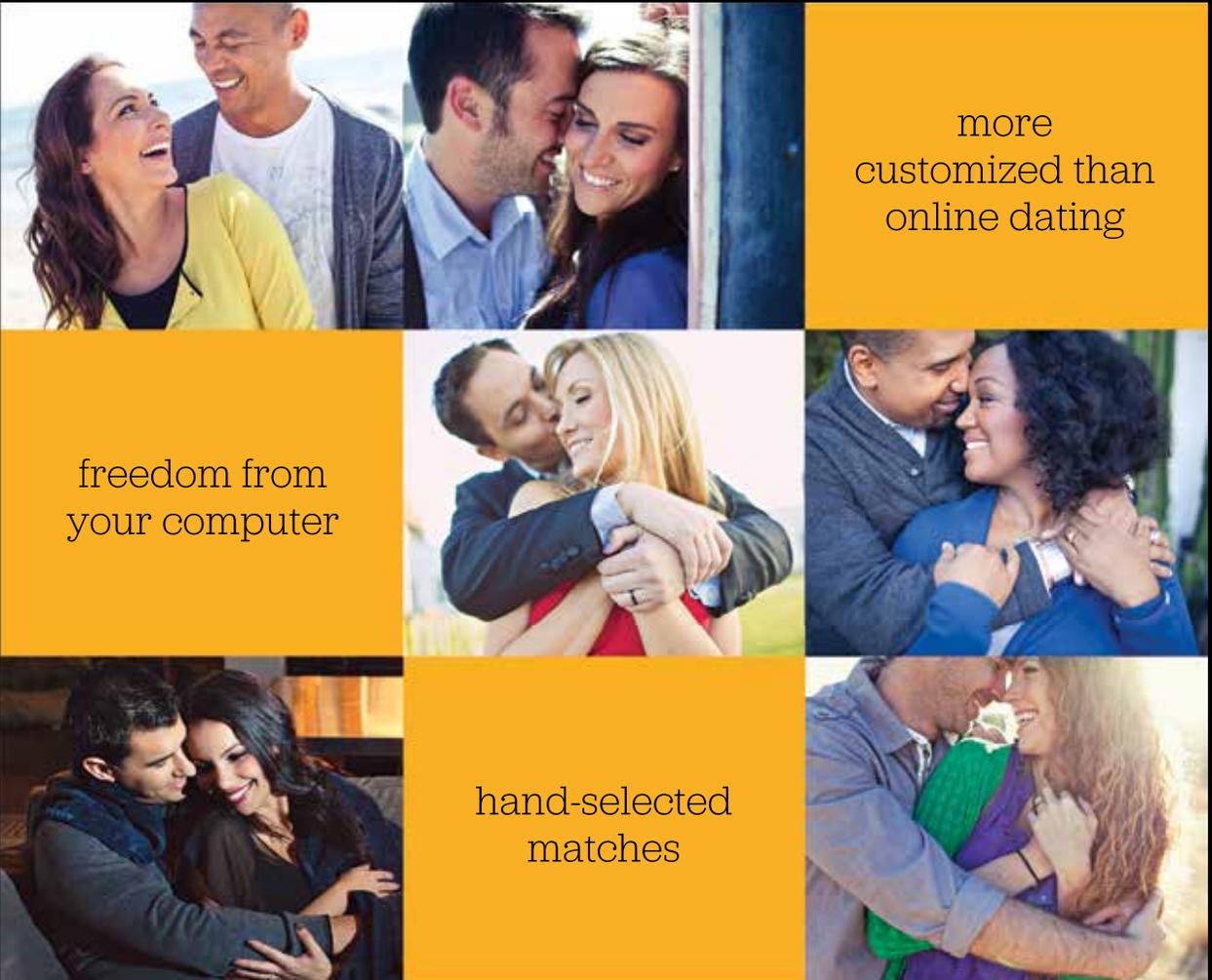
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URBAN LABS

Proven approach

UChicago launches Urban Labs, an all-in, evidence-based effort to improve urban life.

“With large concentrations of people come magnified challenges. How do

we ensure a good education for all of our young people? How can we be sure those students will graduate into decent jobs? How do we provide families with good housing, with a reliable and sustainable energy supply, in a safe neighborhood? How do we make certain that lives are not cut short by violence, pollution, and poor health? In short, how can we make cities work better?”

Those questions, posed by University of Chicago president **Robert J. Zimmer**, echoed through the Chicago Cultural Center’s Grand Army of the

Republic Rotunda on March 9, shortly before he announced an expanded University initiative to help find the answers: the UChicago Urban Labs.

Funded in part by a \$10 million gift from the Pritzker Foundation, Urban Labs will take a data-driven approach to tackling cities’ long-term challenges, partnering with policy makers and community leaders to design, pilot, test, and implement workable programs and policies.

The network of five Urban Labs builds on the successes of the UChicago Crime Lab, created in 2008, and

Shared objectives

University of Chicago Police takes steps to enhance transparency and public access to information.

After an extensive process that included discussions with local residents, elected officials, and stakeholders across campus, the University is taking significant steps to enhance the transparency of the activities of the University of Chicago Police Department (UCPD). The University also will streamline online access to law enforcement information that is already public.

The changes go beyond the requirements of Illinois law for police forces at private institutions. As of June 2015, the UCPD will post details about all traffic stops and field contacts the UCPD performs. The daily online updates will include the date, time, location, reason for the stop, disposition, whether a search was conducted, and the race and gender of the person stopped.

In addition, the UCPD will make details available upon request from records of arrests made by UCPD officers. The University's Safety and Security website will provide easier access to UCPD information that has been available but was not collected in one place online. The site also will have additional background information about how the department fulfills its duties.

"Public safety requires effective partnerships among community members and the police," said **Derek R. B. Douglas**, vice president for civic engagement. "Meetings with community members and public officials helped lead to a reevaluation of how we share information. We are grateful for their help and look forward to continued conversations with our neighbors about a wide range of safety issues."

Douglas said that in addition to the planned changes, the University will explore additional opportunities for the community to communicate directly with the UCPD. In collaboration with a range of stakeholders,

the Urban Education Lab (2011). For example, during the 2009–10 school year, a mentoring, counseling, and sports program called *Becoming a Man*, developed by two Chicago nonprofits, sought to strengthen impulse control, personal responsibility, aspirations for the future, and other social-cognitive skills in adolescents. The Crime Lab's pilot study of the program's Sport Edition, structured as a randomized clinical trial, found significant improvement in high school performance and reduction of arrests among the 800 students who participated. Today, *Becoming a Man* is reaching more than 2,000 students with a goal of expanding to 3,800 students in the 2015–16 school year.

Similarly, an early study found that a mathematics tutoring program that is intensive, individualized, and cost effective compared to other interventions improved math learning for high-risk adolescent boys by up to two years after 12 months in the program. The Urban Education Lab is undertaking a large-scale trial of the program in Chicago, even as it is launched nationwide.

The expanded Urban Labs include three new labs, focusing on urban poverty; health; and energy and the environment. A UChicago faculty member heads each. **Marianne Bertrand**, the Chris P. Dyalynas Distinguished Service Professor of Economics in the University of Chicago Booth School of Business and faculty codirector of the Social Enterprise Initiative, who is already working with the City of Chicago to design and evaluate new jobs programs, has been named director of the Poverty Lab. **David Meltzer**, LAB'82, AM'87, PhD'92, MD'93, professor in the Department of Medicine, chief of the Section of Hospital Medicine, and director of the Center for Health and the Social Sciences, leads the Health Lab (see "Rx: Research," page 23); and the Energy and Environment Lab is led by **Michael Greenstone**, LAB'87, the Milton Friedman Professor in Economics and the College and director of the Energy Policy Institute at Chicago (see "Particulate Matters," page 17).

Jens Ludwig, the McCormick Foundation Professor in the School of Social Service Administration,

Law School, and University of Chicago Harris School of Public Policy, continues to direct the Crime Lab while codirecting the Urban Education Lab.

The Urban Labs are led by inaugural Pritzker director **Timothy Knowles**, who is also the John Dewey Clinical Professor in the Committee on Education and codirector of the Urban Education Lab with Ludwig.

The labs' directors, Zimmer explained, "will work in their own areas of expertise, but because these problems are complex and interrelated, they will also work together at the intersection of issues like health, education, and jobs."

Speaking at the March 9 event, US secretary for housing and urban development Julián Castro underscored why work like that of the Urban Labs is so essential, not just for Chicago, but for the country as a whole. Fifty years after Lyndon Johnson created the Department of Housing and Urban Development, Castro said, "our resources simply haven't kept up with the needs of those we serve." So evidence-based practices help ensure "that we're investing in what's working and making adjustments where we see that something's not."

To generate evidence on ideas and programs that work, the University is seeking proposals from community groups, nonprofits, and government agencies through the Urban Labs Innovation Challenge, funded by the Pritzker gift. Letters of interest due this spring will be narrowed down over the summer by an advisory committee of civic leaders and academic experts. A small group of applicants will then be invited to submit proposals. The inaugural round of Innovation Challenge recipients will be announced in September. One or more winning programs, which could receive up to \$1 million over the course of two years, will be evaluated with a randomized controlled trial or a similarly rigorous evaluation. Proposals for the first competition must be ideas that can be enacted in Chicago.

The hope, said Ludwig, is that "in five or 10 years, Urban Labs together have identified a collection of promising policy solutions that can improve millions of people's lives around the world."—*Sean Carr, AB'90*

the University will strive to build a model of engagement for private university police departments sharing information with the communities they serve.

“The University of Chicago is committed to working closely with members of our communities to maintain safety and foster an atmosphere of trust,” said **Marlon C. Lynch**, associate vice president for safety, security, and civic affairs, and chief of police. “The University decided to go beyond the law’s requirements in order to encourage dialogue and feedback that will allow us to serve the community most effectively.”

Many individuals and groups have offered constructive ideas related to the policy changes, including Illinois state representatives **Barbara Flynn Currie**, LAB’58, AB’68, AM’73, and **Christian Mitchell**, AB’08, and local aldermen **Will Burns**, AB’95, AM’98 (4th Ward); **Willie B. Cochran** (20th Ward); **Pat Dowell**, AM’80 (3rd Ward); and **Leslie Hairston**, LAB’79 (5th Ward). Input from the broader community on the South Side played an important role. At UChicago, the Campaign for Equitable Policing, leaders in Student Government, and faculty members worked with the UCPD to help move the discussion forward.

The University already provides information on UCPD activities through a variety of channels. On- and off-campus incidents reported to UCPD are compiled into a daily crime and fire log and are posted on the UCPD website. The site also provides summaries of individual complaints made against UCPD officers and includes the analyses and recommendations of the University’s Independent Review Committee concerning those complaints. In addition, UCPD reports traffic stop information to the Illinois Department of Transportation; aggregate traffic stop information is available on the IDOT website. Because the Chicago Police Department is the investigative agency for criminal incidents that occur off campus, those reports are available from the CPD upon request.

Although such information is publicly available, it is not always easy to access. New web pages on the UCPD site will gather more of this information in one place, along with other supporting material:

- The University will provide and publicize additional background information related to current UCPD practices, including the statutes that serve as the legal basis for UCPD’s authority; the responsibilities of the department; a description of UCPD officer training; and information on how the UCPD operates in conjunction with CPD.

- The University will provide more specific information regarding traffic stops and field contacts, outside of the aggregate information provided by IDOT. This information will be updated daily and will include the date, time, location, reason for the stop, disposition, whether a search was conducted, and the race and gender of the individual.

- The University will provide upon request arrest record information, similar to the information provided by public law enforcement agencies. Specifically, the information disclosed will include identifying information of the arrestee (such as name, age, address, and photograph); arrest charges; time and location of the arrest; name of the investigating or arresting law enforcement agency; amount of bail or bond; and details on incarceration.

- The University will develop a list of frequently asked questions and responses compiled from extensive conversations with both the University community and neighboring communities. The University will seek feedback on the FAQs from community groups.

The UCPD is a professionally trained police department with approximately 100 state-certified officers, accredited by the Commission on Accreditation for Law Enforcement Agencies. The areas served by the UCPD extend from 37th to 64th Streets, and are bounded by Lake Shore Drive on the east and Cottage Grove Avenue on the west, excluding Jackson Park.

The UCPD’s jurisdiction has developed in response to community needs and requests from community leaders for the University to play a role in public safety and other issues of concern to residents. The City of Chicago expanded the UCPD’s patrol area at the request of the community and University. More information on services provided by the UCPD is available at safety-security.uchicago.edu.

WILLIAM RAINEY HARPER’S INDEX

CHILD CARE

Year Comer Children’s Hospital opened:

2005

Number of physicians:

170

Pediatric specialties in which Comer provides treatment:

22

Number of newborns treated in the neonatal intensive care unit:

8,000

Number of children transported to Comer by air or ambulance for emergency treatment:

8,500

Federal funding, in millions, that Comer has received to study treatments and cures for childhood diseases:

\$90

Square footage of the hospital’s play areas:

3,000



Where homeowners leveraged themselves most, the economic crisis was worst.

FINANCE

Mortgaged futures

Household debt was the primary cause of the 2008 financial crisis, a Chicago Booth economist finds.

Jon Stewart's no economist, but even an expert could appreciate the comedian's assessment of the policy response to the 2008 financial crisis. Amir Sufi, Chicago Board of Trade Professor of Finance at Chicago Booth, found himself nodding along as he watched the *The Daily Show* host address the subject.

Stewart wondered aloud why Congress passed the Troubled Asset Relief Program—the “bailout”—to assist banks but left struggling homeowners to suffer under unmanageable debt. He suggested it should have been the other way around.

“I think that simplistic logic is more or less correct,” says Sufi, whose re-

search led him to the same conclusion as Stewart in *House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again* (University of Chicago Press, 2014), written with Princeton University economist Atif Mian. The authors argue that spiraling household debt was the root cause of the Great Recession—and should have been the focus of recovery efforts.

Instead, a perception persists among the public and many influential economists that the September 2008 collapse of Lehman Brothers, which the government allowed to fail, was the triggering event of the crisis. After the shock of Lehman's fall, policy makers focused on rescuing troubled banks to restore confidence in the financial system. Because indebted households received no help, *House of Debt* argues, consumers were left with much less money to spend, making the recession worse.

As early as 2005, Sufi says, he was struck by what he considered a troublesome trend: Americans were borrowing “aggressively” against their homes to finance spending, creating a fragile economic bubble. As he ex-

amined the legitimacy of his hunch, housing values collapsed, and spending dropped accordingly.

The worst damage occurred in places where homeowners had leveraged themselves the most. Worldwide, Sufi and Mian write, “the Great Recession was much more severe in countries with elevated household-debt burdens.” Hence, they continue, “the relation between elevated household debt, asset-price collapses, and severe contractions is ironclad.”

They found that this relationship held true not only in precipitating what became known as the Great Recession but also in many other economic contractions before it, including the Great Depression. “The data are so overwhelmingly consistent and supportive of the idea that household debt levels were what drove decline in economic activity,” Sufi says. Small businesses, for example, reported that a drop in consumer spending was a much bigger problem in 2008 and 2009 than a lack of available credit from compromised banks.

Because of that, he and Mian assert, the policies enacted in the aftermath should have targeted personal debt to stimulate spending. “There's no way a banking crisis can account for how long this recession was and how severe it was,” Sufi says.

His hope is that the ideas take root enough to prevent the next such bubble before it drags down the economy. For example, he's currently studying what he calls the “subprime auto boom.” It's “remarkably similar” to the subprime housing boom that predated the Great Recession, although he adds, “it can't take down the whole economy” like the housing crisis threatened to do.

If and when such a moment arrives again, however, Sufi believes the growing acceptance of the policy prescriptions in *House of Debt* could provide a dose of preventive medicine. “A lot of economists and a lot of journalists,” he says, “we've swayed them.”

Christina Romer, the chair of President Obama's Council of Economic Advisers during the response to the crisis, was among those persuaded. She told the *New York Times* after *House of Debt's* publication, “I now think that fiscal stimulus would have been more effective had we also had

RICHARD BORGHE/THE ISPO.T.COM

a more effective housing plan”—although she argued that Sufi and Mian understate the importance of the government’s actions in limiting the scope of the crisis.

Other readers also found some holes in the book’s conclusions. The *Economist*, for example, noted that “falling house prices and net worth help explain why employment started sinking in early 2008, but not why it went into free fall after the failure of

Lehman Brothers.” Still, the article went on, the authors’ “broader point about the danger of debt is correct.”

To mitigate that danger, Sufi and Mian call for a new type of housing debt contract that spreads the risk between the borrower and the lender. Called “shared-responsibility mortgages,” the contracts would include provisions that reduce the principal owed if property values fall, while granting loan originators a percentage of any increase.

In a *Financial Times* review, former Treasury secretary Lawrence Summers claimed that *House of Debt* elides the political obstacles to implementing many of their ideas, but added that his objection “detracts only slightly from Mian and Sufi’s accomplishment. All future work on financial crises will have to reckon with the household balance sheet effects they stress.”

—Jeff Carroll, *JD*’12

CITATIONS

THROUGH THE GRAPEVINE

In a study that suggests why wines carry regional tastes and how farmers might grow healthier crops without chemicals, microbial ecologist **Jack A. Gilbert** found that grapevines may “recruit” bacteria from the soil that help them thrive. A researcher at Argonne National Laboratory and UChicago, Gilbert led a team that sampled microbes in the soil, roots, leaves, flowers, and grapes at five New York vineyards. Each had its own “microbial signature”—an interwoven community of hundreds of thousands of microbes—offering a clue to what makes up terroir, or grapes’ regional taste. While most bacteria they sampled came from the soil, the same

bacteria were found in different amounts elsewhere on the plant, suggesting that different parts of the grapevine recruit specific bacteria. The next step, Gilbert says, is to find ways to encourage the growth of beneficial bacteria that help plants become more drought tolerant or produce more fruit. The findings were published March 24 in *mBio*, a publication of the American Society for Microbiology.

MULTIPLE SCLEROSIS PREVENTATIVE

An FDA-approved drug for high blood pressure might help alleviate multiple sclerosis, a disease with no known cure that affects more than 2.3 million people worldwide. A team led by UChicago neuroscientist **Brian Popko** found that

guanabenz, an oral medication, seems to strengthen animal cells’ defensive machinery by temporarily blocking the reactivation of a protein. This helps prevent the loss of nerve-insulating myelin, a major hallmark of MS. The team tested guanabenz in mice and found that, administered early, it delayed the onset of MS symptoms. In about 20 percent of the animals, the drug prevented symptoms from appearing at all. Guanabenz also seems therapeutic after MS symptoms have appeared and peaked: giving the drug immediately after a cycle of severe symptoms, the researchers found a nearly 50 percent reduction in symptoms during the next relapse cycle. Guanabenz likely won’t work as a standalone treatment; it would be used in combination with other drugs, and researchers hope it could replace some of the riskier MS drugs. The findings were published March 13 in *Nature Communications*.

MUSLIM HEALTH DISPARITIES

Arguing that a lack of research on Muslim American patients puts them at risk for poor quality health care, UChicago physician and bioethicist **Aasim Padela** found that there are relatively few studies focusing on the country’s estimated 7 million Muslims. In an April 1 report in the *Journal of Health Disparities Research and Practice*, Padela wrote that a search of 18 million research studies published in medical journals between 1980 and 2009 turned up only 171 with a focus on

Islam. Padela, who also heads the University’s Initiative on Islam and Medicine, called for more research on the health effects of anti-Islamic discrimination and how religion influences Muslims’ health behaviors. “In the area of health disparities among American Muslims,” he says, “we know very little.”

CURE OF THE MAGNOLIA

The bark of the magnolia tree may help prevent certain kinds of heart disease. **Mahesh Gupta**, UChicago cardiac cell biologist and associate professor of cardiothoracic surgery, reported in the April 14 *Nature Communications* that honokiol, a compound derived from magnolia bark, can help prevent the thickening of the cardiac muscle often caused by chronic high blood pressure, which can lead to heart failure. Injected into mice, honokiol—an herbal remedy used for centuries in Asia—reduced excess growth of individual heart muscle cells; decreased the thickness of ventricular walls; stopped cardiac muscle cells from stiffening; and protected them from oxidative stress, which can damage DNA. The compound does this by activating SIRT3, a protein associated with slower aging, metabolism regulation, and stress resistance. Sedentary patients over age 60 have nearly 40 percent less SIRT3 than people who are younger. In mice, a small amount of honokiol nearly doubled SIRT3 levels in 24 hours.—*Minna Jaffery*, ’15, and *Kathryn Vandervalk*, ’16



Jack Gilbert (foreground) and winemaker Giles Martin take microbial samples from Martin’s vineyard.

PHOTO COURTESY KRISTIN WEST/FMC CORPORATION AND JACK GILBERT

FOR THE RECORD



INTERNATIONAL INVESTMENT

College and economics graduate students from schools in Egypt will benefit from a new initiative to help fund their educations. The University's Osni Sawiris Scholars Program, established with a \$20 million gift from University trustee **Nassef Sawiris**, AB'82, was announced March 14 at the Egypt Economic Development Conference in Sharm el-Sheikh. Nassef Sawiris, who named the program in his father's honor, extends the long-standing connections between his native country and the University, which in 1894 became the first in the Western Hemisphere to have an Egyptology department.

NEUBAUER NAMED TRUSTEES CHAIR

Joseph Neubauer, MBA'65, will begin a three-year term as chair of the University's Board of Trustees after its annual meeting on May 28. Neubauer, the retired chair of Aramark Corporation, has been a trustee since 1992. He succeeds **Andrew M. Alper**, AB'80, MBA'81, who has served as chair since 2009. Neubauer, also the chair of the University of Chicago Campaign: Inquiry and Impact, called it "a great honor for me to work closely with President Zimmer and my fellow board members during this ambitious period in the University's distinguished history."

RESIDENTIAL TRANSITION

After the 2015–16 academic year, Blackstone, Breckinridge, Broadview, and Maclean residence halls will no

longer house undergraduates. Instead, the students will be among those living in the new Campus North Residence Hall and Dining Commons, which will be home to about 800 undergraduates in eight residential houses when it opens in fall 2016. Unlike the four buildings that will no longer be used, Campus North will accommodate resident masters—senior faculty members who live among students—a tradition dating to the early 1970s that is integral to the intellectual culture of the College.

A HOME IN HONG KONG

Discussions on science, human capital and development, and Chinese cultural history introduced the University of Chicago Center in Hong Kong at an event on March 28. Already home to the Chicago Booth Executive MBA Program in Asia, the center will now host workshops and conferences across disciplines and offer the University's first undergraduate study abroad program in Hong Kong. Joining centers in Delhi, Beijing, and Paris, the Center in Hong Kong will help students and faculty "build collaborations and institutional connections" during a time of political, social, and economic development in Asia, President **Robert J. Zimmer** said at the March ceremony.



POLONSKY REAPPOINTED

Kenneth S. Polonsky has been appointed to a second five-year term as dean of the Biological Sciences Division and the Pritzker School of Medicine

and as the University's executive vice president for medical affairs. "Kenneth has not only been a leader in clinical affairs," said Provost **Eric D. Isaacs**, "but also in the quality of our education programs." Polonsky oversaw the 2013 opening of the Center for Care and Discovery and has recruited new faculty members including **John Maunsell** as the inaugural director of the Grossman Institute for Neuroscience, Quantitative Biology, and Human Behavior, and **Douglas R. Dirschl** to lead the newly created Department of Orthopaedic Surgery and Rehabilitation Medicine.



KNOWLEDGE BASE

What are the historical, social, and intellectual circumstances that give rise to knowledge that shapes the modern world? The Stevanovich Institute on the Formation of Knowledge will address such questions. Named in recognition of a \$10 million gift from University trustee **Steve G. Stevanovich**, AB'85, MBA'90, the institute will include College courses and graduate seminars, drawing on more than 20 faculty members from five academic divisions and schools. Inaugural faculty director **Shadi Bartsch-Zimmer**, the Helen A. Regenstein Distinguished Service Professor in Classics and the College, noted that UChicago is "a place where discipline-agnostic 'thinking outside the box' is encouraged, and the Stevanovich Institute is an expression of that approach to knowledge."

SURVEY ASSESSES CAMPUS CLIMATE

All College, graduate, and professional school students age 18 and over were asked to complete a survey in April to assess the campus climate with regard to sexual misconduct and sexual assault. A committee led by **Ronald Thisted**, professor in public health sciences, statistics, anesthesia and critical care, and the College, developed the survey, which was administered by NORC at the University of Chicago. A series of reports outlining the results, beginning by the end of the 2015 spring quarter, "will help us to assess awareness and effectiveness of resources already in place, to identify areas in which greater efforts will be most effective, and to understand where we can improve programs and resources that our students can draw on," Thisted said.



HEAD OF THE CLASS

A former Urban Education Institute intern has risen to its highest post. **Sara Ray Stoelinga**, AB'95, AM'01, PhD'04, has been named the institute's Sara Liston Spurlark director. She succeeds **Timothy Knowles**, who was appointed Pritzker Director of the UChicago Urban Labs (see "Proven Approach," page 11). Joining UEI's predecessor in 1995 as an intern, Stoelinga has served in a variety of roles, becoming senior director in 2010. Also a researcher, teacher, and student adviser, she has published on subjects including teacher and principal leadership and teacher effectiveness.



This Beijing bicyclist was Greenstone's exhibit number one for the pollution costs of China's economic progress.

ENVIRONMENT

Particulate matters

Economist Michael Greenstone studies the human cost of China's pollution in the Huai River Valley.

One of the first bits of evidence that UChicago economist **Michael Greenstone**, LAB'87, showed his audience during a January symposium on pollution in China was a photograph. In it, a Chinese man rode a bicycle. He wore goggles, his electric blue facemask standing out against the bleak gray sky.

"While economic progress has led to incredible improvements in well-being in China, it hasn't come for free," Greenstone explained. The cyclist in the photo "feels compelled to wear a face mask to block out the pollution. And for those of you who've been to China, in many of the big cities it's not uncommon that you can go days without seeing the sun." Greenstone, director of

the Energy Policy Institute at Chicago (EPIC) and director of UChicago's Energy and Environment Lab (part of the new Urban Labs initiative) was speaking at a symposium called *China's Pollution: The Costs, Challenges, and Steps Forward*, cohosted by EPIC, the Paulson Institute, and the University's Center for International Studies.

To illustrate the costs of pollution in China, Greenstone presented research on the effects of pollution on life expectancy. The Huai River plays a central role in the research; it is the dividing line between north and south China—in the winter, temperatures north of the river are normally below freezing (including in Beijing), while those in places south of the Huai River are generally above freezing.

A government initiative colloquially called the Huai River policy provides free coal during winter months to residents living on the north side of the river. Greenstone said that while the policy initially seemed beneficial, it caused a sharp difference in air pollution between north China and south China. Zhu Rongji, China's former premier who had been a resident of Shanghai, told Beijing

officials in 1999, "If I work in your Beijing, I would shorten my life at least five years."

Greenstone set out to test the premier's claims. A past member of the EPA Science Advisory Board's Environmental Economics Advisory Committee, a faculty director of the E2e Project (an initiative devoted to finding cost-effective ways to reduce fossil fuel consumption), and the Milton Friedman Professor in Economics at UChicago, he's an expert in energy and environmental economics. His team looked at the levels of airborne particulate matter pollution on both sides of the Huai River. (Particulate matter is composed of air carcinogens containing solid particles and liquid droplets of hundreds of chemicals.) The study is based on the idea that the particulates are the only determinant of life expectancy that discretely differ on the north and south sides of the river. Indeed, they found support for this assumption in other observable determinants of health, like smoking and diet.

The team found that north of the Huai River, where there were heating units, suspended particulates concentrations were about 550 micrograms

per cubic meter, compared to roughly 350 micrograms per cubic meter south of the river. Greenstone pointed outside, to the Chicago winter sky. “If you want to put that in context, because it’s a really enormous number, outside today I suspect it’s like 50.”

By focusing on the area surrounding the Huai River, Greenstone’s team was able to compare life expectancies of the people living to the north and to the south: one set of data including the pollution from the heating units, and one without. To even Greenstone’s surprise, the data showed that people in the north are living about five and a half years less than people in the south.

To ascertain that this difference in life expectancy was coming from the Huai River policy’s particulates and not other factors, Greenstone tested the levels of other air pollutants on the north and south sides of the river. Also to confirm that the causes of death were related to air pollution in general, he isolated the data of people who died from cardiorespiratory causes. He found that the elevated mortality rate was almost entirely due to a 37 to 50 percent increase in the cardiorespiratory mortality rate, suggesting strongly that there is a relationship between life expectancies and air pollution.

Greenstone emphasized that reducing particulate concentrations is important all over the world. “Obviously if you’re in China, the Huai River policy is incredibly important. If you’re somewhere else in the world, what you really might be interested in is, well, if you give me a 100 unit change or a 50 unit change in particulates, what is that going to mean for my life expectancy?” For those who live somewhere with a hundred extra micrograms per cubic meter of particulates, he says, “life expectancy will be reduced by somewhere between two and three years.”

Applying that number to India, he concludes that the 660 million people in regions where pollution concentrations exceed India’s standards would live more than three years longer on average by bringing the country into compliance with its own environmental codes. Greenstone’s work is important not only to the more than 500 million in northern China (who collectively are losing 2.5 billion life years) but to those who breathe polluted air everywhere in the world.—*Kathryn Vandervalk, ’16*



At Story Squad programs, students from the South Side share their experiences.

SOCIAL SERVICE

Healing is prevention

An antiviolence program helps South Side youth navigate the trauma that surrounds them.

Local teens were just arriving at the South Chicago YMCA for their weekly activities with the Youth Safety and Violence Prevention program this past December when a man shot in the legs staggered into the building. None of the teens were involved in the drive-by shooting that injured the 23-year-old man, but the shock of witnessing such incidents can create cycles of violence.

“There’s a saying that ‘hurt people, hurt people,’” explains **Ryan Lugalia-Hollon**, AB’04, a codirector of the YSVP program. “If you can help somebody process the trauma of violence, then you’ve changed their future.”

Driven by the belief that “healing is prevention,” Lugalia-Hollon and codirector **Eddie Bocanegra**, a master’s student in the School of Social Service Administration, have helped transform the way the Chicago Y addresses youth violence. When they took the helm as the first permanent

directors of the newly created YSVP program in 2013, they recruited kids from juvenile justice programs, housing projects, and schools on the South and West Sides, targeting kids on probation or involved in gangs. The students learn how to talk about their trauma through initiatives such as the Story Squad and to address conflict in peace and healing circles. They receive guidance from Iraq and Afghanistan war veterans in the Urban Warriors mentoring program.

Over the past two years, Bocanegra and Lugalia-Hollon have doubled the YSVP staff. They’ve received support from sources like the MacArthur Foundation and Chicago’s Department of Family and Support Services, led by **Evelyn Diaz**, AM’98. Thanks to the increased funding, they’re now able to serve 359 teens in six neighborhoods across Chicago.

Part of Bocanegra and Lugalia-Hollon’s progress with the program can be attributed to their own experiences with violence and poverty in Chicago. As a UChicago undergraduate, Lugalia-Hollon started a group connecting students to the Hyde Park and Woodlawn communities and served as the first social justice coordinator at the University Community Service Center. He received the University’s Perry Herst Prize honoring students who put their academic work to use in social service.

After graduating, Lugalia-Hollon

served as a fellow at the Adler School's Institute of Public Safety and Social Justice before meeting Bocanegra in 2012. The men worked together to organize a conference about immigration and incarceration and grew to respect each other's leadership styles and values. They also recognized that they had complementary skills, with Bocanegra specializing in program development and Lugalia-Hollon excelling at research and theoretical frameworks. So when the YMCA approached them later to lead their youth violence program, Bocanegra and Lugalia-Hollon knew that they wanted to work together.

"We do this work because we believe there's an untapped resource in underprivileged youth," Bocanegra says. "The trajectory of these kids is being changed right in front of us. They're now thinking about college, about MBAs, about becoming journalists."

Bocanegra experienced such a transformation himself as a young man

growing up in Chicago's Little Village neighborhood. He joined a gang at age 14. Four years later two of his friends were shot, one paralyzed. Bocanegra took to the streets for revenge and ended up killing another young man. After serving a 14-year prison sentence, he emerged with the mission of stopping youth violence. He became a "violence interrupter" for the organization CeaseFire and founded Grupo Consuelo, a therapeutic group for parents who have lost children to violence.

After earning much recognition as a peace builder—he was featured in the 2011 documentary *The Interrupters* and former Illinois governor Pat Quinn gave him a Hero Award—Bocanegra received a Laurence Lynn Fellowship to study at the School of Social Service Administration with a focus on violence prevention. He says that his coursework at the SSA changed the way he looks at violence.

"I now think about violence prevention from an ecological perspective,"

he says. "I learned how early exposure to trauma really shapes the way an individual thinks and the different ways communities perceive violence."

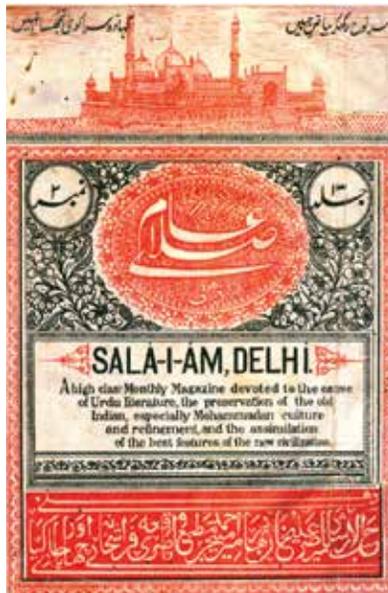
Bocanegra has already been able to put his new knowledge into practice in his role as codirector of the YSVP program. When a 12-year-old boy in the program witnessed the shooting outside the South Chicago Y in December, Bocanegra was quick to intervene.

He immediately reached out to the boy's YSVP mentor, who talked to the boy's family about the incident. Later, when they went on a field trip to the Pritzker Military Museum together, they discussed the shooting and posttraumatic stress disorder with the military veterans who volunteer with YSVP.

"It was the second time the boy had seen someone get shot," Bocanegra says. "I think it's important for the kids to know it's not normal to kill someone. But it is normal to have a sense of fear."

—Nissa Rhee, AB'06

ORIGINAL SOURCE ISSUES OF INTEREST



Book reviews, scientific and political essays, early serialized versions of classic novels—these are a few of the riches in the Urdu-language journals that popped up all over India

between the 1890s and the 1940s. They "are the real archives for Urdu intellectual activities," says Urdu scholar and UChicago professor emeritus C. M. Naim.

Unlike many Indian and Pakistani languages, Urdu is spoken and written across the subcontinent—Uttar Pradesh, Punjab, Hyderabad, Mumbai, Kolkata, Delhi. Urdu journals reflected regional cultures and writers "who eventually become lost in the greater narrative of Urdu," Naim says, but who add important dimensions to a study of the whole. Many of the journals themselves are now all but lost too. The reasons are myriad: poor-quality paper, neglected public libraries, "termites, floods, wind," Naim says. In the 1947 partition of India and Pakistan libraries were looted and destroyed. Journals were sold as scrap paper.

Today it's hard to find complete runs of even major periodicals. "It's like here not being able to put your hands on the early issues of the

Chicago Tribune," says James Nye, the library's bibliographer for Southern Asia. In 2012 Nye took part in a project to collect and digitize Urdu journals based in Karachi, Pakistan, at the Mushfiq Khwaja Library and Research Centre. Owned and managed by the UChicago Library on behalf of a consortium of US research libraries, it houses one of the world's best collections of Urdu periodicals.

To fill gaps in its collection, researchers scoured libraries and private collections across the subcontinent, looking for missing issues to digitize. Part of the Mushfiq Khwaja collection belonged to an Indian auto mechanic; an obsessive collector, he began buying Urdu journals in the 1940s and, when he could no longer afford the storage, sold them to the University and its consortium partners. The 2,400 titles in his collection included *Salā'ē ām*, a literary journal published in Delhi from 1908 to 1929 (left).

—Lydialyle Gibson

Fit to be successful

Three recent graduates build a business around keeping office workers healthy.

The summer after their third year in the College, **Arnav Dalmia**, **Ryota Sekine**, and **Shivani Jain**, all AB'13, each had an internship in the corporate world. Spending all day at a desk for the first time, the three fitness-minded friends began to realize what a host of recent studies have found—sitting at a desk for hours at a time can be extremely unhealthy. Solutions like standing desks and treadmill desks were on the market, but all were either too expensive or too bulky to be practical for the interns.

When the three returned to campus, they decided to participate in the College New Venture Challenge at Chicago Booth's Polsky Center for Entrepreneurship and Innovation

to develop a practical, inexpensive product that would help office dwellers work physical activity into their nine-to-five lives.

Their solution was the Cubii, a small portable elliptical trainer designed to be placed under a desk and used while sitting in an office chair. Cubiis are unobtrusive and quiet, the founders say, specially designed so users' knees won't hit the underside of their desks as they pedal, and are able to connect with mobile devices and fitness trackers.

Dalmia, Sekine, and Jain placed second in the competition. They wanted to continue to develop the idea, but none of them expected Cubii to become their full-time job. "Honestly, we never realized it would turn into a business for us," says Sekine. "But we started getting a lot of traction and people started encouraging us to pursue this full time."

Taking the next step, the group launched a campaign on Kickstarter to both gauge market interest and raise funds, and partnered with outside engineers to build a Cubii prototype.

Their Kickstarter campaign raised close to \$300,000, more than three times the original \$80,000 goal. That allowed Dalmia, Sekine, and Jain to become full-time CEO, COO, and

CMO, respectively, of their new company, FitnessCubed. First taking up residence in the offices of Chicago start-up incubator 1871 and soon expanding to a second office in the West Loop, the founders began to meet with manufacturers and get the company up and running.

Since FitnessCubed officially launched in June 2014, the company and the Cubii have been featured by NPR, *Forbes*, TechCrunch, the *Chicago Tribune*, NBC Chicago, and other media outlets. Preorders through Kickstarter and on the company website have hit 1,500. "There's been this extreme buzz around [the company] in the press, and all the orders. ... It's been so exciting," says Jain.

The first Cubiis (retail price \$349) are currently scheduled to begin shipping in the third quarter of 2015, but Dalmia, Sekine, and Jain are already looking ahead. At the time of print, they were wrapping up a \$350,000 seed funding round, the FitnessCubed staff had expanded to include a Metcalf Intern (**Mingchen Chi**, '17) and a part-time financial consultant, and the trio was already thinking about their next products. The ultimate mission of FitnessCubed is "to make it easier for peo-



Dalmia, Sekine, and Jain are exercised about the unexpected growth of their company, Fitness Cubed.



PHOTOS COURTESY FITNESS CUBED

ple to stay healthy,” says Sekine, “so we have a couple other ideas in the pipeline that we hopefully will be developing soon.”

The founders say they were aided greatly by their Chicago education as well as the supportive culture on campus. “Because it’s a small, closely knit community, I think everyone is really willing to go out of their way to help you,” says Sekine. “I’ve never had a professor or an administrator or anyone say ‘no’ to me whenever I’ve gone to them for any kind of help.”

Asking for help has been a main factor in the company’s success, says Jain. It’s something she would recommend to any young entrepreneur. “We often don’t want to seem like we don’t know what we’re doing, or that we’re not smart,” she says. But the willingness to ask questions and take advantage of any help and resources available has been “one of the big driving factors in our success,” says Jain. “I would encourage entrepreneurs to take as much free help as they can, ask any questions of whoever they can, because you just never know when something will be helpful.”—*Helen Gregg, AB’09*



Shakeela Hassan believes that “sound, rhythm, and movement” define human life.

SOUND

Harmony and peace

UChicago anesthesiologist Shakeela Hassan advocates for the healing force of interfaith music and human sound.

Shakeela Hassan has told the story so many times, it’s almost like a song: the soft knock on her dorm room door every morning at 5 a.m., from the nuns at St. Mary of Nazareth Hospital on Chicago’s West Side. “Time for Mass, doctor.” Every day, Hassan, then 23 years old, a Muslim and a newcomer from India, would rise and make her way to the hospital’s chapel. Sharing the pews with patients and their families, she would listen to the nuns chanting in Latin.

She didn’t understand a word, but she was deeply moved. “I didn’t want to breathe or sneeze or cough or make any sound,” Hassan says, that would disturb “the peace of the chapel.” Instead, she prayed. “They were going full blast with the rosaries, and Arabic prayers were resonating in my brain. Because that’s the only way I knew how to pray. And I still have that unbelievable connection I felt from my heart to whatever we pray to, and the deep feeling of community with the nuns in the chapel.”

That was nearly 60 years ago. Born and raised in Hyderabad, India, Hassan had come to the United States with a new medical degree to find work as a physician. After an internship at Northwestern, she was a resident at St. Mary of Nazareth, a Catholic hospital in a Polish enclave of the Ukrainian Village neighborhood. Now a UChicago associate professor emerita and a scholar in the University’s Program on Medicine and Religion, Hassan remembers those mornings in the chapel as the

genesis of a lifelong devotion to sacred music, interfaith understanding, and the healing power of sound.

That fascination flowered in 1999, when Hassan retired from practicing medicine. She collaborated on the 2002 PBS documentary *Muhammad: Legacy of a Prophet*, traveling to 40 states to raise money for the film. In 2009 she coproduced *Sounds of Faith*, a three-part series exploring the sacred music of Judaism, Christianity, and Islam. She organized a concert by the same name that year at Rockefeller Chapel; in 2014 Rockefeller hosted a five-year anniversary Sounds of Faith concert, adding Hindu and Buddhist music to the program.

During the concert’s opening song, Muslim calls to prayer mingled with the blast of a Jewish shofar and the drone of the chapel’s organ. Rockefeller dean **Elizabeth Davenport** played a set of Tibetan singing bowls while singers chanted the Hindu peace mantra, “Om shanti.” There were chanted recitations from the Quran and the Hebrew

bible, a performance of “Ave Maria.” The Rockefeller children’s choir sang on the chancel steps, and the UChicago Russian choir Golosá sang from a rear balcony. Hassan sat in the first pew in a shimmering green sari.

The years Hassan has spent promoting interfaith compassion and “the idea that sacred sound connects us to God and to one another” have also seen profound sectarian conflict across the globe: war, terrorism, religious prejudice. “I have been quite disturbed at how civilized we are and how uncivil we are at the same time,” Hassan says. Disturbed, but not deterred. With her nonprofit, Harran Productions Foundation, she has traveled around Chicago, the United States, and the Middle East, organizing concerts and presentations

at schools and religious centers, aimed at fostering interreligious understanding through music and sound. In 2014 she recorded a TEDx talk about how “sound, rhythm, and movement” define and unify human life.

To Hassan, “sound,” including sacred sound, doesn’t only mean music. As an anesthesiologist, she says, she was struck by the fundamental human importance of sound. Hearing is the most developed of the senses at birth. In patients under anesthesia, it’s the last sense to go as they lose consciousness and the first one they regain. (“I always said to my residents: ‘No jokes permitted. The patient can hear you.’”) During operations, she kept wordless watch over her patients, listening to the ventilator sound of their breathing and

the electrocardiograph beep of their heartbeat. “That’s sound, rhythm, and movement,” she says. In medical school, “they were taught like this: inspection, palpation, percussion, auscultation.”

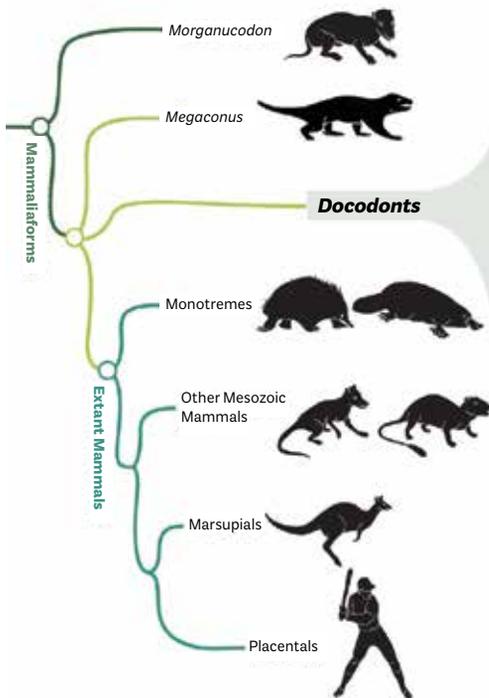
Paraphrasing Divinity School professor **Michael Sells**, AM’77, PhD’82, from the *Sounds of Faith* documentary, Hassan compares sound to water: it goes into the deepest crevices, becomes part of everything. She abstracts further. “What is symphony?” she says. “Why do we go to the seaside and sit down beside the ocean? Why do people go for a walk?” For the sound, she says, which is present even in silence. “How you come to peace with it is by becoming a part of it.” In the chapel pews at St. Mary of Nazareth Hospital so long ago, that’s what Hassan did.—*Lydia Lyle Gibson*

FIG. 1 MAMMAL DIVERSITY

Mammals’ evolutionary history stretches back hundreds of millions of years, to the Mesozoic era. Dinosaurs dominated the earth then, but research increasingly suggests that stem mammaliaforms—some of which gave rise to today’s mammals—were more diverse and adaptive than previously believed.

UChicago organismal biology and anatomy professor Zhe-Xi Luo coauthored two papers in the February 13 *Science* on the discovery in China of the earliest known tree-dwelling mammaliaform, *Agilodocodon scansorius*, and the earliest known subterranean mammaliaform, *Docofossor brachydactylus*. Belonging to the now-extinct order Docodonta and dating back 160 to 165 million years, both provide evidence of early mammals’ wide-ranging environments and morphologies.

Docofossor, for example, looked strikingly similar to modern African golden moles: short, wide upper molars for foraging underground; a sprawling posture that suggests crawling; and shovel-like fingers for digging. *Agilodocodon*, meanwhile,

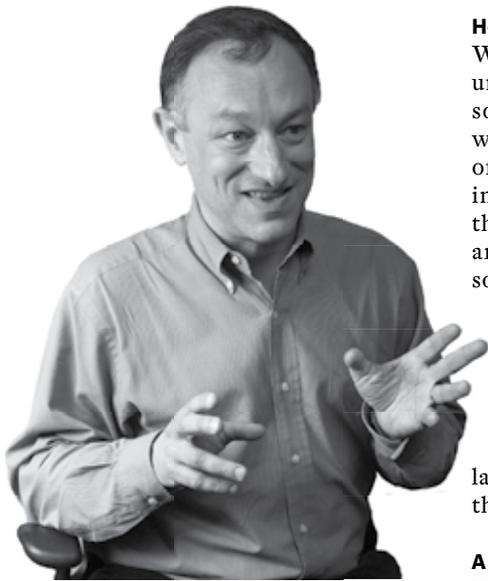


had the curved, horny claws and flexible joints of today’s tree-dwelling and climbing animals.

The taxonomic illustration above shows a few branches of the mammaliaform tree, both living and extinct, including the docodonts,

with whom modern mammals share a common lineage. Alongside *Docofossor* and *Agilodocodon* is *Castorocauda*, a swimming, fish-eating Jurassic docodont first described by Luo and colleagues in 2006.—*Laura Demanski, AM’94*

ILLUSTRATION BY APRIL L. NEANDER



INTERVIEW

Rx: Research

UChicago's Health Lab uses social scientific methods to address the needs of urban patients.

In March the University launched Urban Labs (see "Proven Approach," page 11), which will design and test programs and policy interventions to improve the lives of the world's city dwellers in five critical areas: education, crime, poverty, energy and the environment, and health.

Leading the Health Lab is **David Meltzer**, LAB'82, AM'87, PhD'92, MD'93, professor of medicine and chief of the Section of Hospital Medicine. Meltzer is affiliated with the University of Chicago Harris School of Public Policy and the Department of Economics, where he currently teaches Health Economics and Public Policy.

In 2005 he founded the interdisciplinary Center for Health and the Social Sciences (CHeSS), which he continues to direct and which will work closely with the Health Lab. His interview with the *Magazine* is edited and adapted below.

—Laura Demanski, AM'94

Health Lab 101

We have this absolutely wonderful university with some of the greatest social sciences departments in the world, and an incredible tradition of building rigorous social science into the professions. Traditionally those have been the professions that are most obviously aligned with the social sciences: law, business, public policy, and social service administration. But we know that health has a tremendous degree of dependence on social phenomena. As we advance our understanding of how to improve health, particularly in populations, we want to grow those connections.

A vital network

The beauty of Urban Labs is the strong emphasis on rigorous experimental methods, the deep partnerships with governments, and the idea that the model is applied through five different substantive areas in social policy that are taking these shared approaches to work together and look at all the social determinants.

Side effects

When you intervene in some way through a social program, very rarely do the results affect only one dimension of society. For example, what did we learn from some of the big experiments that look at improving health insurance? There are some effects on health, but there are huge effects on financial well-being. One of the biggest outcomes of expanding Medicaid is decreasing bankruptcy rates. If you try to take just a single-sector approach on this, you're inherently limited.

Theory to practice

Fields have a natural progression to them. When a field starts, very often it needs a theory. My most cited paper required nothing other than paper and pencil—math equations. And those math equations really mattered. But as ideas move into practice, you need data and people and infrastructure. Health economics is an absolutely essential field that has a critical applied component. And just because something has an applied component doesn't mean it doesn't also have deeply rich, complex potential for theoretical insights.

A problem of care ...

One of the Health Lab's first projects is the comprehensive care physician program. We're doing a randomized trial funded by Medicare that I believe will show we can substantially reduce the cost of health care while improving outcomes for high-risk patients. The idea came out of a mathematical equation I developed to understand why doctors were now specializing in hospital care or ambulatory care, as opposed to doing both. I concluded that as medicine changed over time, people started going to the doctor more and more in order to stay well, so ambulatory clinic doctors could fill up their whole day with clinic patients but rarely admit patients to the hospital. The ambulatory doctors didn't want to make the trip to the hospital to see one or two patients and started to give that work over to the hospitalists. Then you see disruption in the doctor-patient relationship, which is really harmful.

... and a solution

We came up with the idea of a set of doctors who only saw patients at high risk of hospitalization, but saw a small number of them. By reallocating patients and redesigning doctors' jobs, we could create a sustainable model that allowed better care at lower cost. The model is now undergoing extraordinarily rigorous evaluation through a 2,000-person randomized trial. This enables us to produce very solid knowledge, and we're starting to think about how to disseminate it and have an even bigger impact. It's a wonderful project for the Health Lab: it includes all the care needs of these patients; it's innovative; it's being tested in a really rigorous way; and we're looking for partners both locally and nationally with whom to further test it.

Global impact

President **Robert J. Zimmer** has a vision of national and international impact for the labs, and we have projects that really could do that. I just gave a talk about the comprehensive care physician model in Washington, and afterward I had three people come up to me whose interest beautifully symbolized the Urban Labs and its potential. One was from a major academic medical center in New York City; another one was from Los Angeles, another major academic medical center; and the third was someone from Qatar, all interested in adopting this model.



Marching on

BY LYDIALYLE GIBSON

A few minutes into the Q&A at a Divinity School event in early March commemorating the 50th anniversary of the Selma marches—arguably the emotional peak of the civil rights movement—an audience member asked a question that was on many people’s minds. “At Selma,” he began, “everything was concentrated on this one place, all these people, this one issue. But today, the problems”—of racism—“seem to be scattered in a million places.” In Ferguson, Missouri, and Staten Island, New York, protesters rally against police brutality, “but as soon as you go to another place, it’s school resources, teacher resources. There’s just this huge range.” Around the room, heads nodded. Then, looking to the UChicago theologians and historians seated by the podium, the questioner, a middle-aged African American man, said: “So my question

is, what’s going to motivate people; what’s going to help bring together these myriad pieces in a way that something might begin to happen?”

In a way, the whole evening felt as if it had been winding toward this question. The discussion, titled “Lessons from Selma: Then and Now,” filled every seat of Swift Hall’s third-floor lecture hall with students, professors, University administrators and staffers, and residents of the South Side. Moderated by Divinity School theologian **Dwight Hopkins**, four faculty members, two of whom had marched at Selma, reflected on the meaning, memory, and enduring relevance of those weeks in March 1965. National attention—and, eventually, federal guards—converged on Alabama after civil rights demonstrators were attacked and beaten by state troopers on March 7 as they tried to cross the Edmund Pettus Bridge, walking from Selma to Montgomery. By the time Martin Luther King Jr. led 2,000 protesters on a successful march two

weeks later, President Lyndon Johnson had addressed a joint session of Congress, advocating for the legislation that would become the Voting Rights Act of 1965.

Contemporary race issues were a strong undercurrent in the discussion: not just Ferguson and the death of Michael Brown, or of Eric Garner in New York, but also voter restrictions, the disproportionate number of African American men in prison, inequalities in housing and education, and racial violence. Talking later about how the program had come together and the packed house it had attracted, Hopkins said, “People are very concerned. People still have some very deep questions.”

In their remarks, panelists echoed those concerns and questions. **Martin Marty**, PhD’56, the Divinity School’s Fairfax M. Cone Distinguished Service Professor Emeritus and a historian of modern Christianity, was one of those who ventured south 50 years ago to join the demonstrations. He was a young professor then, with a miniature typewriter strapped to his body everywhere he went, to write what he was seeing and hearing. “I think we should take away from this the understanding that events like this call for the deepest things within us,” Marty said. It was in Selma where he also witnessed the practice of nonviolence in action. “Martin Luther King and his associates were really working with ordinary people who were going to get clubbed and clubbed and clubbed and were not allowed to reciprocate,” Marty said. “And I think we learned the power of nonviolence there.”

Franklin Gamwell, AM’70, PhD’73, Shailer Mathews Distinguished Service Professor Emeritus at the Divinity School, also marched at Selma. He recalled those events and the following year’s civil rights campaign in Chicago, which failed to evoke the same level of national response. Gamwell emphasized the importance of common focus in seeking social change, and of assembling a “national constituency.” But he added that “the awesome courage of people long debased” had “vindicated” the movement’s moral appeal, even as violent reactions to the demonstrations in Selma and elsewhere confirmed that “social advantage will not yield to justice without a contrary exercise of power.”

PHOTOGRAPH BY WILLIAM LOVEACE/GETTY IMAGES

A historian of American religions, **Curtis Evans** sounded a similar note. Evans grew up in rural Louisiana, surrounded by people who were deeply poor and mired in hardship, and who often felt powerless to change the system they were living in. He emphasized the bravery of the ordinary local African Americans in Alabama who put themselves at considerable risk to join and assist in the civil rights demonstrations: farmers who allowed marchers to camp in their fields, churches that opened their sanctuaries to mass meetings. He told the story of Lorenzo Harrison, a pastor who had preached on voting rights and later found the church where he was holding services surrounded by Klansmen who threatened to kill him if he didn't leave town before sundown. "In all these instances, these were individuals who were working against the constraints that had been imposed upon them in an atmosphere that was suffused with violence," Evans said. "And they decided to work against this system that had been working on and against them for many years. So it's local people working in the local circumstances of their lives, trying to alter decades and centuries of oppression."

Jane Dailey, a scholar of African American history and of social, political, and legal history in the United States, sees in Selma a profound rhetorical and theological shift. In a paper that Divinity School dean **Margaret Mitchell**, AM'82, PhD'89, stepped in to read (Dailey was ill the day of the panel), Dailey argued that Selma—which took on the sense of a pilgrimage as preachers, rabbis, nuns, and other clergy flocked there at King's urging—became a religiously, not just politically, seminal event. It fused the concept of racial equality with Christianity, countering the segregationists who had long cited scripture as justification for their beliefs. "The ranks of marching priests, ministers, and rabbis represented a concrete witness to the rightness of integration," Dailey wrote. "A walking testimony to an ecumenical belief in racial equality rooted in a common Judeo-Christian heritage." Five decades later, "for many Americans, including perhaps especially non-Christians, true Christianity has become synonymous with the vision of King and other Christian integrationists."

Then came the Q&A, and the question about today's scattering of racial issues. Marty took the first swing. Even during the intensity of Selma, he said, the civil rights movement was never as concentrated as it now appears. "A lot was going on apart from Selma," he said. "It was very dispersed. There were cases, state after state: Georgia, Mississippi, Alabama, Texas. The strange concatenation, the way things go in history, was what it all took."

Evans echoed Marty's point. In the Deep South, civil rights demonstrations often focused on voting rights and Jim Crow oppression, but in the Northeast and Midwest, the pressing racial issues were different: "unequal schooling, massive unemployment, housing discrimination, and so on," Evans said. "This is happening concurrent with and after Selma, so I don't think there was the degree of unanimity that it would seem." Later he would caution against falling into a "lamentation of decline" in comparing the activism of the 1960s to today. "It's much more complicated than that."



I think we should take away from this the understanding that events like this call for the deepest things within us.

Martin Marty, PhD'56, Fairfax M. Cone Distinguished Service Professor Emeritus



Montgomery was not a one-day event. It was a yearlong process.

Dwight Hopkins, Professor of Theology

Gamwell tugged at a slightly different thread. "I'm not sure the problem is a scattering of difficulties—although there may well be a scattering. I'm more inclined to think that racism has gone, as it were, underground." These days, discrimination comes out in more coded ways, Gamwell argued, for instance in some states' push for stronger voting restrictions. He sees claims of voter fraud as "a rationalization" for voter suppression based at least in part on race. "Racism in American history is its own ideology," Gamwell said, "with its own dynamic that cuts across other dynamics and ideologies, and makes common cause with lots of other concerns."

Weighing in with a measure of optimism, Hopkins reported that he sees more unity and coordination across disparate racial issues today than people might think. A rallying point, like Selma—or Ferguson—with large demonstrations is always important to have. But equally important are the less visible community organizers building the networks needed to support social movements. "What I'm hearing and seeing is that there is a lot of energy, a lot of unrecognized grassroots drilling down taking place, particularly among African American youth, but it's a rainbow coalition of young people." He pointed to coordinated efforts in churches across the country—and not only those with African American congregations—to preach sermons around the rallying cry "black lives matter."

At a February MLK event in San Francisco, Hopkins had met black youths who were using comic books to recruit and mobilize activist networks. Young activists in Ferguson have used social media and instant messaging. "So I think they actually are developing infrastructure on the ground, so when there's another big national movement, they can operationalize that network." Hopkins added: "I always remind folk, when I get a chance to share my understanding of the civil rights movement, that Montgomery"—where the Selma marches culminated in speeches by King and others on the state capitol steps—"was not a one-day event. It was a yearlong process." And even that event, seminal as it was, was also only "a beginning for another level of the struggle." ♦

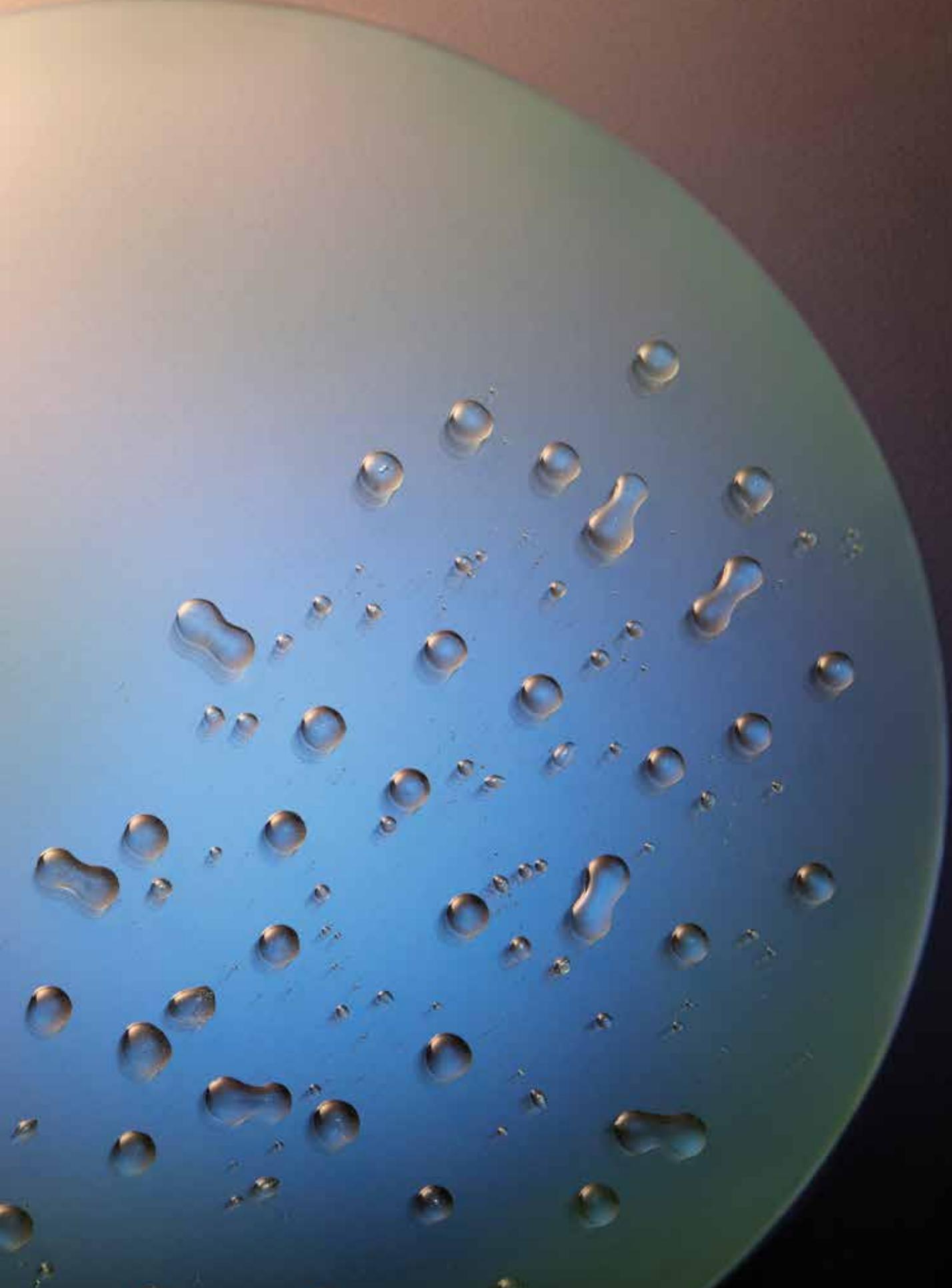
physical sciences

THIRSTY PLANET

Water is life, but ever scarcer. The most promising approaches to a mounting global problem may be molecular.

BY RICHARD MERTENS

PHOTOGRAPHY BY ANTHONY ARCIERO



Zheng-Tian Lu, SM'91, first heard about krypton 81 dating at a meeting of physicists in Germany in 1996. The use of radioactive isotopes like krypton 81 and the more commonly known carbon 14 to date organic objects goes back to 1907, when Bertram Boltwood first measured the age of rocks containing radioactive uranium. Carbon 14 dating reaches its limit at about 30,000 years, but krypton 81, with a half-life of 229,000 years, has the potential to date much older things—among them subterranean aquifers.

In an age of shrinking water supplies, a better understanding of groundwater is one critical front. Almost half the world's drinking water comes from underground (rather than from surface sources like lakes and streams). And in many regions where people rely on groundwater, these resources are under threat. But questions about aquifers have been largely matters of guesswork and conjecture, much of it wrong: How long has the water been in the ground? How fast and in which direction is it flowing? And, most important, at what rate is it being replenished from above? With better answers, those resources could be managed more effectively. Krypton 81 dating, Lu and others recognized, might help, but first a number of daunting challenges had to be solved.

The Water Research Initiative, a joint project of UChicago, Argonne, and Ben-Gurion University of the Negev in Israel, is taking on challenges like this. The initiative applies the insights of basic research in physics, chemistry, biology, and other disciplines, especially at the molecular level, to developing new technologies for addressing scarcity, pollution, and other real-world water problems. A project of the Institute for Molecular Engineering (IME), it springs from the conviction that water is among the most high-stakes challenges of our time—and likely to grow still more so as the global population climbs and climate change worsens.

The initiative encourages researchers from the three institutions to work together on common projects, bringing to bear a wide range of expertise. In 2013 the initiative awarded its first grants, totaling more than \$1 million, to five research groups; it added a sixth project this year. The teams are designing sophisticated new membranes to filter out viruses, the smallest pathogens, from water; developing catalysts that can destroy dangerous organic pollutants; and figuring out ways to prevent bacteria from fouling the membranes used to desalinate seawater, a technology that water-starved regions around the world are turning to more and more. And Lu's team, continuing to refine work that began almost 20 years ago, has already unlocked some of the secrets of ancient aquifers by capturing and measuring the elusive krypton 81.

Discovered in 1950 by Argonne's John Reynolds, SM'48, PhD'50, krypton 81 is formed when cosmic rays strike ordinary krypton atoms high in the atmosphere. Water on the surface absorbs air, including krypton 81, but once underground it is cut off from the atmosphere and no longer absorbs new gases. Over time—a very long time—the krypton 81 decays, turning into bromine. Fill a jar with rainwater, close the lid, and in 229,000 years you will have only half the krypton 81 you started with. In a million years you will be down to one-sixteenth. By extracting the gas from a sample of groundwater and measuring the amount of krypton 81 in it, scientists can determine with considerable accuracy how long the water has been in the ground.

But krypton 81 is exceedingly rare. It is difficult to detect and almost impossible to measure using conventional methods of radioisotope dating. In the air around us, only 1.14 particles in a million are krypton. Of these, only one in a trillion is krypton 81. A liter of air contains about 20,000 atoms of the isotope—and 10 sextillion (10^{22}) of everything else. If all the sand on earth were air, four grains would be krypton 81. It's the needle in the atmospheric haystack.

Lu found it. In 1997 the physicist and part-time professor at UChicago joined Argonne National Laboratory, where he and his colleagues worked for two years to build an atom trap that could detect and measure the isotope. Made of stainless steel, coiled copper, ceramic, and other materials, it stretched the length of a kitchen table. He called it ATTA, for Atom Trap Trace Analysis. It worked by releasing a small amount of krypton gas into a vacuum, sending it down a long tube, and then trapping individual atoms by striking them with lasers on six sides. Set to the right frequency, the lasers could single out krypton 81 atoms and make them glow like fireflies at dusk. And Lu could count them.

Since 1999, when Lu first published the ATTA method, krypton 81 dating has begun to transform scientists' understanding of aquifers around the world. "Especially now that

**IT BECOMES MORE
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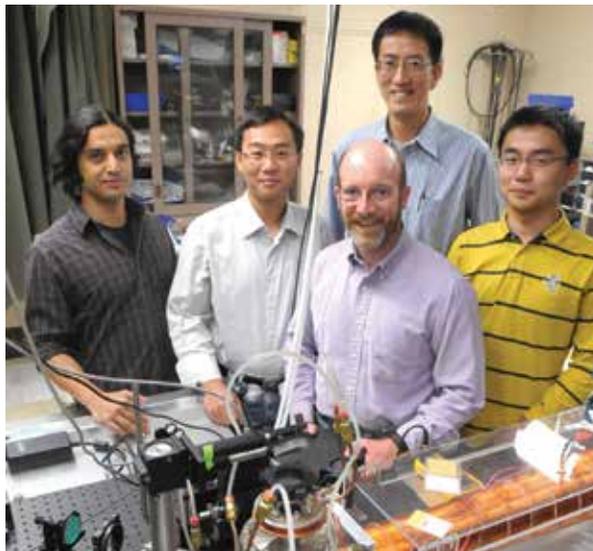
that water is getting more and more precious, with climate change ... it becomes more and more important to manage wisely whatever water resources there are,” says Neil Sturchio, a geochemist at the University of Delaware who has worked with Lu. “In many parts of the world, groundwater is the only source of water that’s available, especially in arid regions.”

For this reason, Sturchio calls krypton 81 dating “the most important new tool in hydrology in 50 years.” It has shed light on the age and movement of underground water on every continent; it has been used to date ice from Antarctic glaciers and water in Yellowstone’s geyser basins. In many cases the ATTA method has revealed that deep aquifers are much older than scientists thought, suggesting that the water takes much longer to be replenished and can be more easily depleted than was supposed.

Last summer Lu and a team of researchers from Argonne and Ben-Gurion spent two weeks traveling across Israel, sampling deep wells. They wanted to determine the age and movements of water in a critical sandstone aquifer 1,000 meters below the Negev desert. Using equipment designed by **Reika Yokochi**, a UChicago geoscientist, that could fit in the back of a van, they extracted the gases from several hundred liters of groundwater in just an hour. In two weeks they sampled more than 30 wells and sent tanks of compressed gas, each about the size of a scuba tank, to Chicago.

Using another device she designed, a tangle of tubes and aluminum foil, Yokochi extracted the krypton from each sample. Each tank of gas yielded a vial of krypton about the size of a pencil stub, which she sent to the group at Argonne. By measuring the krypton 81 in each vial, they discovered that in some places the water was quite young—in the ground 30,000 years or less—while in others it was as old as 600,000 years. “People don’t expect that,” Lu says. Further analysis showed that water beneath Israel was flowing very slowly, about a meter a year, from the Sinai Desert in the west to the Dead Sea region in the east. “They knew the water level everywhere,” says Lu. “What they didn’t know is how this water moves underneath.”

The method keeps yielding surprises, and critical data. Lu first used it a decade ago to date water from the Nubian Aquifer in western Egypt. Sturchio, who collected the samples, said conventional wisdom had held that the aquifer was 30,000 to 40,000 years old. But Lu discovered that



Zheng-Tian Lu (second from right in the back row) and colleagues with an ATTA device.

the water had been underground for a million years. “A lot of the old literature that had become gospel about groundwater is pretty much all wrong,” Sturchio says. Hydrologists can use information about the age and movement of underground water to make more realistic models than previously possible. Given the dependence of agriculture on groundwater, this

knowledge can have far-reaching implications. Sturchio points to the example of drought-stricken California, where aquifers are being depleted faster than they are being replenished with rain and snowmelt.

If a better hydrologic model had been available, it could have been used to place regulatory limits on the annual amount of groundwater withdrawal so that even in times of drought the groundwater resource would not be depleted, he says. Such models can be used in conjunction with climate models to predict maximum sustainable food production—and thus maximum sustainable population density in a region. This is especially important in arid regions, Sturchio says, but relevant in more temperate regions that have high population density too.

Since Lu built the first ATTA device, he has built two more atom traps to measure krypton 81 and similar trace gases. Several other traps have been built around the world, including in China, in Germany, and at Columbia University. The third version, ATTA-3, is more sensitive than its predecessors. It can measure krypton 81 using much smaller samples of gas, which require much smaller samples of water. His first machine needed a million liters of water to measure the krypton in it, while ATTA-3 requires a minimum sample of about 100 liters. Lu hopes to make it possible for scientists to one day map all the world’s ice and groundwater resources. To do this, he wants to refine his method so that it requires as little as 10 liters of water, making it conceivable that hydrologists might be able to ship samples directly from field to lab instead of degassing large quantities of water in the field. “We think we can do better,” he says.

The Water Research Initiative dates to the summer of 2012, when two old friends met in Chicago to discuss how their universities might collaborate. Moshe Gottlieb, a chemical engineer from Ben-Gurion, and **Matthew Tirrell**, the Pritzker Director of UChicago’s just-formed

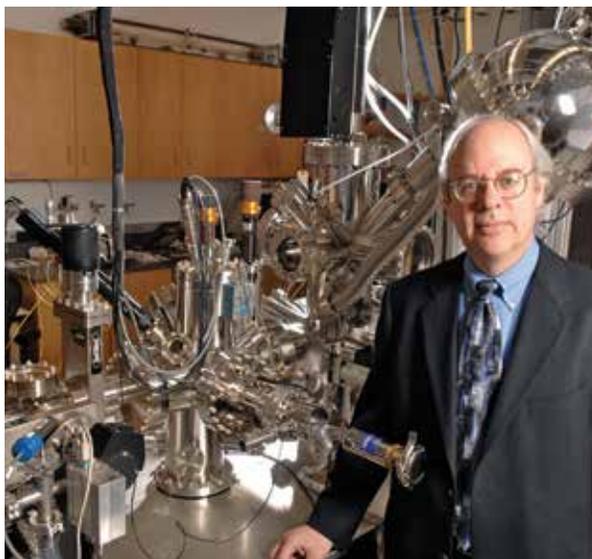
Institute for Molecular Engineering, had known each other since the 1970s, when they were both starting out at the University of Minnesota. Now in their 60s, they spent a warm July weekend discussing research topics that might link UChicago's strength in basic science with Ben-Gurion's expertise in engineering.

The IME was only a year old. Tirrell, who had come to UChicago from the University of California, Berkeley, presided over a faculty of one—himself. For most of its existence UChicago had left engineering to others, focusing on basic science. But the rise of molecular engineering had blurred the old distinction between basic and applied science. Molecular engineers use insights into the properties of atoms and molecules to create nanotechnologies to advance computing, medicine, energy, and other fields. Tirrell was starting to hire a faculty and define a research agenda.

Over two days, he and Gottlieb considered different possibilities for collaboration. They talked about renewable energy, biomedicine, information technology, and other potential topics, some of which the IME is pursuing today. All were important, all were feasible, and yet none seemed right for this collaboration.

"We didn't want to do something that people already do and were far in advance," Gottlieb recalls. "There are lots of people working on green energy. We would be just another one." On the second day they recognized that the emerging crisis in the supply of fresh water, from California to South Asia to sub-Saharan Africa, was ideally suited to the institutions' strengths, and in need of new ideas and approaches. "The quality of water is threatened in many parts of the world," says Tirrell. "And water interacts with other large-scale systems we all depend on, including energy."

It was a problem of global scope that could be approached through many disciplines, including molecular science, and it was suited to the collaboration. Israel is a world leader in the conservation, desalination, and purification of water. In the past decade it has built four big desalination plants (with a fifth under construction), which produce 40 percent of the country's domestic water consumption. Israel recycles 86 percent of its sewage, yielding half the water used in agriculture. The waste from Tel Aviv's two million residents waters crops in the Negev. Researchers at Ben-Gurion have been part of this effort, developing, among other technologies, new ways to monitor groundwater pollution, manage water used in agriculture, and improve the



Water Research Initiative director Steven Sibener.

efficiency of desalination technology.

After Gottlieb returned home, a group of researchers from UChicago and Argonne traveled to Israel to talk with scientists at Ben-Gurion about what areas of water research they might cooperate on. A group from Ben-Gurion made a return visit, and in 2013 UChicago president **Robert J. Zimmer** and Rivka

Carmi, Ben-Gurion's president, signed an agreement that made the initiative official. The signing took place at the residence of Israeli president Shimon Peres, with Chicago mayor Rahm Emanuel looking on. **Steven Sibener**, the Carl William Eisendrath Distinguished Service Professor in Chemistry and the James Franck Institute, became the initiative's director. His research has revealed previously unknown ways that carbon dioxide and other gases become embedded in ice.

Water is central to our lives not only for drinking and household use but for agriculture, manufacturing, and energy production. And the demand for it is growing. The United Nations estimates that population growth boosts water use by 64 billion cubic meters a year. Over the next 35 years, it says, the world demand for water will rise 55 percent.

This portends increasing scarcity for an already thirsty planet. Water covers almost 71 percent of the earth's surface, yet only 2.5 percent is fresh. Of that 2.5 percent, 70 percent is bound up in ice and snow. Much of the rest lies underground. Only 0.3 percent of all freshwater is on the surface. By 2030, the UN estimates, 47 percent of the world's population will live in areas of high water stress.

At the same time, in many regions the quality of the world's water supply is as big a problem as the quantity. According to the World Health Organization and UNICEF, about one in 10 persons on the planet—748 million—lacks access to clean drinking water. In developing countries, 70 percent of industrial waste is dumped untreated into the water. Even in the United States, more than half the nation's rivers and streams are in poor condition, according a 2008–09 Environmental Protection Agency survey. The US Geological Survey reported in January that tests on 6,600 wells over two decades showed that one in five contained a man-made or natural contaminant that posed a health risk.

The close links between water, food, and energy make the problem of water even more challenging. Most of the

fresh water we consume is used in agriculture. Humans need two to four liters of drinking water a day to survive, but it takes 2,000 to 5,000 liters to produce one day's food. The rising standard of living in many developing countries is increasing the agricultural use of water. According to the UN, it takes 3,500 liters of water to grow a kilogram of rice but 15,000 liters to raise the same amount of beef. Meanwhile, the spread of irrigation has tripled water use in agriculture over the past 50 years. The UN estimates that 20 percent of aquifers are overexploited.

Producing energy also requires immense quantities of water. Water is needed to cool electric turbines. It's used in hydraulic fracturing, to break the rock underground. Some forms of renewable energy, like biofuels, guzzle large quantities of water. According to the UN, 15 percent of all the water we use goes toward making energy. Ninety percent of energy production relies on intensive, unsustainable water consumption. And the demand for energy is growing.

In the 1960s two scientists developed the Loeb-Sourirajan method of reverse osmosis that for the first time made it commercially feasible to remove salt from seawater by forcing the water through a semipermeable plastic membrane. Reverse osmosis is not the only way to take salt out of seawater, but it is the least expensive and most efficient. Advances in reverse osmosis in recent years have created a boom in desalination plants, with more than 16,000 now operating worldwide.

New technology has brought reverse osmosis close to its theoretical limit of efficiency. But the membranes used in desalination are efficient only as long as they are clean, and they are prone to fouling. Electrostatic energy and van der Waals forces—the weak attraction between molecules—combine to attract organic molecules like sugars and proteins. These molecules, in turn, attract bacteria, which form colonies that clog membranes. This problem isn't unique to desalination plants; aquarium walls accumulating slime or dishes left too long in the sink suffer from the same effect. In desalination, the result is a drop in efficiency. The plant must pump harder to keep water flowing through the desalination membranes, or the membranes must be cleaned with chemicals that can damage them. "It's a universal problem for all water-related applications," says **Jing Yu**, a postdoctoral appointee at Argonne and a visiting scientist at UChicago.

In high-tech labs at Argonne, Yu and his colleagues are designing polymers—the long molecules that make up plastics, gelatins, and DNA—that can help membranes resist fouling. These special polymers repel both organic molecules and the bacteria that feed on them. Called zwitterionic polymer brushes, they stand up like the nap on

carpet. They also exhibit polarity, making them attractive to water, which washes away organic molecules that might otherwise collect and attract bacteria.

Making polymers to these specifications is not easy. It requires high heat and a vacuum, and takes from several days to a week of intensive work in the lab. The researchers at Argonne cook up small amounts and then send them in glass jars or plastic tubes to Ben-Gurion. There, researchers with expertise in testing high-tech materials paint the polymers on membranes to see how well they function. Some of the polymers, says Yu, have proven "quite effective."

But effectiveness is only a start. The goal of Yu's research—and of the Water Research Initiative—is not merely to create materials and processes that work in the lab but to develop them for commercial use. Researchers in the antifouling project, including Tirrell and Gottlieb, are testing different versions of the polymers to see how they react to different levels of salt and pH. They're also trying to find simpler and more efficient ways of making them, such as in ambient conditions rather than in a vacuum. They want to be able to use inexpensive raw materials and environmentally friendly, nontoxic methods, perhaps using sunlight to start the polymerization. "Our goal is to make it cheap and easy to make," says Yu.

Concern over water pollution focused for many years on chemicals used in steelmaking and other industrial processes. Today concern is mounting over a new generation of contaminants, including hormones, pharmaceuticals, and other organic compounds that can react in the body, disrupting endocrine systems and causing cancer. One way to attack these organic pollutants is to use metal catalysts to break them down into smaller molecules that are safe for humans. But most catalysts don't work in water; the oxygen in it destroys them. They need organic solvents instead. As part of the water initiative, Sibener and **Dmitri Talapin**, professor of chemistry, with Ben-Gurion professors Miron Landau and Moti Herskowitz, are using molecular engineering techniques to design and build catalysts that can work in water. These catalysts will be incorporated into membranes; as water flows through, the harmful chemicals will be destroyed. "It's a fairly big breakthrough," says Gottlieb.

Cleaning water can also mean removing harmful microorganisms, like viruses. Current technology does this imperfectly. A virus may be as small as 20 nanometers wide, or 20 billionths of a meter. The pores in commercially available filters cannot be made consistently that size—some are small enough, but others are too large and allow some viruses to pass. "With something like a virus, removing

80 or 90 percent of it is not good enough,” says **Seth Darling**, PhD’02, a nanoscientist at Argonne and a fellow at the IME. “Even a little can make you sick. You want to remove it all.”

Darling has experimented for about eight years with block copolymers. These materials link together two or more different polymer chains, often with different properties. They interest scientists because they can be engineered to create nanostructures with specific combinations of characteristics, directed to meet specific technological needs. For example, they are used to make ABS, a plastic found in protective headgear and canoes that is lightweight but tough. Darling and his Argonne colleagues have been trying to use them to create low-cost photovoltaic surfaces for solar power. They thought block copolymer technology, combined with a new technique called sequential infiltration synthesis (SIS), might help construct more effective membranes to clean water.

Block copolymers have another quality that is useful to molecular engineers: they self-assemble. The trick is to create versions of them that will order up in useful ways. Darling and **Jeffrey Elam**, PhD’95, use a polymer that self-assembles into an array of tiny cylinders that stand up like a bundle of pencils. Then they expose this polymer layer to two gases that are precursors for titanium dioxide, enhancing it. In just a few minutes, the metal oxide embeds itself in the interstices between the cylinders. Next, using heat, they decompose the copolymer. “You just cook it away,” Darling says. “It’s relatively easy to remove polymer.”

What’s left is a tough titanium dioxide film full of tiny holes—all the same size—where the copolymer cylinders once stood. By altering the copolymers, they can change the diameter of the cylinders and hence the size of the holes. With this method they produce what up until now has been unavailable: a membrane with tiny pores of consistent size.

The titanium dioxide gives the membrane one other useful characteristic. When you shine a light on titanium dioxide, the energy of the light makes it act as a catalyst. In this way a membrane containing titanium dioxide can destroy harmful organic pollutants and membrane foulants at the same time it filters out dangerous microorganisms.

Several challenges remain before the technology is commercially viable. One is to figure out how to attach the film to a commercial membrane without leaving gaps. “You can’t have gaps,” Darling says. “It sort of defeats the purpose.” They are also tinkering with the film’s photochemical capability, trying to shift it away from ultraviolet light toward the range of visible light.

Energy, says Darling, is “the biggest challenge we face in this century. If we want to combat climate change, we need

to develop lower-cost, highly scalable renewable energy technology. The same can be argued about water.”

The Water Research Initiative is nearing the end of its second year. At winter’s end, the University launched a national search to hire the next water expert to succeed Sibener as the initiative’s director and build on the foundation that he and Tirrell have put in place. Meanwhile, the inaugural research projects entered their second year making encouraging progress. “It’s clear that our concept of assembling multidisciplinary research teams was the correct approach,” says Sibener. Those teams “are working in areas that hold realistic promise for making innovative and significant discoveries in fundamental water science, but also with very direct conduits to applied science and technology.” Progress shown with the first grants could attract new and deeper sources of funding, from government agencies, private foundations, and businesses that see commercial potential in the research.

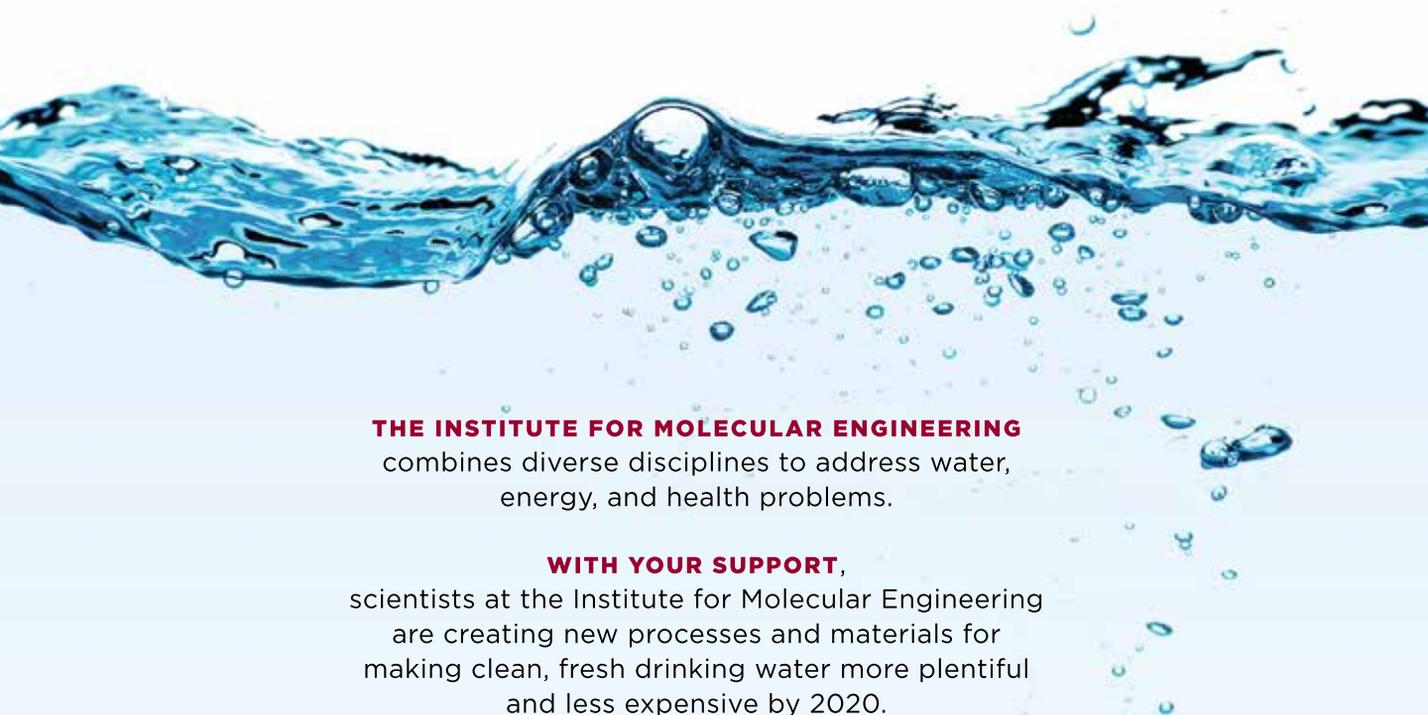
There will also likely be new opportunities for a broader palette of researchers to tackle further scientific problems—more efficient water use in agriculture, for instance, or too much water in places like Chicago, where more frequent heavy rains brought on by climate change have increased flooding risk. The vision for the Water Research Initiative is to broaden its focus beyond engineering and nanoscience to questions of law, economics, and public policy, drawing on other parts of the University. Water scarcity is “a challenging scientific and engineering problem, which we’re very interested in” says Sibener, “but it also has societal and political ramifications that are becoming more obvious every day.”

In all, water “is the grand issue for a generation—a topic whose time has come.” Students, he adds, are especially drawn to the topic. After a few talks he’s given about it to undergraduate groups, he says, the students’ “eyes were gleaming.” More than 10 graduate students, undergraduate students, and postdocs are directly involved in the six projects; their sense of these issues’ importance for their own futures is palpable. “We are going to have to figure out how to maintain and shepherd our precious water supplies, and to do that we are going to have to learn how to make fresh water from seawater very cost effectively,” Sibener says. “Research at the intersection of basic and applied science will be crucial to this endeavor.” ♦

Richard Mertens is a writer in Chicago. He last wrote for the *Magazine* on the University of Chicago Harris School of Public Policy’s Gary Project.

“We are going to have to figure out how to maintain and shepherd our precious water supplies, and to do that we are going to have to learn how to make fresh water from seawater very cost effectively.”

—**STEVEN SIBENER**, DIRECTOR, IME WATER RESEARCH INITIATIVE



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history

CROSSED LINES

A secret in her own family led Allyson Hobbs, AM'02, PhD'09, to uncover the hidden history of racial passing.

BY LYDIALYLE GIBSON



You know, we have that in our own family too.” That was the bombshell, the offhand remark that plunged historian **Allyson Hobbs**, AM’02, PhD’09, into a 12-year odyssey to understand racial passing in America—the triumphs and possibilities, secrets and sorrows, of African Americans who crossed the color line and lived as white. As a first-year graduate student at the University of Chicago, Hobbs happened to mention to her aunt the subject of passing, a casual curiosity sparked by the Harlem Renaissance writers she was reading in school. Her aunt responded by telling her the story of a distant cousin from the South Side of Chicago who disappeared into the white world and never returned.

That story opens Hobbs’s book, *A Chosen Exile: A History of Racial Passing in American Life* (Harvard University Press, 2014), a lyrical, searching, and studious account of the phenomenon from the mid-19th century to the 1950s. Hobbs’s cousin was 18 when she was sent by her mother to live in Los Angeles and pass as a white woman in the late 1930s. “And our cousin—and this was the part of the story that my aunt really underscored—was that our cousin absolutely did not want to do this,” Hobbs says. “She wanted to stay in Chicago; she didn’t want to give up all her friends and the only life she’d ever known.” But her mother was resolved. And so the matter was decided.

Ten or 15 years later, her cousin got what Hobbs calls an “inconvenient phone call.” Her father was dying. And her mother wanted her to come home right away. “And she says to her mother, ‘I can’t come home. I’m a white woman now.’” She was married to a white man; she had white children. “So she never goes back,” Hobbs says.

Many threads weave through *A Chosen Exile*, released last fall to glowing reviews: the meaning of identity, the elusive concept of race, ever-shifting color lines and cultural borderlands. But by far the book’s most potent thread is about loss. “The core issue of passing is not becoming what you pass for,” Hobbs writes in the prologue, “but losing what you pass away from.” Historians have tended to focus on the privileges and opportunities available to those with white identities. Hobbs reckons with the trauma, alienation, and scars—not only for those who passed, but also for those they left behind. In letters, unpublished family histories, personal papers, sociological journals, court cases, anthropological archives, literature, and film, she finds “a coherent and enduring narrative of loss.”

One story Hobbs tells is of Elsie Roxborough, a socialite who briefly dated Joe Louis and Langston Hughes, and who in 1937, after graduating from the University of Michigan,

began passing as white to become a model. She never settled down, moving from California to New York, where she changed her name to Mona Manet. She committed suicide in 1949. Only her sister and aunt, both light skinned, traveled to New York to claim her body. “The arrival of these two ostensibly white women allowed Elsie to remain white, even in death,” Hobbs writes.

Hobbs also describes the upper-class Johnston family, who in the early 1900s became stalwarts of social and civic life in an all-white New Hampshire town. Albert Johnston, SB’25, MD’29, and his wife Thyra passed as white so that he could practice medicine in a job that would have been unavailable to him as a black doctor. Their four children grew up believing they were white. The Johnstons maintained the pretense for more than a decade, until one day in the early 1940s, when Albert Jr., home from boarding school, made an unthinking remark about a “colored” student there, and his father said, “Well, you’re colored.”

Hobbs chronicles those who passed as white at work in order to get better jobs and went home at night to black families in black neighborhoods. Hobbs calls it “nine to five passing,” although it required the passer to leave home before sunup and not come back until after dark to avoid being seen in their black neighborhoods. During the 19th century, African Americans sometimes passed as white in order to pass as free, using their light complexions to elude slaveholders and slave hunters.

Throughout the book, there are also those who refused to give up their blackness, despite straight hair and fair skin, who declined, as James Weldon Johnson famously worded it in the 1912 novel *The Autobiography of an Ex-Colored Man*, to sell “one’s birthright for a mess of pottage.” Robert Harlan, born to a slave woman and a white father—most likely the master—in Kentucky, grew up in the same household as the white Harlan boys and later went on as a free man to make

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AWAY FROM.**



A *Chosen Exile* grew out of Hobbs's UChicago dissertation, informed in part by her own family history.

a fortune in the California gold rush. He remained close to the other Harlans but never tried to take on their whiteness. One of his half brothers was Justice John Marshall Harlan, the Supreme Court's "great dissenter," who made the lonely argument for equality of all citizens under the law in the landmark 1896 case *Plessy v. Ferguson*.

A Chosen Exile grew out of Hobbs's dissertation, and when she began her research, she says, "at first it seemed like I wasn't going to get anywhere with it. Where were the sources going to be? Because people who passed obviously guarded their tracks and tried to leave no trace. It wasn't like I could go into a library and find a folder. But I knew the sources were out there, because I knew there were stories like the one about this distant cousin of ours."

Hobbs, who teaches American history at Stanford University, started by reading literature and going through the correspondence of Harlem Renaissance writers like Langston Hughes and Nella Larsen, picking out the gossip they exchanged about themselves and their acquaintances passing for white. "It was kind of this obsession or intrigue with them," she says. But the crevice opened wider when she read the papers of sociologist E. Franklin Frazier, PhD '31. Frazier's dissertation, *The Negro Family in Chicago*, became a groundbreaking text in the field. As a professor at Howard University, where he taught from 1934 to 1959, he asked his students to assemble family histories. Many of them, Hobbs found, reading his papers, couldn't do it. "It was fascinating how many of the students really

struggled,” she says. Relatives who’d passed as white and vanished from the family left wide gaps in the family tree. Sometimes one whole side would be blank. “They would say, ‘Well, I really don’t know much about this relative or that relative.’ Or, ‘I don’t know that much about my father’s side because this person passed as white and we never heard from them again,’” Hobbs says. “I was really struck reading these family histories and seeing all these examples of people who could barely tell the stories of their families.”

That’s when she began to see loss as part of the narrative. “I thought, I’ve really got to write about the people who were left behind,” she says. “Because they’re so much a part of the story. They’re often the ones who are describing the loss.” Later she thought again of her distant cousin married to a white man in Los Angeles, unable to come home to the South Side as her father lay dying. “What did she feel like when she hung up the phone?” Hobbs asks. “Her father was dying, she could never come back, she would never see her brothers again.”

Over the next decade or so while she worked on her dissertation and then the book, Hobbs suffered her own series of losses as people close to her died—the aunt who told her the story about the cousin and three first cousins who were like brothers and sisters to Hobbs. An uncle who was an artist and spent long hours talking to Hobbs about the creative process. Her sister had died from breast cancer

WHERE WERE THE SOURCES GOING TO BE? BECAUSE PEOPLE WHO PASSED OBVIOUSLY GUARDED THEIR TRACKS AND TRIED TO LEAVE NO TRACE. IT WASN'T LIKE I COULD GO INTO A LIBRARY AND FIND A FOLDER.

when Hobbs was 22. “That loss has always been a major, major part of my adult life.” As she waded deeper into her research and the aching narratives found there, she began to identify with the people she read about; she almost grieved with them; she felt close to their pain. “Obviously it’s a very different kind of loss, but passing is often equated with death,” she says. “And in many ways, it is.”

She doesn’t know what became of the cousin in Los Angeles. Hobbs’s father remembers visiting the family’s house once as a child and noticing “how light skinned they all were, the parents and the children, and she—this cousin—was the most light skinned.” Some years later, long after the phone call and the father’s death, one of the brothers died, and Hobbs’s father went to the funeral. But the cousin, of course, wasn’t there. “Those are the only fragments of that story that I have,” Hobbs says. Like so many of the people in her book, her own family tree has a gap.

One of the loved ones Hobbs lost helped spark her current book project, a study of the Great Migration through the experiences of travelers heading north through a segregated country. She plans to shed light on their journey by looking at the places where African Americans ate, slept, danced, where they stopped for gas or groceries or a hair cut or a bathroom break. An annual travelogue called *The Negro Motorist Green Book: An International Travel Guide* helped African Americans navigate their journeys with listings of tourist homes, hotels, boarding houses, restaurants, beauty shops, barbershops, nightclubs, and service stations where they would be welcomed. “When you talk to African Americans of a certain generation, everybody—*everybody*—can remember the difficulty they had, how hard it was to find a place to stay and a place to eat,” Hobbs says.

Her plan in part is to follow the *Green Book*. Traveling from New Orleans to Nashville, she found that most of the places listed in the guide no longer exist. “And that tells another story about black businesses and the decline of black businesses. It tells a whole story about the highways and the ways that the creation of the highways destroyed a lot of black neighborhoods.”

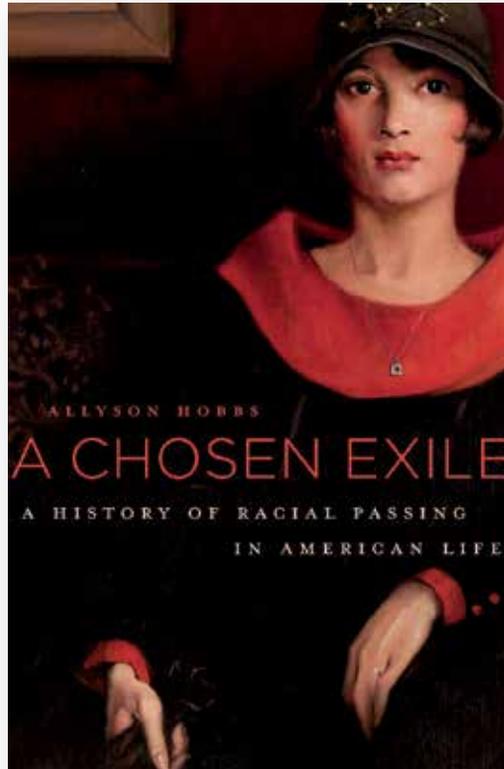
Like *A Chosen Exile*, it also tells a story about identity, the uncomfortable territory of in-between, about leaving home and self behind and setting out into something unknown. And like her first book, it also began with ambient anecdotes and a family story. Both of Hobbs’s parents came to Chicago as children during the Great Migration, her mother from New Orleans and her father from Augusta, Georgia. “My grandmother had told me incredible stories about the migration and moving to Chicago and her impressions of the journey,” Hobbs says. Her grandmother died just as she was finishing *A Chosen Exile*, but the stories stayed with her. ♦

EXCERPT

LOST KIN

BY ALLYSON HOBBS, AM'02, PHD'09

Going as white” permanently created confusion as some family members disappeared across the color line, creating gaps in family genealogy. One woman explained, “My father’s people, half of them pass for white so naturally I know nothing about hardly any of them.” For others, embarrassment and shame prevented an open discussion of family history: “Not much has been disclosed about the Patterson family. It is our guess that there were too many blood mixtures of which the immediate family is not any too proud to relate. ... That this family has many skeletons is without a doubt true.” Merthilda C. Duhe wrote that her father used passing as a strategy to create a new life for himself; she knew little about him or his family because he left New Orleans and “deserted the family while they were very young and went over to the white side in Chicago.” Others expressed uncertainty about the racial backgrounds of their ancestors. One man questioned his grandfather’s race and explained, “Father was always sensitive about that side of his family.” When asked whether her relatives in Detroit “go for colored or do they go for white,” Mrs. Clemens responded, “I don’t know, and I don’t know what I am. We are 100 per cent American and that is all we can say.” Raymond Brownbow did not know much about his maternal grandmother, a mixed-race house servant who was “described as being very nearly white.” As he explained, “I know very little about her, because it seems that my mother was and is a bit reluctant to discuss her. I remember my mother once telling me that she couldn’t stand the remarks that people



would make upon learning of her mother’s mixed blood, and for that reason she refrained from talking much about her.”

Others had no choice but to rely on rumors and speculations as to the whereabouts of family members. The only information that Anthony Driver Chase could cobble together about his grandmother, Hester Ann, was that she was “light enough to pass for white and had long red hair which reached her waist”; her father was a slaveholder; and she had a brother who “went west, married a white woman and passed for white,” and “it is rumored that he became wealthy.” Some family members were able to pass whereas others could not. One relative hinted that other family members passed by explaining, “Margot did not know much of her origin. It seems that her brown skin had been responsible for her separation from the rest of the family who were blonde.” Other families risked exposing relatives

**I DON'T KNOW, AND I
DON'T KNOW WHAT I AM.
WE ARE 100 PER CENT
AMERICAN AND THAT IS
ALL WE CAN SAY.**



Freda Washington (right) chose not to pass as her character, Peola Johnson, did in *Imitation of Life*. “I want to be what I am, nothing else,” she said.

who had crossed the color line by providing too many details about their background. In response to sociologist E. Franklin Frazier’s request for his family’s history in 1932, T. S. Inborden explained, “I will say that I have not more than one sixteenth Negro blood in me if indeed that much. The rest is Mohawk and Caucasian. To publish this would cause a lot of talk and embarrassment. The first Governor of Texas was ... perhaps half brother to my grandmother.” Others lacked critical information to piece together their family histories. Emblematic of the tensions created by passing, such omissions and doubts led to profound feelings of desertion, disconnection, and incompleteness. One man, describing his great uncle, explained, “I know of one brother, [the] father of a large family. They passed over into the other race and were finally lost to those who remained in the negro race.” Trying to make sense of an absent father who “looked like white,” Pearle Foreman wrote, “The strangest thing was, no one ever told me about my father’s

THE STRANGEST THING WAS, NO ONE EVER TOLD ME ABOUT MY FATHER’S PEOPLE OR FROM WHENCE HE CAME.

est of continuing an untenable relationship in the Jim Crow era? As passing disrupted family life and made certain topics of conversation awkward if not impossible, it also called into question one’s own identity and sense of personhood. The question that Day Shepherd, a Chicagoan who lived on both sides of the color line and whose daughter wrote about her life in *Another Way Home: The Tangled Roots of Race in One Chicago Family*, posed—“How would anybody know who they were without their people?”—suggests much broader and more intimate meanings of race and racial identity and reveals the interconnectedness of notions of self and family.

In every historical period, there are those who decide against passing, even though they are often mistaken as white. Freda Washington first appeared as a chorus girl in *Shuffle Along* (1921), one of the most successful African American Broadway musicals, but she is best known for her role as Peola, a light-skinned black woman who breaks her mother’s heart by choosing to pass as white in the 1934 film *Imitation of Life*. As *Esquire* magazine reported in 1935, the scenes between Peola and her mother stole the show: “The tragedy of the colored girl trying to pass for white completely overshadows the artificial little troubles concocted for the white folks: the audience leans intently forward whenever Louise Beavers (*Aunt Delilah*) or Freda Washington (the daughter) is in the scene and simply relaxes even during the dramatic moments of the story proper.” In May 1935, Universal Studios reported that *Imitation of Life* was the largest grossing film of that year so far, which led many movie houses to return the film to the screen.

Washington’s appearance—her blue-gray eyes, white

people or from whence he came. I have not been able to find out any information concerning him, only that I resemble him in every respect.” Once family members “crossed over,” they were usually lost, essentially dead to their families.

But the equation of passing to death too quickly dismisses both the ambiguity and the logic of passing, as well as the tolerance and understanding that family members extended to those who passed. Why else would a relative agree to work as a maid in a family member’s home in the inter-

I GIVE THEM PLENTY OF ROPE.... I LET THEM TALK, HANG THEMSELVES, AND THEN I QUIETLY SAY, 'I'M NEGRO.'

complexion, and light brown hair—and her compelling performance in *Imitation of Life* led some of her fans to presume that Washington had firsthand experience with passing. Washington explained, “If I made Peola seem real enough to merit such statements, I consider such statements compliments and makes me feel I’ve done my job fairly way,” but she was clear that her “private life is in no way similar to that of Delilah’s daughter.” When the German philanthropist Otto Kahn saw Washington dancing at Club Alabam in Manhattan and suggested that she change her name and pass as French, she responded, “I want to be what I am, nothing else.” Washington was often asked why she chose not to pass. She would reply, “Because I’m honest, firstly, and secondly, you don’t have to be white to be good. I’ve spent most of my life trying to prove that to those who think otherwise. ... I am a Negro and I am proud of it.” Washington would allow whites to speak disparagingly about African Americans and then shock them with the truth about her racial identity. In the presence of whites who assumed she was white too, Washington remarked, “I give them plenty of rope. ... I let them talk, hang themselves, and then I quietly say, ‘I’m Negro.’”

Washington did pass as white occasionally. When she was traveling through the South with Duke Ellington and his band, she would go into ice-cream parlors and buy ice cream for the band members, who were excluded from restaurants. Whites called her a “nigger lover.”

Described as “honest, sincere, and fearless,” Washington rarely held her tongue. She was a passionate spokesperson for blacks in theater and film, she founded the Negro Actors Guild in 1937, and she wrote a column called “Fred Says” for the *People’s Voice*, the progressive weekly published by Adam Clayton Powell Jr., the pastor and first black politician to represent New York in Congress. She was an outspoken critic of black artists whose calls for equal rights were not loud enough. Washington perceived the struggle for civil rights as a lifelong battle: “I am here as a Negro—then that’s the way I’ll be and I’ll fight until the day I die—or until there isn’t anything left to fight against.”

In stripping away one’s ascribed status, passing offers a sharper angle of vision onto the personal meanings of racial identity from the perspective of black individuals and communities. The communal politics of passing demonstrate the insufficiency of explanations of passing as a rebellious, individualistic practice and instead reveal the ways that race operated on the most private levels and in the innermost reaches of black communities. Passing—the vexed decision to break with a sense of communion and walk away from what was most precious about African American life—is a vehicle to recover and to concretize the most elusive and intimate meanings of African American group identities.

At the conclusion of a 1952 essay, Langston Hughes described the moment when he arrived at the Haus Vaterland in Berlin and two black waiters greeted him enthusiastically: “Hey now! What gives in Harlem?” This exclamation, uttered several thousand miles away from the “Race Capital,” is reminiscent of the question, “who are your people?” as it suggests an elastic sense of connection and kinship, grounded in the sharing of something much more elusive than skin color or residence in Harlem. A similar experience occurred when Hughes was in Shanghai: riding in a rickshaw, he saw a “very colored man” in another rickshaw, traveling in the opposite direction. As the two made eye contact, the following exchange occurred: “As soon as we spied each other through the traffic in the busy street, he half rose and I half rose, and both of us yelled, ‘Hy!’ The rickshaw went on. I never saw him again the whole time I was in China. I never knew his name. But race had greeted race across space. And I remember his grin much more clearly than I remember the features of any of the [other] faces.”

To be sure, in these foreign contexts, it was skin color that allowed Hughes to make these connections and to recognize the waiters in Berlin and the “very colored” man in the rickshaw in Shanghai. But was it really *race* that “greeted race across space”? As the experiences of many of those who passed as white as well as many of those who were left behind reveal, race is so much more than this. Race functions as a proxy for a shared and expansive set of experiences, memories, jokes, stories, and songs. It was only because “race” was so much more than either biology or shared oppression that Hughes could find the grin on the “very colored” man’s face so memorable. ♦

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legacy

CLAIR C. PATTERSON

(1922–1995)

Immeasurable.

BY JASON KELLY

Research to determine the age of the earth eventually turned geochemist Clair C. Patterson's painstaking attention from elemental traces in the universe's original rocks to the manufactured toxins that kept car engines from knocking. Contaminated data on ancient samples inspired him to study the planet's environment in oceans and polar ice. There Patterson, PhD'51, validated his theory about what skewed his earlier data, and also confirmed his worst fears: unnatural levels of lead were choking the atmosphere in the 1950s and '60s, posing an imminent threat to human health.

Patterson's study establishing the earth's age at 4.55 billion years, presented in 1953, took more than five years and solved a mystery that had entranced and eluded scientists for millennia. By the time Patterson was 31, his contribution to knowledge surpassed what most people can claim in a lifetime. When he died in 1995, a colleague told the *New York Times* that his breakthrough stood as "one of the most remarkable achievements in the whole field of geochemistry."

Pursuing that achievement revealed the troubling specter of a poisoned modern environment and prompted even more important work. The 1970 Clean Air Act and a global effort to remove lead from gasoline and other products grew out of the awareness his subsequent research and advocacy created. On the occasion of Patterson's 1995 Tyler Prize for Environmental Achievement, marine chemist Edward Goldberg, PhD'49, said, "It is interesting to speculate on how many additional years of life to world citizenry" could be credited to him.

That number is impossible to know, but the impact of adding lead to gasoline, and of removing it decades later, provides measurable and compelling evidence for Patterson's crusade. As *Mother Jones* reported in 2013, the rise in violent crime throughout the United States in the 1960s and 1970s, and its decline beginning in the 1990s, corresponds to lead's prevalence in the atmosphere.

Lead is a neurotoxin, affecting the brain in ways that diminish IQ, disrupt neural communication, and decrease the size of the prefrontal cortex, inhibiting impulse control and motor functions. Nobody is immune, but the harm is espe-

cially acute in children's developing brains, and the effects persist throughout life.

There is no safe level of lead in the human body, and although that stark fact is a recent revelation, the element's dangers, at least in high doses, became apparent as soon as ancient Romans started extracting it. But because it was cheap and malleable—and because slaves and other laborers had the most direct contact—lead remained essential to many amenities.

The Romans used it to line pipes and baths; the word "plumbing" comes from the Latin word for lead. They used it in cooking pots and even to sweeten wine. Exposure became widespread enough that historians consider lead's toxic effects to be a factor in the fall of the empire.

In the early 20th century, its increased use in consumer products was marketed as a great benefit. Advertisers produced a children's nursery rhyme extolling the virtues of lead in light bulbs, galoshes, and paint.

Tetraethyl lead started to be used as a gasoline additive in the 1920s. The weapons-grade hazard it presented became horrifyingly prevalent. "Some of the workers who processed the stuff in factories in Delaware and New Jersey," astrophysicist Neil deGrasse Tyson said on his 2014 program, *Cosmos*, "were going insane, hallucinating, jumping out of windows. They died screaming."

Industry scientists acknowledged risks for workers who had regular contact with lead, but they assured the public that, as a naturally occurring element in the earth, it posed no general threat. This became accepted wisdom and for decades hardly anybody protested, even as atmospheric levels spiked.

Patterson himself first recognized lead contamination only as a research nuisance, complicating a project his University of Chicago mentor Harrison Brown had promised would be simple. "Duck soup," he said.

Brown had come up with a concept for how to measure uranium and lead isotopes in igneous rock and he assigned Patterson and another student, George Tilton, SM'49, PhD'51, to develop the technique in the lab. Uranium ions in rock decay into lead at a known rate. Determining the ratio of uranium to lead in a rock would allow scientists to calculate its age. Brown posited that the process could also be applied to meteorites to determine the age of the earth.



Lead pollution in his lab turned Patterson's attention to the element's environmental hazards.

Patterson explained why in a 1995 interview for the Caltech archives: "Brown had worked out this concept that the lead in iron meteorites was the kind of lead that was in the solar system when it was first formed, and that it was preserved in iron meteorites without change from the uranium decay, because there is no uranium in iron meteorites."

Brown's notion turned out to be correct, but establishing accurate lead levels turned out to be an unexpected challenge. "Above all," writes Bill Bryson in *A Short History of Nearly Everything* (Broadway Books, 2003), "there was the problem that Patterson's samples were continuously and unaccountably contaminated with large doses of atmospheric lead whenever they were exposed to air."

He didn't grasp why for a while. Frustrated, Patterson tried to treat his lab like a surgical suite, creating what may have been the first ever research "clean room" to protect his samples from lead exposure. This would allow him to isolate the naturally occurring levels in the rock more precisely, but the process remained slow.

While the project remained a work in progress, Patterson completed his UChicago PhD and followed Brown to Caltech. His big breakthrough came in 1953, working with UChicago physicist Mark Inghram, PhD'47. Using a high-tech mass spectrograph at Argonne National Laboratory, he bored down to the 4.55-billion-year answer once and for all. Seventy years of further research has only narrowed Patterson's margin of error.

In the thrall of the accomplishment, his first stop was his childhood home in Iowa to tell his mother. The excitement overcame him, and he insisted that she take him to the hospital, fearing he was having a heart attack.

As understandable as his reaction was, it was also uncharacteristic. The previous seven years of deliberate but relentless work better embodied Patterson the scientist and the man. He was steady in his approach and so disinterested

in credit that he routinely listed his name second on papers published with students to help advance their careers.

It was Patterson's name that would become anathema in the lead industry, which was thriving at the time, leading to as much as 270,000 tons per year of automotive lead pollution. After his experience with contaminated labs, he developed a hunch that cars were pumping all that extra lead into the atmosphere, essentially injecting a toxin into everybody's oxygen.

Lead does not decay. It accumulates in the air, in the water, in bone and blood, and it stays there forever, just like it did in the meteorites Patterson analyzed to date the planet. If, as he suspected, the mounting levels came from a source like car exhaust, people were inhaling a dire threat in amounts that increased every day, but the atmospheric accumulation also could be stopped.

To test his theory, Patterson went to sea. With funding from the American Petroleum Institute, he conducted an analysis that found much higher amounts of lead in shallow water than in the depths, a result that supported his hypothesis. The levels would have been more consistent if they were not a result of external contamination.

Following Patterson's 1963 *Nature* paper detailing the data, petroleum industry leaders pressured him to cease studying the question, threatening to withhold their financial support. He persisted without it, drawing on sources such as the Atomic Energy Commission and the National Science Foundation.

Traveling to Greenland and Antarctica, Patterson drilled through ice laid in annual layers over thousands of years to gather more specimens, time machines for measuring lead levels at different points in history. His research revealed that the amount of lead in the atmosphere increased suddenly and dangerously beginning in about 1923.

Senator Edmund Muskie took notice. He convened hearings in 1966 in which both Patterson and industry expert Robert Kehoe testified. Kehoe insisted that lead levels in the environment had not increased and the amounts found in the human body were natural.

Over time Patterson's resolute opposition penetrated the consciousness and conscience of Congress and the public. Muskie shepherded the 1970 Clean Air Act unanimously through the Senate. By 1978 lead had to be removed from residential paint as its gradual phase out from consumer products continued. By January 1, 1996, it could no longer be used in the United States as a gasoline additive. As the reduction continued, children's lead levels plummeted, falling 76 percent between 1978 and 1991.

Patterson mined material from the big bang to achieve the monumental task of dating the earth, but now his commitment to scientific truth made an immediate and far-reaching practical impact. He had added innumerable years to the lives of people in his own time, and long after. ♦

performing arts

SECOND ACT

It's hard to say which was more liberating for Anna Chlumsky, AB'02: the moment she left acting, or the moment she came back.

BY SUSIE ALLEN, AB'09

ILLUSTRATION BY DONGYUN LEE





Chlumsky and actor David Margulies during a 2012 reading of *Hamlet* at New York City's Players Club.

Anna Chlumsky, AB'02, was a second-year at the University of Chicago when she decided it was over.

Too old to continue with cute kid roles and too young to play adults, the star of the 1991 hit movie *My Girl* was in an awkward phase. She struggled through audition after audition until she finally reached a breaking point. Chlumsky remembers sitting in her car after an audition, feeling trapped by the roller coaster of hope and disappointment acting had become. As she stared at the script sitting in the passenger seat, she knew it was time to stop the ride: I don't have to do this anymore, she realized.

After finishing school, Chlumsky moved to New York and worked in the publishing industry, graduating from *Zagat* fact-checker to editorial assistant for a fantasy and science-fiction imprint of HarperCollins. But she came to see that what might have been a dream job for someone else wasn't hers. The desire to act again began to gnaw at her; she ached every time she saw a Broadway play.

She applied to the summer intensive program at New York's Atlantic Acting School and was accepted. From her first day of classes, Chlumsky knew she was on the right path.

She didn't have to act anymore. But she wanted to.

Those years of doubt are long behind Chlumsky now. Tonight the Emmy-nominated star of *Veep* will take the stage

at the Longacre Theatre for the Broadway revival of Moss Hart and George S. Kaufman's *You Can't Take It with You*. Between bites of Caesar salad and sips of tea at Pigalle, a French bistro near the theater, she pauses to do a series of vocal exercises that sound vaguely like a cat meowing. ("I want to protect *the voice*," she says with mock seriousness. "My relationship with phlegm has gotten so detailed and complex.")

Her present success—a critically acclaimed TV series, two Broadway shows, a part in the upcoming David Foster Wallace biopic *The End of the Tour*—is something she hoped for but never counted on when she returned to acting.

Chlumsky had one important head start from her work as a child actor—she already had an agent. But apart from that perk, she was like many young actors trying to make it in New York: scared, hopeful, and without health insurance. She got by, she says, on faith and pinched pennies.

She had what she describes as "little encouragements" along the way: an unexpected callback, a part in the small independent film *Blood Car*. "It's that kind of beginner's luck thing," Chlumsky says. "It's that way that God tells you, 'Yeah, you're doing the right thing.' And then gives you a long stretch of fear."

Chlumsky's little encouragements got bigger. She did more theater and got more callbacks. She played the role of Liz Lemler, Liz Lemon's romantic nemesis, on an early episode of *30 Rock*. She booked an episode of *Law & Order*, making her one of legions of New York actors to scrape together a few months' rent thanks to the long-running crime

show. (These are their stories.) She is diplomatic when discussing her appearances on Lifetime TV, as in the movie *12 Men of Christmas*, which “paid the bills, and I’m grateful to them for that.”

Among her roles as an adult, Chlumsky is probably best known as the bedraggled, put-upon State Department staffer Liza Weld in the 2009 film *In the Loop* and as Amy Brookheimer, a political aide with a growing Machiavellian streak in *Veep*. Both parts were created by the Scottish screenwriter Armando Iannucci, whose tart satires suit Chlumsky to a T.

Part of the reason Chlumsky seems so at home in Iannucci’s work is that she is playing characters she might plausibly have become, had that disastrous Chicago audition really been the end of her acting career. At UChicago, Chlumsky abandoned her original plans to study biology after realizing organic chemistry wasn’t for her. When she took a course on the history of Northern Ireland, the subject matter clicked. “It was exciting,” she says. “It just invigorated me. I loved it.”

She majored in International Studies, writing her BA paper on the threat environment in the United States, Israel, and the USSR. Looking back, Chlumsky thinks her argument (nationalism rises as the threat environment rises) was probably tautological, but her adviser, **John Mearsheimer**, let her slide by with an A-. For a time, she considered both grad school and a career at the State Department.

Mostly, though, Chlumsky enjoyed the life of a normal College student: taking classes, studying at the Reg, spending time with friends in Maclean House. She met her college sweetheart (now her husband), **Shaun So**, AB’03, at a

party on the quad. He won her over with his moves on the dance floor. “He liked to dance! Which is so rare! I’m telling you, guys don’t believe me, but if you know how to dance, you can bag the winners.”

Normal student life was a welcome change of pace for Chlumsky, who had been working from the age of ten months, when she began modeling for print advertising. As a child actor, she carried a heavy burden. Her family counted on her income from acting, which got tricky as Chlumsky entered her teen years and gigs gradually got scarce. She became obsessed with the jobs she wasn’t booking.

“We had trouble paying the mortgage because I wasn’t booking stuff,” Chlumsky says. As a young teenager, casting directors passed her over, saying they needed someone thinner. Chlumsky couldn’t help but take it personally. “You’re a kid thinking, we can’t pay for things because I’m too fat?” she recalls, sounding almost indignant at the memory.

Chlumsky is at her most passionate when discussing the pitfalls of child acting, and she doesn’t mince words: “Don’t put your kids into professional acting,” she says. “I think it’s dangerous to monetize a child.”

Child actors succeed largely because they’re cute enough to induce “aw”s and pliable enough to take direction. But young children can’t yet deliver polished, deliberate acting performances in the way adults can. Their gifts are largely unconscious and effortless. “As a kid, you’re not *working*,” Chlumsky contends. In many ways, child actors are paid simply to be adorable. It’s a fleeting quality kids can’t control, and its loss can be devastating. It’s easy, Chlumsky says, for child actors to grow up and feel “worthless.”

Between her child acting years and her experiences working with children as an adult, Chlumsky has seen every variation of the fraught parent-child actor dynamic: grounded parents who protect their kids, competitive stage parents, parents who indulge their young celebrity’s every whim.

She gets frustrated by some parents’ tendencies to let bad behavior slide. “You don’t get to spoil your kid because he’s on TV,” Chlumsky says. Once kids become professionals, they can’t throw a tantrum and refuse to attend rehearsal. Looking back, “That’s part of what saved me,” she says. “My mom never let that shit go down.”

Chlumsky is now the mother of Penelope, a toddler. Don’t expect to see her daughter on screen anytime soon. “There’s plenty of school plays if she wants to do those, just as there are intramural sports,” Chlumsky says firmly.

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Balancing a personal life alongside professional commitments is, of course, nothing new to Chlumsky, but she is quick to admit “it all changes once you have a kid.” Mondays, her day off from the relentless eight-show-a-week Broadway schedule, are “sacred.”

Chlumsky and So, who owns a government contracting business, tag team childcare responsibilities depending on her filming schedule. “If you’re looking for balance of roles” in childcare, she says, “you kind of have to think in terms of months, not in terms of days.”

The couple has endured far more serious challenges than the demands of a busy filming schedule: in 2004, So, an Army reservist, was deployed to Afghanistan. “If long-distance dating is a sport, deployment is the X Games,” Chlumsky wrote in an October 2014 essay for *Glamour* magazine.

She endured the yearlong separation by reading classic literature about the experience of women in wartime: *The Trojan Women*, *Iphigenia in Aulis*. Working on a needlepoint project, she thought of Penelope weaving her tapestry in the *Odyssey* (later Chlumsky and So took inspiration from the poem for the name of their daughter).

As challenging as the experience was, Chlumsky thinks it ultimately deepened their bond. “I learned I had the stuff to make it through tough times, and that kind of courage is indispensable,” she wrote. “Over that year, we allowed ourselves to cry, to fear, to get nervous or jealous. If we hadn’t been honest about our feelings, our foundation would have been a shaky mess. But overall, that deployment was all about steadiness, courage, candor, and focus.”

The fourth season of *Veep* began airing in April. Selina Meyer, the egomaniacal but perennially sidelined vice president played by Julia Louis-Dreyfus, has become president, but rest assured “she’s still crazy Selina,” Chlumsky says.

Chlumsky’s character, Amy Brookheimer, remains as power hungry as ever. “I am growing more empathetic to her. I never necessarily liked her. I would never think that I would want to get beers with her,” she says. In spite of their differences, Chlumsky and Amy share an intense, animated quality and both project a fierce determination to succeed. The character that later became Amy was named “Anna” in an earlier draft of *Veep*, but Chlumsky has no idea whether Iannucci wrote the part with her in mind. “I was just happy to be working with Arm again,” she says.

On the show she’s surrounded by a cast of comedy heavyweights—*Arrested Development*’s Tony Hale, Upright Citizens Brigade cofounder Matt Walsh, and of course

Louis-Dreyfus—but Chlumsky says she never feels intimidated. More than anything, she’s felt impressed.

Occasionally *Veep* directors will allow the actors to try entire scenes in one take. “Really, the theater people love it,” she explains. The first time she and her castmates performed an uncut scene, Chlumsky remembers thinking, “Everyone is cookin’, we are all cookin’.”

After the third season of *Veep* wrapped, Chlumsky spent four days in Michigan filming *The End of the Tour*. The film, which will open in July, stars Jason Segel as David Foster Wallace and Jesse Eisenberg as journalist David Lipsky, who researched a profile of Foster Wallace for *Rolling Stone* in 1996 that was never finished but became the basis for his book *Although of Course You End Up Being Yourself* (Broadway Books, 2010). Chlumsky plays Lipsky’s girlfriend, Sarah. She desperately wanted to return home to her daughter after filming the season—an exhausting four months of work. Still, the chance to be a part of *The End of the Tour* was too good to pass up. “They’re offering me the chance to be in the same sentence as these guys,” she says.

Theater has been equally kind to Chlumsky this year: she opened the new play *Living on Love* in April, two months after making her Broadway debut in *You Can’t Take It with You*. In the Kaufman and Hart revival she performed what the *New York Post* called “the single best staircase descent of the year, stumbling down in horror while she lets out a cry that slowly devolves into an asthmatic wheeze.”

Film and theater each offer their own perks and challenges. Chlumsky says theater is “like going to the gym”—a chance to hone the craft through focused repetition. By contrast, film forces actors to make quick decisions and trust their instincts. “A lot of the time, what you would have a week to work on in a play, you have a second” to learn for a movie, she says.

Chlumsky had just nine rehearsals before starting *You Can’t Take It with You*. Thanks to the breakneck production schedule of *Veep*, which had just wrapped, she knew she could handle the challenge. There are few challenges that seem to faze her. She is about to appear onstage in a 1,000-seat theater, yet she appears entirely unperturbed as she sips on the last of her tea.

With just an hour until curtain, Chlumsky reaches in her purse for a tin of black currant glycerin lozenges (good for the voice, she says). Bundled up in her winter coat and hat, she looks, for a moment, like the child whose face was once so familiar. But as she heads out into the cold, there is no mistaking her confident stride: Anna Chlumsky is very much an actress, very much an adult, very much a woman in charge of her own destiny. ♦

Susie Allen, AB’09, is a writer and comedian in Chicago.

peer review



Alumni dance the night away at the 1967 reunion. To reconnect with friends and do some dancing this June, visit alumniweekend.uchicago.edu.

Looking up

BY CHELSEA LEU, AB'14

There's a carving on Rosenwald Hall, just to the right of the west exit, that depicts a paleontologist's satchel flanked by two improbably perfect ammonite fossils. A ribbon under it reads "Dig and Discover." It's a proud rallying cry for geologists, though the carving itself is a little outdated, installed back when Rosenwald housed the geology and geography departments.

I visited this carving a lot last summer after I graduated, when I was still working on campus at the University. Like many newly minted alums, I was also quietly panicking about my job prospects in the outside world: Why doesn't anyone want to hire me? Why do all these entry-level positions require years of experience? Does my LinkedIn profile picture look too desperate? When the questions got to be too much, I'd wander the sunny, deserted quad, wishing I were still a student. I'd usually end up in front of Rosenwald. Staring at the carving was comforting, somehow—an Indiana limestone—sturdy counterpoint to my spastic wandering.

One sweaty day in July, I looked further up the building and noticed something different. Just below the molding of Rosenwald's roof is a carving of a eurypterid, which I recognized from my geoscience classes as a giant ancient scorpion-like creature that swam in Paleozoic seas, devouring everything in its path. I forgot my

career angst for a moment and stared at it in sheer nerdy delight. Then I thought no more of it.

Until I started noticing carvings everywhere: turtles and starfish above the doors of Anatomy, odd squirrel-like creatures cavorting on the Reynolds Club, an anguished-looking bat on Wieboldt, and, if I squinted, what appeared to be a giant crab on Harper's west tower. In my first year, I had spotted the phrase "*Lux ex oriente*" inscribed on the cornerstone of Haskell. But last summer, when I crashed through the bushes next to Haskell for a closer look, I found text in Hebrew and Greek on a side of the cornerstone I had never seen. I felt just a tiny bit betrayed. What else were these buildings hiding from me?

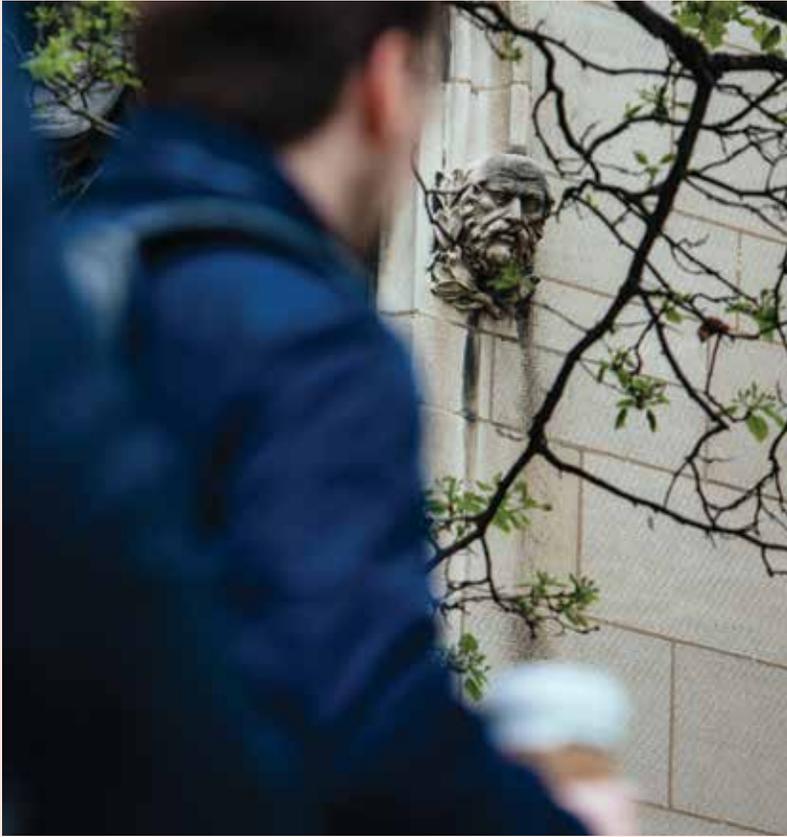
As the sightings proliferated, so did my questions. Who came up with these carvings? Why were they there? I looked for answers the only way I knew how. After work, I'd go into the Reg's Special Collections or the stacks to dig through old faculty papers and architectural guides to the University, reading until I fell asleep or the security guard came to kick me out.

I began sallying forth onto campus for more targeted expeditions. It didn't take long to figure out that the carvings were informed by the

I forgot my career angst for a moment and stared at it in sheer nerdy delight.

departments housed in the building they adorned, now or in the past—the quad was kind of like a Disneyland of Collegiate Gothic. Eckhart Hall is decked out with the names of famous mathematicians—Leibniz, Euler, Poincaré, Cauchy—and the likenesses of Newton and Gauss stare down from just above the doorway. Rosenwald, built as a home for the geography and geology departments, is encrusted with snail shells, corals and trilobites. Under its windows, Classics has a carving of a muscled, grim-faced Hercules wrestling the Nemean lion into submission, and, higher up, representations of Aesop's fables. One architectural guide mentioned tiny likenesses of Greek thinkers between the windows, and I managed to find a bearded, grumpy-looking, pug-nosed bust that I had no doubt was Socrates.

Fueling my enthusiasm, in part, was discovering a side of the University I had no idea existed. I had spent the last four years learning, sleeping, and half-assing final papers in the halls off the quad—I thought I knew the place. But here I was, wandering the same cobblestone paths with my head flung back, staring up until my eyes and the back of my neck ached. Most of the interesting stuff was near the top of the buildings, a place I never looked when I was a student—I spent most of my time then looking down as I booked it to my next class. Now I was seeing things I'd never seen, and experiencing emotions on campus other than despair or extreme sleep deprivation. What was this place?



Ornamentation on the quad reflects UChicago's intellectual audacity.

As the summer progressed, my giddy infatuation with the gargoyles turned into more measured appreciation. The carvings, I admitted to myself, were kind of kitschy, dictated by the whims and intellectual leanings of long-past department heads. (Appropriately for UChicago, they were largely chosen by academics, not artists.) Sociologist William Ogburn, who in 1929 chaired the Social Sciences Division's subcommittee on symbolism, apparently took his role very seriously. In his papers, I came across a sheet where he had scrawled a list of possible decorations for the Social Sciences Research Building, including "an ancient scroll with the word history on it." Next to that was a short list of social scientists whose heads might grace the building's arches. Among those who didn't make the cut: Freud, Durkheim, and Marx.

Ogburn, a onetime head of the Social Sciences Division, was also responsible for perhaps the most contentious carving on campus. Curving

around an oriel window facing 59th Street is a heavily edited quote from Lord Kelvin: "When you cannot measure, your knowledge is meager and unsatisfactory." Ogburn was a hearty proponent of quantification in the social sciences, a view that some of his colleagues definitely didn't share. In a 1939 symposium, economist Frank H. Knight Jr. (a teacher of Milton Friedman, AM'33) snarkily suggested that the quote be changed to "If you cannot measure, measure anyhow." Fellow economist Jacob Viner chimed in with a suggested addendum: "If you can measure, your knowledge is still meager and unsatisfactory."

Academic squabbles aside, the gargoyles were built as a facet of a grand public relations project deployed by the University's first administrators. They don't serve any practical function, so they're more properly known as grotesques. (True gargoyles were used to carry rainwater away from the walls of medieval cathedrals.) Instead, UChicago's stone ornaments

The grotesques were not only part of the buildings' Gothic pastiche but also stone advertisements for UChicago's greatness.

were part and parcel of the University's decision to design its buildings in English Gothic: the administrators wanted the University of Chicago to look as though it had always been there, churning out future Nobel laureates and know-it-all "that kids" since time immemorial. As William Rainey Harper himself termed it, he wanted a University that was "'bran splinter new,' yet as solid as the ancient hills."

To that end, the grotesques were not only part of the buildings' Gothic pastiche but also stone advertisements for UChicago's greatness. On Rockefeller's façade are carvings of religious figures—Moses, Jesus, Zoroaster. But the chapel is also adorned with the seals of the world's top universities. The most unbearably meta carving on campus is a likeness of the chapel itself carved onto the building against a backdrop of Chicago's skyline. On the other side of the archway is a representation of the city of Athens, the classical city of learning. Not exactly subtle.

So UChicago's iconic Gothic menagerie is partly the product of the young, upstart University asserting its place among the world's greatest, its administrators consciously cooking up an image long before admissions marketing and *US News and World Report* rankings existed. A hundred-odd years later, their architectural audacity seems to have worked. It worked on me at least. ♦

Chelsea Leu, AB'14, lives and writes in California. And she misses snow.

Botching the wedding

BY WAYNE SCOTT, AB'86, AM'89

We were not supposed to get married. When my girlfriend and I moved into a dark, cramped one-bedroom apartment on a traffic-congested street on the north side of Chicago, one mantra united us.

No marriage. No kids.

We had bonded over readings from *Feminist Theory and Practice*, the first class of its kind offered in the College. She had a postcard autographed by Adrienne Rich, for which I offered substantial money on that first date. She refused, setting in motion a lifetime of spirited conversation. She was an ardent feminist, someone who worked at a nonprofit for survivors of sexual assault. The child of a divorced mother, she knew that a strong woman didn't need any institutionally sanctioned bond with a man.

Like her, I had a mother who had left a difficult marriage. I didn't fit in any neat category. In a decade polarized by sexual identity politics, to append the word bisexual to one's self was to risk raised eyebrows and behind-the-back teasing. So I didn't, even though I played on both sides of the fence. A graduate of the School of Social Service Administration, I was a therapist working with families struggling with violence and addiction. Because I had seen so much tumult arise from it, I had my doubts about marriage as a convention. A heterosexual idea that

banned sexual minorities, the word had never been part of the story I told myself about who I would be.

No marriage. No kids.

When five years later I had the option to go to graduate school on the East Coast, it offered an escape from an exhausting, bewildering job. For my girlfriend, our uncomplicated cohabitation became suddenly complicated.

Her father, George, was a first-generation German American who grew up in one of the city's white ethnic neighborhoods, in the long, dark shadow of the Great Depression. Gruff and curt, he was a printer who had landed a union job, a coup for a child of the 1930s, which brought him into home ownership and the middle class. He cared about financial stability. He worried about bad things happening again. For all his grouchiness, I never doubted what we had in common. We were devoted to his daughter.

One night, in his musty basement, under a flickering fluorescent light, he pattered at his workbench, making no eye contact with me, and I tried to tell him our plans.

He had a wide-eyed look of alarm. Move? Leave a stable job? Take his unmarried daughter with me?

I chickened out. "Well, it's an idea," I lied, though we had committed to the path.

Even though my girlfriend had always insisted she didn't want to get married, she was his only child and she loved him. Was she making a crazy decision? It would look that way to him.

Move 700 miles away to be with a quirky, unemployed 30-year-old dandy, a man with unprofitable, incomprehensible degrees: general studies in the humanities (Don't even try to explain it.) and clinical social work (Why do people need to talk about feelings?). Add in the fact that the man she had lived with for half a decade—without mention of a ring—would be getting another graduate degree in (What the hell is that?!) creative writing?

Couldn't she have found more marriageable material at the University of Chicago?

We had to throw the guy a bone. We started to think about getting married.

In spite of the ups and downs that 20-somethings have, the idea of leaving town had catalyzed a realization. I couldn't imagine going on this adventure—any adventure—without her. But we had to render the terms of our commitment into words and symbols her middle-class German father would grasp. It was like an act of translation, we rationalized. The language and symbols of weddings wasn't our primary tongue, but the strange words—"bride" and "groom" and "bridesmaid" and "groomsman"—would reach the people we

Couldn't she have found more marriageable material at the University of Chicago?



cared about, who most needed to understand the strength of our bond.

The spring before we would need to relocate, my girlfriend and I made a secret pact. Between ourselves we would think of ourselves as “engaged,” even though the word made us blanch. In the mornings, I would whisper in her ear, “Fiancée.” She would shudder and wake up.

If after 30 days we could still stand to live with ourselves, we would go public. We would tell her father and relatives. We would really get married.

The next thing I knew, we were driving to the big event on a hot, bright summer day.

We had chosen to have the ceremony—we never actually said the word “wedding”—in the Chicago Theological Seminary. In all our finery we climbed into my mother-in-law’s car for the drive to the chapel.

There had been so many hand-

wringing arguments leading up to this moment.

What kind of dress could she tolerate, that would make her look like a bride but also not like a bride? If she stayed in a bridal shop for more than 15 minutes, she became nauseous.

Everything was a despicable, glittery, lace-exploding meringue. One of her girlfriends would scout out shops first, select the sleekest, least lacy concoctions for review, to maximize our narrow time window before my sweetheart bolted. (I liked shopping for wedding dresses. This irony helped no one.)

Would we ruin the ceremony if she didn’t carry a bouquet? You will, insisted the florist, a man of certain, high opinions. Probably, agreed the photographer. With so many elaborately dressed women, and a spouse-to-be who eschews a traditional gown, the guests will be confused. Fire the florist, my girlfriend whispered.

Would male relatives resent being

without boutonnieres? Without a doubt, insisted the florist. I wouldn’t do it, agreed the caterer. It is a beloved tradition, said the Episcopal priest casually. You will be encircled by resentful men who don’t know who they are.

Did you have to include God in your vows, even if you had questions about God?

Including God was a *sine qua non* for the priest, a family friend, who would officiate for us only if we killed that debate.

As we neared 57th Street, my girlfriend asked, “Do you remember that argument that we had about what time to schedule the ceremony?”

Amid the swirl of arguments, I did recall the dispute. Would our older relatives feel slighted by a midafternoon reception with light hors d’oeuvres, or did we need an earlier event with a full-blown lunch? We had switched the hour at least three times.

“Why do you ask?” I said.

Before she could answer, I could see. On the front lawn of the Chicago Theological Seminary 100 guests, in their finest attire, languished under the July sun. In the one sliver of shade, four musicians, brows glistening, rehearsed, like the musicians who played while the *Titanic* slipped under ocean waves. Furious, the florist leaned against a van, monstrous wilting flower arrangements at his feet.

I dashed inside the seminary followed by my two brothers and the photographer. The first-floor chapel was impenetrable, locked behind iron bars. Inside I could see wooden chairs

in rows; the stone walls; a bar of sunlight, coming through the stained glass, piercing the shadows, insisting on an antique stillness.

In my cream-colored linen suit, with the embroidered vest that I would never wear again but that conferred specialness if not ridiculousness on this day of days, I grabbed the bars. Like a mad prisoner on the opposite side of his confinement, I rattled them and grunted. It made a metal jangling sound.

One brother, who had smirked at our discomfort at all things wedding, muttered, “I thought you didn’t care about this stuff.”

In the basement of the seminary at that time was a famous bookstore. The labyrinthine passageways and narrow crannies were crammed with colorful titles and curious words like “grammatology” and “phallogocentrism” and “historicity.” In these rooms, during my undergraduate days, I loved to linger, delightfully lost, thinking and exploring. That Saturday, students waited at the check-out, books in their arms.

I shouted. “Does anyone have keys to open the chapel?”

The two cashiers eyed me pitifully in my fancy garb. “Sorry.”

“Do you know anyone who can find the people who can open it?!”

Again, they were useless.

An impatient undergraduate hissed, “Heteronormative sheep.” (Of course, memory is fallible, but I feel certain I heard it.)

Back outside, guests melted like ice cream cones. I found the priest, who lived in the Episcopal Center around the corner, and whispered, “Do you know any place where we can get married?”

Along the tree-canopied, mansion-lined streets of Woodlawn Avenue a long line of guests and musicians and florists and amused brothers traipsed to the backyard of the Episcopal Center for an impromptu service.

It was a mad, loud beehive of consternation. Everyone knows what a wedding is supposed to look like. With an authoritative sense of feng shui and an impeccable sense of last-minute design, the priest gave orders. Chairs appeared in rows on the grass. A path was marked for the bride and groom. The photographer positioned himself behind an azalea. The bouquet was thrown against a tree. Musicians settled and played under an awning. The proud papa and his wife sat in front. Other guests stood behind them, sweating. The priest wiped his brow with a handkerchief and the music began.

The service started only an hour later. We said our vows under the hot sun on the bright green grass.

People took many lessons from the day we were locked out of the church. The photographer confessed that he thought the chapel was a dungeon; for weeks he had had nightmares about terrible, shadowy photos. A pious aunt said, “It was so beautiful and perfect, like it was supposed to happen that way.” A therapist friend consoled, “Sometimes it is a gift when beautiful things begin imperfectly.” A college buddy mused about the Japanese aesthetic of *wabi-sabi* that values flaws as a part of the beautiful. The florist determined never again to work with couples who couldn’t use the words “bride” and “groom.”

A therapist friend consoled, “Sometimes it is a gift when beautiful things begin imperfectly.” A college buddy mused about the Japanese aesthetic of *wabi-sabi* that values flaws as a part of the beautiful.

For me the lesson of the botched wedding took longer to distill.

Four years later, I was in a sterile white room in an assisted living facility holding my sleeping daughter, who was almost two. (Our original mantra—no marriage, no kids—had withered beyond recognition.)

It was me, my sleeping daughter, and my bedridden father-in-law. George was riddled with cancer. He couldn’t talk anymore. He could barely move. But his eyes were wide and he was alert. He had expected to have so many more years. In this stray, atypical moment, he was alone with his literary do-gooder son-in-law who was still so different than who he imagined his beautiful daughter would marry.

In only a few hours I would be getting on a plane with my family. Almost certainly this was the last time I would see him alive. The gravity of the deathbed confounded me. For years we’d struggled to communicate. Now I had to figure out the last thing I would ever say to him.

There was a long strained silence. I shifted my daughter in my arms. Perhaps it was the new, humble wisdom that accompanies having one’s first child, but I wondered, what would I want someone to say to me, if I were on my deathbed? And it came to me, miraculously, the promise I needed to make, an echo of those vows we made on that improbable lawn when the chapel was locked:

“You know, George, I am always going to take care of her.”

It was no longer an act of translation, but the truth, stripped bare of any distracting decoration. He couldn’t respond with words, but his eyes teared and he squeezed my hand. ♦

Wayne Scott, AB’86, AM’89, is a writer and teacher living in Portland, Oregon. He dedicates this essay to Elizabeth Thielman, AB’86, AM’91, on their 22nd anniversary.

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NOTES

TEACHER OF THE YEAR

Geoffrey Aladro, AB'06, has been named the 2016 Francisco R. Walker Miami-Dade County Teacher of the Year. Aladro, who worked with the Neighborhood Schools Program while attending the College, teaches history at Frank C. Martin International K-8 Center. Recognized for his engaging lessons and imaginative assignments, Aladro "meets [students] right where they are," wrote one parent in her recommendation letter, "and then pulls out the best in them and helps them to see the best in themselves."

HIGH HONORS

The High Museum of Art in Atlanta has named **Kirsten Pai Buick**, AB'85, as the 2015 recipient of the David C. Driskell Prize. The award honors early- to midcareer scholars or artists for significant contributions to African American art or art history. Buick, an associate professor of art history at the University of New Mexico, has been recognized for writing extensively and passionately on African American art and advancing scholarship of the lives and work of many African American artists.

TARGETED SUCCESS

A curated collection of home goods from e-tailer Of a Kind, founded by **Claire Mazur**, AB'06, and **Erica Cerrulo**, AB'05, is now available at 350 Target stores across the country. Launched in 2010, Of a Kind collaborates with independent designers to offer limited edition clothing, accessories, and decor through its website, and publishes stories on each designer featured. Following suit, Target is including information about the designers as part of in-store displays.

SCIENTIFIC PHILANTHROPY

Marc A. Kastner, SB'67, SM'69, PhD'73, has become the first president of the Science Philanthropy Alliance, a coalition of nonprofits focused on increasing funding for basic science research. Kastner, the Donner Professor of Science and former dean of science at MIT, will lead the alliance in



ROCKET MAN

John Grunsfeld, SM'84, PhD'88, will be inducted into the US Astronaut Hall of Fame on May 30. A five-flight veteran, Grunsfeld has spent more than 58 days in space and has performed eight space walks to service the Hubble Space Telescope, earning him the nickname "The Hubble Repairman." Being an astronaut is "the biggest honor," Grunsfeld told the *Chicago Tribune*. "It's such a tremendous privilege to be able to represent humankind in our quest to explore space." Retiring from NASA in 2009, Grunsfeld taught physics and astronomy at Johns Hopkins University before rejoining NASA in 2012 as associate administrator of the science mission directorate.

its mission to grow annual giving for basic science by \$1 billion within five years. "While philanthropy can never replace federal support for basic research," said Kastner, "its role has always been key to progress in science, and that role is now growing."

TOP ROLE AT ROLLINS

Grant H. Cornwell, AM'82, PhD'89, has been elected president of Rollins College in Winter Park, Florida, effective July 1. Cornwell, currently president of the College of Wooster in Ohio, "is a national and international champion of liberal education, an education especially tuned to Rollins' mission of global citizenship and responsible leadership," said Rollins Board of Trustees chair David Lord in announcing the appointment.

SUPREME APPOINTMENT

Constandinos Himonas, JD'89, has been confirmed to the Utah Supreme Court by a unanimous vote in the state senate. For the past decade, Himonas was a district court judge in Utah. "I am confident he will serve with integrity, intelligence, and great respect for the significant responsibility of the position," said Governor Gary Herbert.

COMING SOON

Stories by two alumni authors are on their way to a theater near you. Parkes+MacDonald and Black Bear Pictures have acquired a spec script by **Melissa London Hilfers**, JD'98, about a lawyer who works to overturn a murder conviction brought to public attention by a popular podcast, then discovers that she has a personal connection to the case. And Sony Pictures has hired *Spider-Man* screenwriter David Koepp to adapt *The Themis Files* (Bot Bot Publishing, 2015), **Sylvain Neuvel's** (PhD'03) debut novel. The story follows a UChicago physicist's quest to reassemble a mysterious, giant robot she found as a girl.

PRIMARY DECISION

Nancy Rotering, JD'90, has entered the 2016 Democratic primary race to represent Illinois's 10th Congressional District. Currently the first woman mayor of Highland Park, Illinois, she could face Representative Bob Dold (R) in the general election. "I am running for Congress to fight for educational opportunities for our students and economic fairness for all Americans," said Rotering in a statement.

—Helen Gregg, AB'09

PHOTO COURTESY NASA

RELEASES

The Magazine lists a selection of general interest books, films, and albums by alumni. For additional alumni releases, use the link to the Magazine's Goodreads bookshelf at mag.uchicago.edu/alumni-books.

A REPUBLIC NO MORE: BIG GOVERNMENT AND THE RISE OF AMERICAN POLITICAL CORRUPTION

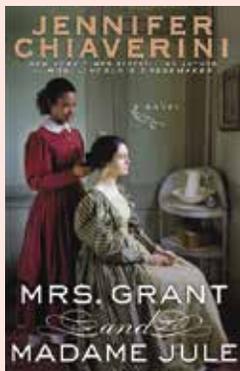
By Jay Cost, AM'04; Encounter Books, 2015

America's founders put checks and balances in the Constitution to keep any one part of the government from dominating the others. However, the 21st-century US government has more power than those checks and balances can handle, argues political analyst **Jay Cost**. This not only allows lobbyists and special interests to have an inordinate influence but also normalizes this corruption, according to Cost. From low corporate taxes to farm subsidies to high Medicare reimbursement rates, Cost explores the various results of institutionalized corruption in the US government—and how it's getting worse.

MRS. GRANT AND MADAME JULE

By Jennifer Chiaverini, AM'92; Dutton, 2015

When Julia Dent married future Union general Ulysses S. Grant in 1848, the plantation owner's daughter insisted on keeping her childhood slave, Jule. In her latest historical novel, **Jennifer Chiaverini** imagines the relationship between the two women as the Civil War and a changing nation complicate their tenuous bond. Even after Jule seizes an op-



portunity for freedom, their paths continue to cross through the Grants' White House years and beyond.

A GOD THAT COULD BE REAL: SPIRITUALITY, SCIENCE, AND THE FUTURE OF OUR PLANET

By Nancy Ellen Abrams, AB'69; Beacon Press, 2015

While in recovery from an eating disorder, lifelong atheist **Nancy Ellen Abrams** found surprising comfort and strength in imagining a higher power. She began to explore the possibility of a God that offers peace and wisdom without contradicting the rules of the universe astrophysicists like her husband are discovering. With forewords by Archbishop Desmond Tutu and physicist Paul Davies, *A God that Could be Real* presents an unconventional, emergent deity—a God that derives from, but is more than, the sum of human aspirations.

THE ROAD TO CHARACTER

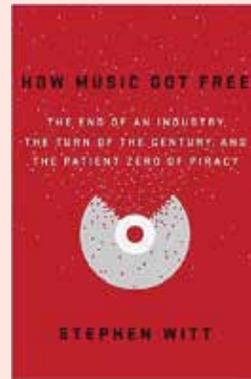
By David Brooks, AB'83; Random House, 2015

Instead of focusing on virtues that can be displayed on résumés, *New York Times* columnist **David Brooks** advocates for greater focus on the virtues discussed at funerals—kindness, bravery, honesty, faithfulness. Drawing on the lives of 10 historical leaders, Brooks offers a road map to true character and shows how reflection, humility, and self-discipline can increase our inner worth. Combining psychology, spirituality, politics, and Brooks's own confessions, *The Road to Character* strives to show how to lead a fuller and more moral life.

CONTRITION

By Maura Weiler, AM'93; Infinite Words, 2015

Everything changed for Dorie McKenna, the protagonist of **Maura Weiler's** debut novel, when she made two startling discoveries: her biological father was a famous artist, and she was separated at birth from a twin sister, Catherine Wagner, who inherited their father's talents. Dorie, a tabloid journalist, is eager to share Catherine's paintings with the world. But as a cloistered nun, Catherine isn't interested. Dorie's quest takes her undercover in Catherine's convent—where the sisters clash over the meaning and purpose of art.



HOW MUSIC GOT FREE: THE END OF AN INDUSTRY, THE TURN OF A CENTURY, AND THE PATIENT ZERO OF PIRACY

By Stephen Witt, AB'01; Viking Press, 2015

Just 20 years ago, people purchased all their music from brick-and-mortar stores—but the internet has made even the concept of buying music seem like ancient history. The result of five years of investigative reporting, *How Music Got Free* chronicles the interwoven tales of three key players in the music piracy revolution: Karlheinz Bradenburg, inventor of the MP3; Doug Morris, CEO of Universal Music Group; and Dell Glover, the “patient zero” of music piracy who leaked nearly 2,000 albums. Through these narratives, **Stephen Witt** depicts the moment in history when music became forever entwined with the world online.

THE STRATEGIST: BRENT SCOWCROFT AND THE CALL OF NATIONAL SECURITY

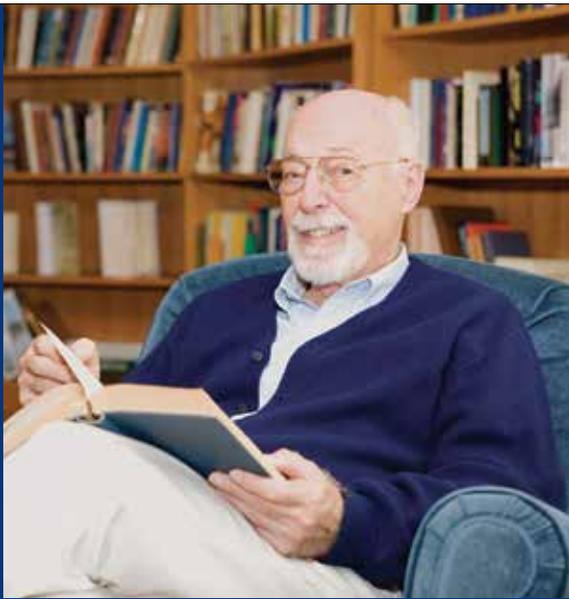
By Bartholomew Sparrow, PhD'91; PublicAffairs, 2015

Brent Scowcroft has helped shape US foreign policy for more than four decades as an Air Force lieutenant general, military assistant under President Richard Nixon, and national security adviser under presidents Gerald Ford and George H. W. Bush. At age 89, he continues to advise leading policy makers on both sides of the aisle. But who is Brent Scowcroft? With the subject's full cooperation, political scholar **Bartholomew Sparrow** unveils a detailed—and unprecedented—portrait of this little-known “wise man” of Washington and his influence on American foreign policy.

—*Ingrid Gonçalves, AB'08, and Helen Gregg, AB'09*

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PLAY TO LEARN

Cofounded by University faculty in the humanities and the Center for Interdisciplinary Inquiry and Innovation in Sexual and Reproductive Health, the Game Changer Chicago Design Lab connects faculty and students with city of Chicago youth to create digital stories and games that explore health and social issues. Through game play and design, the lab provides youth-directed, problem-based, collaborative learning opportunities that help develop important media literacies.

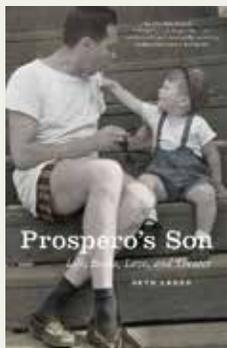
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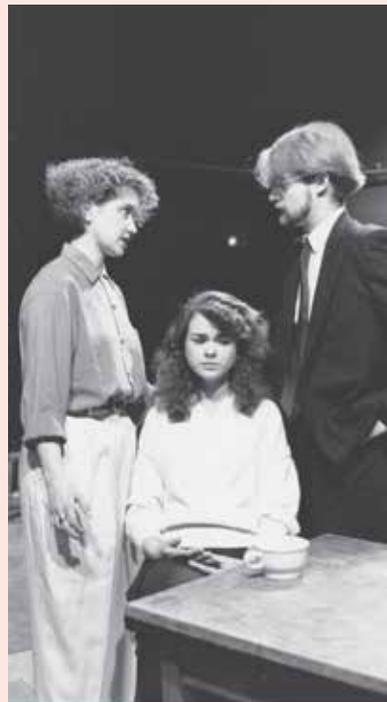
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In the spotlight: Emily S. Epstein, AB'93; Libby Anne Christophersen, AB'91; and John E. Yopp, AB'91, perform in University Theater's production of Michael Frayn's *Benefactors*.

The University of Chicago, in accord with federal regulations, is seeking public comments about the University in preparation for its decennial evaluation by the Higher Learning Commission of the North Central Association of Colleges and Schools, its regional accrediting agency.

A team representing the Commission will conduct a comprehensive evaluation visit in October 2015 to review the institution's ongoing ability to meet the Commission's Criteria for Accreditation. The University of Chicago has been accredited by the Commission since 1913.

THE PUBLIC IS INVITED TO SUBMIT COMMENTS REGARDING THE UNIVERSITY TO THE COMMISSION.

ELECTRONIC COMMENTS:

<http://ncahlc.org/HLC-Institutions/third-party-comment.html>

WRITTEN COMMENTS:

The Higher Learning Commission
Third-Party Comment on the University of Chicago
230 South LaSalle Street, Suite 7-500
Chicago, IL 60604-1411

Comments must address substantive matters related to the quality of the institution or its programs. Comments must be in writing and signed; comments cannot be treated as confidential.

ALL COMMENTS MUST BE RECEIVED BY **SEPTEMBER 1, 2015.**



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DEATHS

FACULTY AND STAFF

Thomas Bentley Duncan, AM'61, PhD'67, associate professor emeritus in history, died February 24. He was 85. A native of Brazil, Duncan was an influential scholar of Latin American and African history, known for his work on colonial Portugal and the role of Latin American nations in global economic development. He became the first director of the University's Center for Latin American Studies in 1968, directing the master's program for many years. He retired from the University in 1996. His wife, Eva, a former UChicago staff member, died in 2014.

Margaret C. Fallers, LAB'39, AM'48, died February 20 in Chapel Hill, NC. She was 92. Fallers spent most of her early career teaching at the Laboratory Schools and collaborating professionally with her first husband, anthropologist Lyod Ashton "Tom" Fallers, PhB'46, AM'49, PhD'53. She became principal of University High School in 1970 and several years later joined the University administration and rose through the ranks, retiring as associate provost in 1995. She is survived by two daughters, **Winnifred Fallers Sullivan**, LAB'67, JD'76, PhD'93, and **Beth Fallers Lamanna**, LAB'68; one granddaughter; and four grandsons, including **Lloyd Sullivan**, LAB'03, and **George Arnold Sullivan**, AB'04.

Harry A. Hoffner, the John A. Wilson Professor Emeritus of Hittitology, died March 10 in Hilton Head, SC. He was 80. Hoffner began his teaching career at Wheaton College in Illinois and held positions at Brandeis University and Yale before joining the Oriental Institute as a professor of Hittitology, the study of the ancient Hittites, in 1974. He taught at Chicago until his retirement in 2000. A cofounder of the Chicago Hittite Dictionary Project, Hoffner published extensively on Hittite history, language, and culture. He is survived by his wife, Winifred; one daughter; two sons; a sister; and two grandchildren.

Eric L. Simmons, retired professor of radiation biology, died October 14 in Bloomington, IN. He was 97. Simmons joined the University to work in the biology section of the Manhattan Project, studying the effects of radiation on plants and animals. He went on to teach biology at the University and pursue cancer research that pioneered the use of split-dose radiation, bone marrow transplants, and stem cell transplants to treat cancer. He is survived by his wife, Phyllis; a daughter; three sons, including **David F. Simmons**, LAB'71, AB'75, AM'76, and **Greg Simmons**, LAB'77; a brother; two granddaughters; and one grandson.

Ilga Vitolins, AB'59, AM'63, died January 6 in Oak Park, IL. She was 77. Vitolins

was the head of original cataloging at the University of Chicago Library, where she worked for more than 40 years until her retirement in 1994. She trained generations of catalogers and worked to make the library's nearly 12 million volumes more accessible to its patrons.

FRIENDS

Melvin Gordon, a longtime supporter of scientific research at the University, died January 20 in Boston. He was 95. A graduate of Harvard University and Harvard Business School, Gordon led South Side-based Tootsie Roll Industries for more than 50 years, and with his wife, Ellen, oversaw significant growth and the company's acquisition of other well-known companies, including Charms and Dubble Bubble. In 2006 the Gordons donated \$25 million toward construction of the Ellen and Melvin Gordon Center for Integrative Science, designed to foster research that crosses the traditional boundaries between physics, chemistry, and biology. Gordon is survived by his wife, a life member of the Visiting Committee to the Division of the Biological Sciences and the Pritzker School of Medicine; four daughters; and six grandchildren.

1930s

Mary Josephine Greer Cameron, PhB'33, of Mobile, AL, died February 22. She was 100. Cameron worked in Chicago for the Socony-Vacuum Oil Company before marrying and raising a family. In Mobile, she belonged to a number of organizations, including the Junior League and the literary club As You Like It. She is survived by two daughters, a son, four granddaughters, six grandsons, and 15 great-grandchildren. **Harold Mayer Kaplan**, AB'37, AM'38, died March 7 in Williamstown, MA. He was 99. A literary critic and poet, Kaplan discovered his passion for teaching at Rutgers University. He moved to Bennington College in 1949, teaching literature and creative writing for 23 years before moving to Northwestern University. Retiring from Northwestern in 1986, he continued to write and publish for more than 20 years. He is survived by his wife, Isabelle; two daughters; one son; and eight grandchildren.

H. Cary Coppock, SB'38, MD'41, of Lake Oswego, OR, died January 27. He was 98. A World War II veteran of the Army Air Forces Medical Corps, he practiced family medicine in Tacoma, WA, until his retirement in 1982. He is survived by his wife, Lillian; two daughters; two sons; nine grandchildren; and 10 great-grandchildren. **Harry H. Bernbaum**, AB'39, of Highland Park, IL, and Longboat Key, FL, died January 28. He was 97. A veteran of the US Air Force, he founded the sporting-goods manufacturing companies Seaway Importing and High Sierra, and was one of the first

US businessmen to go to China in 1979. A music lover, he was a lifetime trustee of the Ravinia Festival and the former chair of its Steans Music Institute. He is survived by his wife, Harriet; a son; two granddaughters; and two grandsons.

1940s

Thelma Brook Simon, JD'40, of Wilmette, IL, died February 7. She was 98. One of only two women in her Law School graduating class, Simon was chief clerk for three members of the Illinois Supreme Court; during her time there, she also served as the president of the Women's Bar Association of Illinois. Later she worked in the state's federal court system and taught at John Marshall Law School. She is survived by a son, two granddaughters, a grandson, and a great-grandchild.

Irwin Steinberg, AB'42, died December 29 in Brattleboro, VT. He was 94. After serving in the Army Air Forces during World War II, Steinberg began working in finance at Mercury Records in Chicago. He rose to president and then served as president of PolyGram Records after Mercury became part of that company in the 1970s. Later he was a consultant and taught at Columbia College in Chicago. He is survived by his wife, Dominique; a daughter; two sons, including **Mark Steinberg**, AM'75, PhD'88; two sisters; and four grandchildren.

Dorothy Jones, AB'43, AM'46, of Mukilteo, WA, died January 3. She was 91. Jones was a professor of sociology at the University of Alaska for 13 years, where much of her research and published work focused on the indigenous Aleut peoples. In 1981 she founded a feminist therapy collective and a few years later opened a private clinical therapy practice in Anchorage. She is survived by a daughter, two sons, a granddaughter, and four great-grandchildren.

Virginia (Kougias) Reichard, AB'44, died January 21 in Carlsbad, CA. She was 93. For nearly six decades, she lived in West Lafayette, IN, where she was active in community organizations. A lifelong advocate of public libraries, Reichard was also an accomplished photographer and a prodigious letter writer. She is survived by three children, four grandchildren, and four great-grandchildren.

Mark Gorney, SB'45, MD'47, died November 17. He was 89. A veteran of both the US Army and the US Navy, he served as a medical officer during the Korean War. A well-known plastic surgeon who spent most of his career in San Francisco, Gorney also traveled to teach and perform reconstructive surgeries in developing countries. He is survived by his wife, Geraldine; a daughter; two sons; two grandchildren; a stepdaughter; two stepsons; two step-grandchildren; and a step-great-granddaughter.

Esther Levine Goldman, PhB'46, died January 24 in Virginia Beach, VA. She was 87. Active in the educational endeavors of her community and synagogue, Goldman taught

in her congregation's religious school and at an intercongregational Hebrew school. A proponent of interfaith dialogue, she gave lectures on Judaism at various colleges. She is survived by a daughter; a son, **Daniel Isser Goldman**, AB'72; seven grandchildren; and five great-grandchildren.

Arline Priscilla Johnson, SB'47, of Clinton, CT, died February 13. She was 90. Connecticut's Home Economics Teacher of the Year for 1987, Johnson taught the subject for many years. After retiring, she worked for the Connecticut Department of Education as a mentor to new teachers and volunteered to tutor English-language learners. She is survived by a daughter, four sons, a brother, seven grandchildren, and three great-grandchildren.

Hans Freistadt, SB'48, SM'48, died February 1 in Oroville, CA. He was 89. Educated as a physicist, Freistadt lost his US Atomic Energy Commission fellowship after announcing his socialist convictions during a Congressional hearing. Unable to work in nuclear physics any longer, he enrolled in medical school and was an obstetrician/gynecologist for more than 35 years. He is survived by his wife, Sherry; five children; a sister; two grandchildren; and a stepdaughter.

Joseph R. Gusfield, PhB'46, AM'49, PhD'54, of Danville, CA, died January 5. He was 91. Gusfield studied the sociology of law, morality, and social movements, and is known for his work on alcohol use and drunk driving. He was the founding chair of the sociology department at the University of California, San Diego, where he taught from 1968 until 1991. He is survived by a daughter, a son, and three granddaughters. His wife, Irma Geller Gusfield, PhB'46, died in 2013.

William Lawrence Korst, PhB'46, SB'47, SM'49, died October 20 in Los Angeles. He was 92. An inorganic chemist, Korst worked in the aerospace industry until the late 1960s, when he moved into education and taught chemistry at several California colleges and universities. He retired in 1992 and continued his own education, earning a master's degree in linguistics in 1996. He is survived by his wife, Mary; two daughters; two sons; and three brothers.

Kenneth Stephen Brown, LAB'45, AB'49, MD'60, died February 11 in California, MD. He was 85. Brown spent 30 years doing genetic research at the National Institutes of Health, from which he retired as a captain in the US Public Health Service. He also taught graduate courses at the NIH and at the Uniformed Services University of the Health Sciences. He is survived by his wife, **Eva Rau Brown**, SB'56; a daughter; a son; three granddaughters; and one grandson.

Stanley Rosen, AB'49, PhD'55, died May 4, 2014, in Philadelphia. He was 84. A student of Leo Strauss in the Committee on Social Thought, Rosen taught in Penn State's philosophy department from 1956 to 1994. He then joined the philosophy faculty at Boston University, retiring emeritus in

2008. He is known for advancing modern scholarship on Plato, Hegel, Heidegger, and Nietzsche, and making contributions to the fields of metaphysics and epistemology, political philosophy, rhetoric, and literary theory. He is survived by his wife, **Françoise (Harlepp) Rosen**, AB'52, AM'55; a daughter; two sons; two brothers; one granddaughter; and three grandsons.

Ann Cremin Byrne, AB'49, AM'67, died February 6 in Providence, RI. She was 87. Early in her career, Byrne helped to develop degree programs for adult students at Roosevelt University in Chicago. In Providence, she held a number of positions at the University of Rhode Island. In retirement, Byrne was a freelance editor, a ceramicist, and one of the founders of the Domus Luti Pottery Cooperative. She is survived by three sons, a brother, and two grandchildren.

1950s

Daniel J. Cavanaugh, PhD'50, of Stevensville, MT, died December 21. He was 92. A veteran of both the Marine Corps and the Army, Cavanaugh was a professor of chemistry at the University of Alabama and at Tulane University during the first part of his career; he later worked as a biochemist, retiring from IBM in Rockville, MD. Cavanaugh was a race car enthusiast and in retirement became a freelance photographer. He is survived by a daughter, two granddaughters, and five great-grandchildren.

Leonard du Bois Fountain, AB'50, SM'53, died on April 10, 2013. He was 84. Fountain was a professor emeritus at San Diego State University, where he taught mathematics for three decades. A Seventh-Day Adventist, he served as an elder in his church for 40 years. After he retired, he moved to Paris. He is survived by his wife, Geneviève, and a son.

Ann Sale Dahl, BSS'52, of Hamden, CT, died January 15. She was 84. A psychotherapist for many years, Dahl was active in Democratic politics and was an editor at Yale University Press. She is survived by two daughters, three sisters, two brothers, two granddaughters, two grandsons, a great-grandchild, a stepdaughter, and two stepsons.

Walter Fred Berns, AM'51, PhD'53, died January 10 in Bethesda, MD. He was 95. A conservative political philosopher and constitutional scholar, Berns studied under Leo Strauss at UChicago. He taught at several institutions including Yale and Cornell before joining the Georgetown faculty in 1979, where he reached emeritus status in 1994. He was awarded the National Humanities Medal in 2005 for his scholarship, much of which linked a strong democracy to the strong moral character of its citizens. He is survived by his wife, **Irene Lyons Berns**, AB'48; two daughters; a son; two granddaughters; and four grandsons.

Marvin Chirelstein, JD'53, of New York City, died February 16. He was 86. Chirelstein, a scholar of taxation, corporate law,

and contracts, taught at the law schools of Rutgers, Yale, and Columbia University, retiring from Columbia as law school professor emeritus. The author of two widely used textbooks, he was a supporter of a progressive tax structure and a defender of the US tax system. He is survived by his wife, **Ellen (Katzman) Chirelstein**, AB'51; and a son.

Ronald Lee Rich, PhD'53, of Bluffton, OH, died November 28. He was 87. Rich taught chemistry at Bethel College and International Christian University in Tokyo before joining the faculty of Bluffton University in 1979. He conducted research at a number of institutions throughout his career, including Los Alamos Laboratories and the National Bureau of Standards. He is survived by his wife, Elaine; a daughter, **Miriam Sommers Rich**, MAT'83; three sons, including **Andrew F. Rich**, SM'78, PhD'89; two sisters; and six grandchildren.

Richard A. Karlin, AB'55, SB'57, died January 17 in Pittsburgh. He was 81. An electronics engineer, Karlin worked on a number of notable projects, including the first rockets to put satellites into space, early methods of videoconferencing, and the telestrator—the video marker used during sports and weather broadcasts to diagram plays or sketch weather patterns. He is survived by a daughter, **Robin Karlin**, AB'80; a granddaughter, **Charna N. Albert**, AB'13; and a grandson, **Eli J. Albert**, AB'10.

William P. Gerberding, AM'56, PhD'59, died December 27 in Seattle. He was 85. Gerberding was a political science professor before moving into academic administration. Appointed president of the University of Washington in 1979, he was known for leading the school through financial challenges and for increasing the prominence of the university's faculty and research. UW's longest-serving president, Gerberding retired in 1995. He is survived by his wife, Ruth; one daughter; three sons; and four grandchildren.

Richard C. Zimmerman, AB'57, died December 5 in Oak Brook, IL. He was 78. A physician who specialized in both internal medicine and cardiology, Zimmerman was an early advocate of integrating computers into medical practices. He served as staff president at two hospitals where he saw patients and formed a large primary care physician group now known as DuPage Medical Group. He is survived by his wife, Joy; a daughter; a son; and five grandchildren.

Frank Harper Burke, JD'58, of Groton, CT, died January 8. He was 81. Burke retired as senior vice president, secretary, and general counsel of the First National Supermarkets, later known as Finast. He is survived by his wife, Barbara; two stepdaughters; a stepson; and 10 step-grandchildren.

Anthony Smith Jacobs, MBA'59, died March 26, 2014, in Palm Desert, CA. He was 83. Jacobs's first job was as a writer for the Sears catalog; later, he owned and ran a

printing business and founded a private equity firm, the Wessel Group. He served on a number of corporate and nonprofit boards and volunteered for the International Executive Service Corps. He is survived by his wife, Connie; six children; a sister; four stepchildren; 15 grandchildren; and one great-grandchild.

Alexander Hilkevitch, MD'41, died January 1 in Wilmette, IL. He was 97. Hilkevitch had a five-decade career as a psychiatrist, working mainly with patients who required extensive therapeutic or medical intervention. He continued to be active after retiring in the late 1990s; just a month before he died, he taught a course on brain functions at National Louis University's Lifelong Learning Institute. He is survived by his partner, Marilyn Richman; a daughter; a son; and four grandchildren.

Sanford Roy Schubert, SB'59, SM'59, died October 28 in Hermosa Beach, CA. He was 78. Schubert worked mostly in the aerospace industry, holding a variety of positions in the space and technology division of TRW and retiring as the division's chief technologist. He was a passionate opera fan and a devotee of lifelong learning. He is survived by his wife, **Mahlia Lynn (Zendle) Schubert**, AB'59; a daughter; two sons; a brother; and seven grandchildren.

1960s

Hans Kobrak, PhD'60, of San Diego, CA, died February 4. He was 88. A particle physicist, Kobrak spent 30 years on the faculty of the University of California, San Diego. During his career he did research in experimental particle physics at the Fermi National Accelerator Laboratory. He retired from UCSD as adjunct professor emeritus in physics. He is survived by his wife, Mariette; a son; two sisters; two brothers; and three grandsons.

Marna Shapiro, AM'61, of Wilmette, IL, died February 14. She was 76. Shapiro began her career as an English teacher in the Chicago Public Schools and later became a guidance counselor. She is survived by her husband, **Loren A. Shapiro**, AB'61, AM'65, AM'70.

Ticiang Diangson, AB'63, died January 29 in Seattle, WA. She was 73. Diangson spent more than 30 years working for the City of Seattle, where she focused on environmental issues and racial and social justice. She was a major force behind the city's recycling program, helped to lead its Race and Social Justice Initiative, and was the first director of its Utilities Environmental Justice and Service Equity Division. She is survived by her husband, Greg Sletteland.

Fred A. Elder, SM'63, PhD'68, of Webster, NY, died March 29. He was 85. A US Army veteran, he was a longtime employee of Xerox, where he held more than 100 patents and published many scientific articles. He is survived by three daughters, one son, a brother, three grandsons, and one great-granddaughter.

Kathryn Flueck, LAB'60, AB'65, AM'68, of Golden, CO, died February 18. She was 71. Flueck cofounded and owned Essex Soccer Academy, running soccer camps in Colorado, Wyoming, and Montana. A paralegal for many years, she was an accomplished musician who taught piano and played in a recorder group. She is survived by three sons, including **David Walter Flueck**, MBA'99; her mother; her sister, **Barbara R. Seidman**, LAB'63; three granddaughters; and three grandsons.

Harriet B. Klinger, PhD'67, died November 27 in Lincolnshire, IL. She was 72. Klinger had a 30-year career as a chemistry professor at the City Colleges of Chicago. She was also a longtime Sierra Club volunteer who served on the board of the Chicago chapter and as a delegate to the club's national council. An avid gardener, she founded the Saddlebrook Farms Flower Garden Club and was a member of the Gardeners of Central Lake County.

Robert Perelman Jr., MBA'68, died January 27 in Charleston, SC. He was 92. Perelman served in the US Navy during World War II as a member of the elite team later known as the SEALs; he was also a longtime naval reservist. He worked at Union Carbide for more than 40 years, retiring as a project manager in 1986. A dedicated volunteer, he gave time to his church and many other organizations. He is survived by his wife, Patricia; a sister; and a granddaughter.

1970s

Alberto Musalem, AM'65, PhD'71, died January 5 in Tucuman, Argentina. He was 74. As a lead economist at the World Bank, Musalem pioneered the idea of contractual savings, which involve regular payments into long-term investments like pensions. He also taught at institutions including Purdue University; several universities in Colombia, Brazil, and Argentina; and George Washington University. He is survived by his wife, María Inés Manzuri; a daughter; two sons; a sister; a brother; and 11 grandchildren.

John Wilson Dawson, MBA'74, died January 30 in McLean, VA. He was 68. A Vietnam veteran who served as a radar technician in the Air Force, Dawson worked at Mobil Oil and Fannie Mae. He was an athlete, traveler, and cook; a volunteer in the McLean Baptist Church; and an arts patron who supported a number of cultural organizations. He is survived by his wife, Ann Jones; two brothers; a stepdaughter; and a stepson.

E. Thomas Bailey, MBA'76, of Newark, DE, died January 11. He was 77. Bailey, who held a doctorate in chemistry from the University of Illinois, was the president and CEO of a computer repair store. An active member of Newark United Methodist Church, he volunteered in the library, assisted the homeless, tutored children in math and science, and served food to the hungry. He is survived by his wife,

Lois; a daughter; a son; a sister, and three grandchildren.

1980s

David Elliot Eisenbud, SM'79, MD'81, died February 6 in Philadelphia, PA. He was 60. Eisenbud was a vascular surgeon with a particular interest in wound care and healing. He wrote and lectured frequently on those topics and founded Advanced BioHealing, a company devoted to regenerative medicine. He was also a past president of the American Academy of Wound Management. He is survived by two sons, his mother, and a sister.

Tom Zalan, AB'82, of Golden, CO, died July 15, 2013, of complications following a stem cell transplant for acute myeloid leukemia. He was 53. Zalan held a doctorate in geophysics and spent his career with Chevron, first in California and later in Africa, Indonesia, and Kazakhstan. He made a habit of learning the local language and customs of each place he lived. An accomplished golfer, he played the game wherever he went, even designing an indoor course in Kazakhstan for winter play and teaching the game to his Kazakh co-workers. He is survived by his wife, Sarah; a daughter; a son; and a brother, **Stephen Zalan**, AB'79.

Jon Iric "Jack" Roberts, AB'84, of New York City, died April 15, 2012. He was 51. A poet and novelist, Roberts was a professor of English literature at St. Thomas Aquinas College for 18 years; a Fulbright Scholar; and a lecturer in American studies at the University of Szeged, Hungary. He translated many Hungarian poems into English and was published in *The Best American Poetry 1991*. He is survived by his parents, a sister, and a brother.

1990s

Brian P. Murphy, JD'95, died of a heart attack on February 5 in New York City. He was 50. Murphy spent his career in public service, working most recently as assistant city manager for community development in Cambridge, MA. He was a city councillor in Cambridge and served as the Massachusetts deputy transportation secretary and as press secretary to former New Hampshire governor Jeanne Shaheen. He is survived by his wife, Katherine; a daughter; a son; a sister; and a brother.

2000s

Marvin Joel Dickman, AM'00, of Buffalo Grove, IL, died January 19. He was 71. Dickman spent 35 years as a certified public accountant at Arthur Andersen & Co., becoming a partner in 1976. After retiring, he earned a degree in Jewish studies at the University and taught Jewish history at synagogues and community centers. He is survived by his wife, Susie; two daughters; and two grandchildren.

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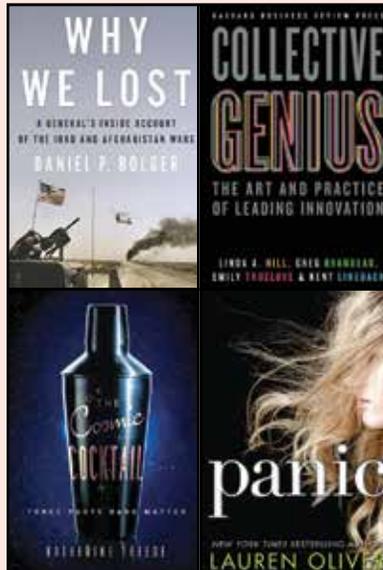
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