Princeton Alumni Weekly
June 6, 2012

Scientist and humanist: Erez Lieberman Aiden '02

Questions for Krugman

Political campaigns: An expert's view

WHAT KILLED THE DINOSAURS?

Paleontologist Gerta Keller has her own theory

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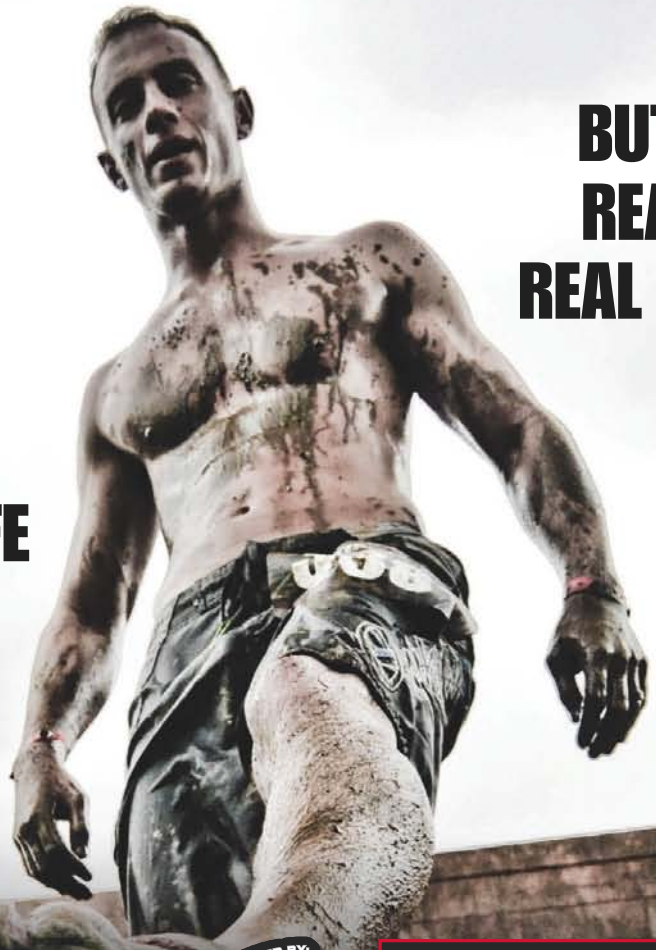

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- OCT. 27-28 / Marsailles, IL
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- DEC. 8-9 / Glen Rose, TX

Princeton Alumni Weekly

An editorially independent magazine by alumni for alumni since 1900

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SAM OGDEN

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In the decade since he graduated, Erez Lieberman Aiden '02 has proved many things, including: A scientist can be a humanist, too.
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Most paleontologists are convinced that the impact from an asteroid was the sole cause of the mass extinction of the dinosaurs. Princeton's Gerta Keller has a different theory.
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What's new @ PAW ONLINE

AFRICAN A CAPPELLA
Watch and listen to Umqombothi, a new addition to the student music scene.

REUNIONS 2012
View slide shows of the festivities, beginning June 4.

ART-SCIENCE CONNECTION
Take Robert Root-Bernstein '75 *80's survey for scientists who create art.

ALUMNI BLOGS
Our list of blogs by Princetonians includes more than 200 links.

Gregg Lange '70's Rally 'Round the Cannon
A column about time, time capsules, and passing along wisdom to future Tigers.

PAW on iTunes
Listen to Rally 'Round the Cannon as a podcast.

New Approaches to Engineering

Princeton has long held that the study of engineering should be firmly embedded in a liberal education and that prospective engineers should have broad exposure to the humanities and social science disciplines before they graduate. Conversely, in recent years, the University has made a concerted effort to increase the technological literacy of non-engineers, not least through the work of the Keller Center, which was established, in part, with the goal of teaching such students "about concepts in engineering and science and instilling in them a solid understanding of technology and how it affects the world." At Princeton, we expect our undergraduates to think deeply, but we also want them to roam widely, exploring a broad range of questions and approaching them from as many angles as possible.

This cross-pollination has been facilitated not only by our relatively small size and single faculty but also by far-reaching changes in how Princeton — and academia as a whole — pursues the discovery and dissemination of knowledge. Although our basic organizing principle remains the academic department, be it English, chemistry, or politics, teaching and research are no longer coterminous with individual disciplines. For all their value in grounding students in specific ways of thinking, these fields — once largely self-contained — have developed highly porous borders. And nowhere is this more apparent than in our School of Engineering and Applied Science.

FRANK WOJCIECHOWSKI

Mechanical and aerospace engineering graduate student Ismaiel Yakub and civil and environmental engineering major Megan Partridge '14 join forces to demonstrate a ceramic filter system that promises to remove pathogenic bacteria from African drinking water cheaply and effectively.

Indeed, were we to establish a school of this kind today, I doubt we would recreate its six departments, whose lengthening names attest to the widening scope of their activities. The Department of Chemical Engineering, for example, became the Department of Chemical and Biological Engineering in 2010, much as civil engineering added "environmental" to its title and mechanical engineering added "aerospace" in previous years. The convergence of biology and engineering reflects significant changes in both disciplines, be it the introduction of high-throughput computation in the former or the development of organic electronics in the latter, but this "meeting of minds" is by no means unique. Throughout the Engineering Quadrangle and across the University, our faculty and students are working at the intersection of many fields, often under the aegis of joint appointments or interdisciplinary certificate programs. In the words of Dean Vince Poor *77, "The most inventive and effective solutions often come from unexpected interactions between disciplines."

Today, the engineering school is more likely to frame its work in terms of four broad areas of social need — energy, the environment, health, and security — than to define its mission using departmental metrics. While its departments continue to provide our faculty and students with an intellectual and administrative home, they are less a retreat than a jumping off point — one that leads to some of the most exciting courses and research projects on our campus. To give you just a taste, Professor of Chemical and Biological Engineering Bruce Koel has brought his expertise in surface chemistry to the Princeton Plasma Physics Laboratory, where he and his colleagues are endeavoring to develop a reactor lining that will sustain the super-high temperatures required by the fusion process and the clean and abundant energy it promises. Molecular biology major Shivani Sud '12 has been working with Professor of Mechanical and Aerospace Engineering Wole Soboyejo to develop a simple screening system for cervical cancer with the goal of improving detection in developing countries. And this spring, a record number of students enrolled in Technology and Society, a course jointly developed by Professor of Electrical Engineering Sharad Malik and professors of history Michael Gordin and Angela Creager and Associate Professor of Sociology and Public Affairs Betsy Armstrong *93. In this class, engineers have an opportunity to weigh the social implications of their disciplines, while non-engineers can develop a fuller appreciation of technology's power and limitations — from nuclear energy to genetically modified organisms to Internet regulation.

To nurture such ventures, the school has created six major interdisciplinary centers in addition to the Keller Center: the Andlinger Center for Energy and the Environment, the Center for Information Technology Policy, the Combustion Energy Frontier Research Center, the Gigascale Systems Research Center, Mid-Infrared Technologies for Health and the Environment, and the Princeton Institute for the Science and Technology of Materials. Their creation reflects the complexity of the challenges our faculty and students are addressing — challenges that can only be successfully confronted on a collaborative basis. One of the biggest, of course, is developing sustainable energy sources and uses that both meet the world's requirements for economic growth and preserve our fragile global ecosystem. I am happy to report that some 90 members of our faculty, including representatives of all six engineering departments, are working on this monumental problem under the umbrella of the Andlinger Center. Similarly, the Center for Information Technology Policy has brought together some of the best minds in the engineering and Woodrow Wilson schools to further research on and find practical solutions to a host of critical concerns relating to everything from electronic voting machines to technology-informed government transparency to the relationship between digital technology and social inequality.

And this, I predict, is just the beginning of the blurring of disciplinary boundaries, both inside and outside the engineering school.

The Possibilities are Endless

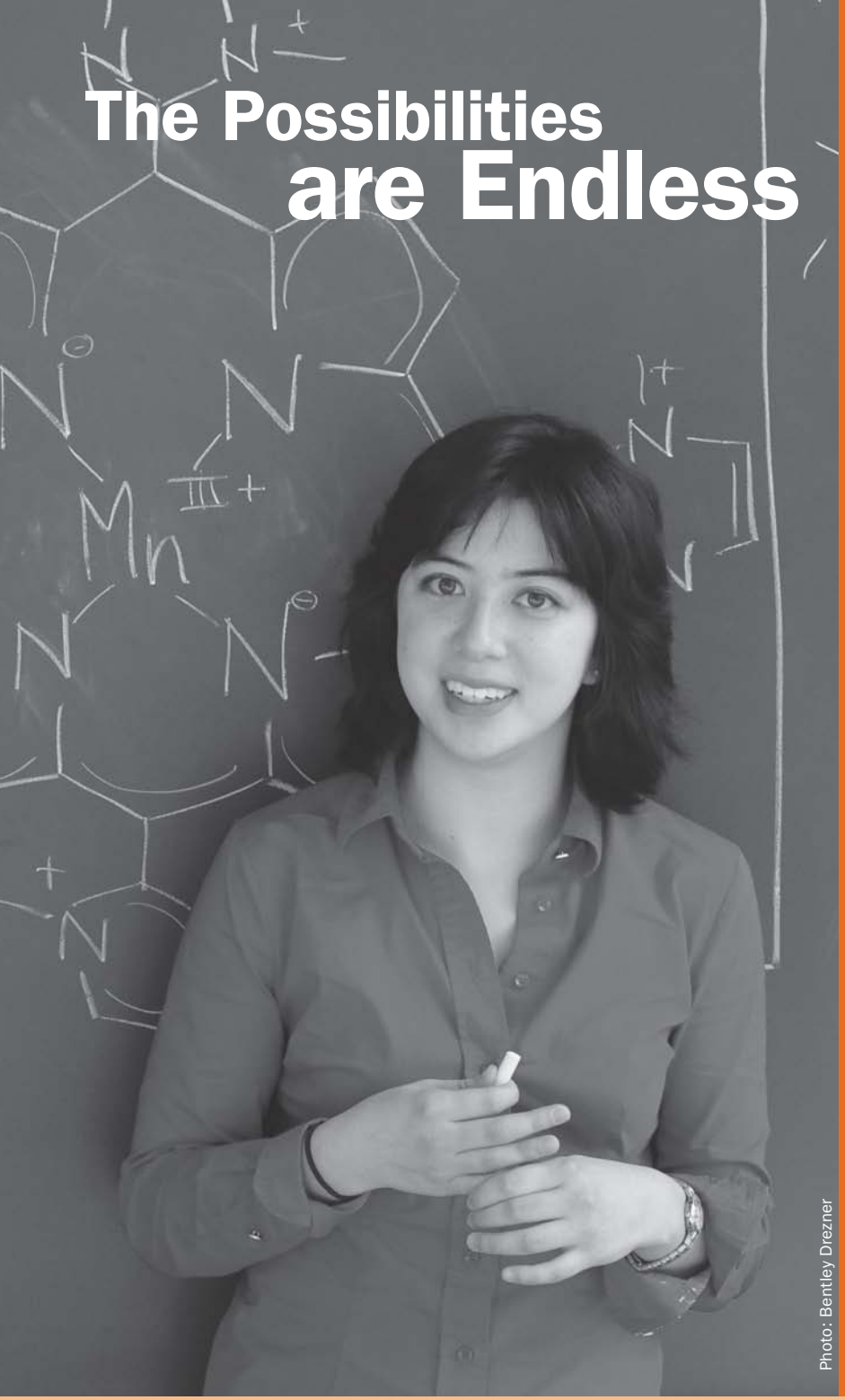

Photo: Bentley Drezner

"For me, the best part of Princeton is access to the faculty members. I get to sip tea with Nobel laureates and other experts in their fields, joining the global debates on ethics, energy, and everything in between. Through these interactions, I have grown as a critical thinker and as a world citizen."

CHRISTINA CHANG '12
AUSTIN, TX

A summer internship abroad was a defining experience for Christina, who discovered that she could serve society by combining her interests in chemistry and public engagement. For her senior thesis, Christina is examining bio-inspired catalysts to purify water. Christina founded the Women in Science Colloquium and the Princeton University Chemical Society, and volunteers at Community House teaching science to underserved children. Next year, she will attend Imperial College London and Cambridge University as a Marshall Scholar to conduct inorganic chemistry research and study sustainable energy.

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Inbox

"Princeton should be at the forefront of the policy debate around how the United States and the world community can best make innovative information accessible and useful to the public."

— John L. Hines Jr. '77

The idea of the computer

The MANIAC computer — I remember it well (feature, April 4)! In the spring of 1958 a classmate, Ned Irons '58, and I did our senior project (engineering students' equivalent of a thesis) on that computer, the only computer in Princeton. The task was programming an interpreter — a program written in the native language of the computer — to provide a simplified programming language for students (a "user-friendly interface," in today's terminology).

We were not welcome at the Institute. The scientists' concept of appropriate use of the computer was to read in a small amount of data, compute for a long time to produce an important result, and output a small amount of data. Since our project involved a great deal of input and output, they accused us of using their computer as a punch-press! But since our allotted time was midnight to 6 a.m., not many of them had to suffer through our disrespectful use of their machine.

The 40 CRTs (Williams Tube memory) had some strange characteristics. As mentioned in the article, they were very humidity-sensitive. On dry nights they would acquire "spurious bits" — 1s that should have been 0s.

We completed the interpreter very successfully, and received top grades. But undergraduates never got to use it. As was noted, the computer was retired soon after we graduated, and donated to the Smithsonian.

The article mentions the use of the MANIAC computer to do calculations for a thermonuclear device. Operation Ivy, the joint task force that detonated the first hydrogen device, was under the command of my father, Maj. Gen. P.W. Clarkson.

BILL CLARKSON '58
Manhattan Beach, Calif.

During my senior year (1957–58), I managed a group of Princeton students who were the night operators on the Institute machine. Night meant something like 5 to 11 p.m. The computer had 40 CRTs for memory, and we had an oscilloscope that could tune in on the 32-by-32-bit grid on any of the tubes. Our most important task was to make sure that no one bit "lit up," because if it did (for example, if the program was in a very tight loop), it could burn out that bit in all 32 tubes, and that would be a disaster.

continues on page 8

BUZZ BOX

When Ph.D.s need a job outside the ivory tower

Every story, letter, and memorial at paw.princeton.edu offers a chance to comment

Alumni posted comments at PAW Online on an April 4 Campus Notebook story about ending the stigma for jobs outside academia for Ph.D.s in the humanities, often considered a "Plan B."

GLORIA ERLICH *77 wrote that she had found a satisfying career as an independent scholar, publishing two books and many articles. "But this alternative is possible only with independent wealth or on what I call a 'matrimonial fellowship,' " she said.

STEWART A. LEVIN '75 commented that when those with graduate degrees in the sciences want to return to academia after working in industry, they often encounter an attitude that "they haven't paid their dues." What isn't recognized, he said, is that for private workers, "job security is a thing of the past and the hours are just as long, and publication preparation is done on your own time."

DAVID FINKELSTEIN *90, vice president of a think tank in Washington, D.C., had a bit of good news: "I am Plan B!" he wrote, "and I am looking to recruit new Ph.D.s in Chinese history or Chinese studies."

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Reunions 2012 @ PAW ONLINE

After Reunions, view photo galleries of the festivities at paw.princeton.edu — and share your favorite pictures and short videos with PAW.

Editors will choose the funniest, most sentimental, and most creative reader-submitted images to run in the July issue and at PAW Online. On Facebook, our prize for readers' choice will be given to the photo that receives the most "likes."

JOHN O'NEILL '13

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Debating illegal immigration: Alumni weigh in

*The April 25 cover story on sociology professor Douglas Massey *78 and his 30 years of research into Mexican immigration drew a large number of letters to the editor and comments posted at PAW Online.* **To read more alumni views or to add your own, go to paw.princeton.edu.**

Dr. Douglas Massey *78 is patently illogical in blaming enhanced border security for the net growth in illegals over the decades, saying they just couldn't go home like they used to (cover story, April 25). Once our failing economy and closing welfare loopholes ceased to attract them, they sure found their way home quickly enough. Also, he assumes that efforts to stem the flow northward had no effect on the level of gross in-migration, and there is no proof of that.

Those of us in border states are paying billions in disproportionately high state taxes to feed, educate, medicate, and incarcerate the folks who are here illegally. Illegal immigrants account for a grossly disproportionate percentage of our federal prison population.

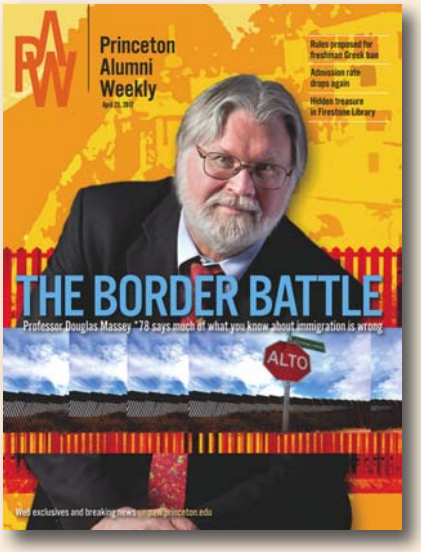
There is a crisis, but it is not contrived. The border states are going broke trying to cope with this federal failure, while being fought in court when they try to enforce even the federal laws. I was not shocked to discover in the article that Dr. Massey had been an adviser to Sens. Daniel Moynihan and Edward Kennedy, two who probably were more impressed with Dr. Massey's "scientific method" than was I.

BILL LEIGH '64
The Woodlands, Texas

This analysis rings very true from what I know of the lives and families in my community, where I serve a church made up primarily of Latino/Latina immigrants. It is they who suffer when a "crisis" is exploited for political gain.

THE REV. DANIEL ERDMAN '73
Albuquerque, N.M.

As one who lives at the epicenter of central California agribusiness and sees firsthand the effects of U.S. immigration policy on a daily basis, I believe that Professor Massey speaks the truth. Another unintended, but very real, consequence of U.S. immigration policy



"There are certainly no easy or one-step solutions, but nothing useful can even begin to happen until voters and policy makers alike educate themselves about what's really going on."
— Peter Severson '09

has been the rise of gangs and gang culture. It would be interesting if someone could study that connection. If the facts support it, showing that U.S. immigration policy is a cause of the prevalence and increasing influence of gangs (Hispanic and other) should get the attention of the conservative community. (For the record, I am a registered Republican and a conservative in the nonpolitical sense of the word.)

ANDREW D. FORTNEY *90
Fresno, Calif.

From 2001 to 2003 I served as the deputy assistant secretary of defense for counternarcotics. I spent a great deal of time, effort, and resources on understanding the border issues from the perspective of national security. I agree with Professor Massey on several points. Worrisome, though, is the significant number of non-Mexican, non-Latino individuals (that we know of — likely only 5 to 10 percent of the true number) who seek access across the U.S.-Mexican border. The number of apprehended Pakistani, Afghan, Iranian, Yemeni, and Somalian individuals caught attempting to enter the United States through the Southwest border in 2003 caused great shock and concern in law enforcement, the Department of Defense, and in the Congress.

Law enforcement apprehended more than 200 "OTMs" (Other Than Mexicans) in 2003 alone. Were they intent on some nefarious activity? Can any political leader ignore the chance that they are? I think not.

Thus, while the professor believes that the Southwest border is simply an issue of Mexican immigration that cannot be answered with security (I'm sympathetic), he exists in an academic bubble that lacks access to information on the greater threat. Let me finish with this important caveat. No country can or will have a true "secure" border. Fences, more technology, and other symbols truly do ignore the greater issue of economic imbalance. Having said that, no U.S. political leader can morally ignore the potential risk that open borders present to the country — the thorny issue of illegal migration is a subset within a multi-jurisdictional problem. I hope that the professor will acknowledge this reality.

ANDRE HOLLIS '88
Vienna, Va.

The article on Professor Massey makes good and enlightening points. What it didn't contain, though, was reference to violent crime along the Mexican border related to drug-cartel activity, which I believe has increased dramatically in recent years, costing many more lives — mostly Mexican, but also American. This would seem to argue for "stricter border enforcement" from a different perspective than simple immigration control.

ANDREW WILCOX '73
San Rafael, Calif.

I just returned from lunch with a Latina member of my congregation. I told her about this fascinating article that said "the number of illegal immigrants is on the rise due to border security … " and she completed my sentence for me: "because they can't go home." One anecdote doesn't prove a thesis, but it doesn't hurt.

THE REV. RICHARD HONG '81
Englewood, N.J.

Mark Bernstein '83's piece on Professor Massey was interesting and in some ways informative. However, the professor's tone, and in a few instances his misstatements of facts, suggest that the immigration problem isn't really a problem at all and no big deal. Professor Massey states, for example, that crossing the border illegally is not a crime, but is a civil infraction on the order of getting a traffic ticket. This is patently false.

As stated in Section 1325 in Title 8 of the U.S. Code, the "improper entry of an alien" such as crossing the border "illegally" is a crime and punishable up to six months in prison for the first offense and for two years for any subsequent offense. This is hardly comparable to getting a traffic ticket!

It is correct that many illegals have entered the country legally and then simply overstayed their visa. True, this is not a crime and is only a civil infraction. However, even in these instances, to suggest that an "overstay" is like getting a traffic ticket is both wrong and misleading. An immigrant found to have entered the country legally but who has overstayed his visa can be deported — not the normal punishment for speeders.

ALFRED L. EVANS '62
Centreville, Md.

If I wore a hat, I'd certainly doff it to Douglas Massey and the members of the Mexican Migration Project at Princeton. His on-the-ground work and unsparing analysis are more necessary than ever in the ongoing battle over illegal immigration in the United States. After I graduated from Princeton, I spent a year living in the southern Mexican city of Cuernavaca to work with projects related to human rights and disability advocacy. Midway through my year, I traveled to the U.S.-Mexico border and spent a transformative week and a half in the Sonoran desert, working with recently deported migrants by night and visiting the Border Patrol in Douglas, Ariz., by day.

In one form or another, I found that immigration underlies most of the critical issues facing contemporary Mexico. On the U.S. side, the immigration system has morphed into a shamefully dysfunctional bureaucracy, with the effect of amplifying rather than alleviating the tremendous indignities occurring on both sides of the border.

I commend Professor Massey's research to anyone looking to get a clear view of the realities of Mexican immigration. There are certainly no easy or one-step solutions, but nothing useful can even begin to happen until voters and policy makers alike educate themselves about what's really going on. Our shared border with Mexico is a place filled with tragedy, but hope remains. We owe it to ourselves and our Mexican counterparts to cultivate that hope by working together earnestly on this pivotal issue.

PETER SEVERSON '09
Chicago, Ill.

As an alum working for the U.S. government in the immigration arena, it is good to see PAW shedding some light on the complexity of the system. One correction to note: The INS no longer exists. That agency was disbanded under the Homeland Security Act and its functions removed from the Department of Justice. Immigration functions now are handled under three separate agencies within DHS. These are Immigration and Customs Enforcement (ICE), Customs and Border Protection (CBP), and U.S. Citizenship and Immigration Services (USCIS, where I work).

Alumni also will be interested to know that a Princetonian, Wen Cheng '91, recently was named chief counsel for the ICE New York district office — one of the largest districts in DHS.

PETER SCHMALZ '89
Essex Junction, Vt.

FROM THE EDITOR

Professor Gerta Keller, the subject of PAW's cover story, is a veteran paleontologist, one of only two female professors on Princeton's 22-member geosciences faculty. Erez Lieberman Aiden '02, profiled in this issue, is a rising star in math and genomics.

What do they have in common? A willingness to carve out their own paths, despite the substantial risks.

Aiden is at the beginning of his career, with a prestigious but untenured position at Harvard. Even while he was immersed in the study of the human genome, he has studied the humanities — taking on a linguistics project, for example. "It seems to be possible to study language change and these kinds of seemingly nutty subjects without completely wrecking one's scientific career," Aiden told PAW, though, to be fair, not every young scholar has the support he does.

Keller, too, has gone her own way. While most paleontologists believe that what's known as the Chicxulub impact of an asteroid led to the extinction of the dinosaurs, Keller believes otherwise, arguing for her research at conferences despite opposition and even ridicule.

Keller is "the sort of person for whom universities were created," the editor of the journal *Geoscientist* told PAW. One of Aiden's advisers said exactly the same thing, about him.

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Katzenbach '43

FRANK WOJCIECHOWSKI

Speaking of courage, few people had as much of it as Nicholas Katzenbach '43, a key member of the Kennedy and Johnson administrations and a towering figure in civil rights. He died May 8, at 90. In 2008, a faculty panel convened by PAW ranked him No. 16 on its list of the most influential alumni of all time.

A memorial service will be held 11 a.m. Thursday, June 21, in Richardson Auditorium.

*— Marilyn H. Marks *86*

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Inbox *continued from page 5*

I used that computer to do calculations on my senior thesis, and I suspect that it was one of the first Princeton theses to use a digital computer. My classmate, Ned Irons, tells me that he also used the machine for his thesis, but I was unaware of that at the time. I had to get my thesis done in a timely way, since the machine was disassembled for shipment to the Smithsonian shortly thereafter. It was exciting many years later to visit the Smithsonian and see the desk at which I used to sit.
JERRY PORTER '58
Ardmore, Pa.

As a grad student in the mid-1950s, I was fortunate to have access to the MANIAC computer as part of my thesis research. This excellent article brought back many fond memories.
JOSH DRANOFF *56 *60
Evanston, Ill.

I was one of half-dozen or so juniors and seniors who actually wrote and ran little programs for this machine. There was, of course, no such thing as programming or computer science classes back then, nor high-level languages or even assembler language — the programs were in machine language coded in binary, on IBM punched cards! I can't remember who was in that group or who the poor grad student was who was our instructor. The experience taught me enough about programming to avoid it for the rest of a very gratifying career in engineering. Does anybody else remember that class 56 years ago?
HOWARD ROBBINS '57
Rockland, Maine

It was interesting to learn in "Daybreak of the digital age" that Princeton's John von Neumann elected to forgo patent claims on the computer he and his team designed that launched the computer revolution.

Princeton should use the centennial anniversary of Alan Turing *38's birth to open a conversation on the role of patents in a university: whether, to what extent, and under what circumstances they contribute to the widest spread, access, and use of knowledge and to what extent they may be in direct conflict with the University's fundamental mission.

With most of the value of U.S. business existing in intangibles, Princeton should be at the forefront of the policy debate around how the United States and the world community can best make innovative information accessible and useful to the public. Partaking neutrally in this wider conversation necessarily, at a minimum, means examining the propriety and effectiveness of Princeton's own patent policies. This examination of its own policies should be highly transparent and involve the entire University community.
JOHN L. HINES JR. '77
Chicago, Ill.

Drug laws an injustice

The April 25 issue had stories about a number of remarkable alumni, but I was particularly impressed by Benjamin West '01, whose work as a public defender in New York City is truly "in the nation's service" (Perspective). He highlighted the gross racial disparities in how our laws are enforced, which result in people of color being arrested and imprisoned at rates that far exceed the proportion of crimes that they commit. He could have added that much of this is due to our irrational drug laws — particularly evident in New York City, which for two decades has been the marijuana-arrest capital of the world, with about 50,000 arrests annually for simple possession.

More generally, as a retired CIA European analyst, I am struck by the fact that the United States has more people in jail for drug crimes (about 500,000) than all of Western Europe, with its much larger population, has in jail for any reason (about 440,000).
DICK KENNEDY '63
Lorton, Va.

Questions about Greek policy

I was not in a fraternity at Princeton, and as far as I know, nobody in my

extended family has ever been a member of one, either. Greek organizations were starting to reestablish themselves on campus during my undergraduate years, and I wasn't happy to see them. That said, this policy and the sanctions the committee is recommending ("Tough penalties suggested for frosh-rush ban violators," Campus Notebook, April 25) seem like a wild overreach that's going to make a university I love look absurd and abusive.

How does the University plan to justify scrapping basic notions of freedom of association? Let's consider some of the situations Princeton certainly will encounter, including the penalty — not expulsion, but "suspension." Until when? Until the offender recants? Will they consider a reduction in the penalty if the offender denounces other fraternity/sorority members? Nothing Orwellian about that, is there? How does the University intend to prove "membership"? Presumably the Greek organizations would not be providing lists of prospective members to the dean's office. Would it be like a witch-craft trial, where only a confession was considered proof? What about hearsay evidence? Perhaps Princeton should employ informants, seeking out Greek organizations they can join as freshmen (it could be a condition for admission, or maybe a work-study job). I can see it now: "I worked in the kitchen at Wilson College; what did you do?" "I was the mole who helped bring down Sigma Alpha Epsilon."

These examples are absurd, but the fact that they present real questions is the sad part. The cure definitely appears worse than the disease in this case.

JEFF SHUMAN '87
Falls Church, Va.

I am embarrassed for the University. Value judgments by the social engineers cannot be challenged! Both Orwell and Rand must be chuckling from their respective places in the ethers.

ROBERT NORTON '65
Bluffton, SC.

I hold no brief for frats, which I think would be a significant minus were they to spread on Princeton's campus. But I'm enough of a civil libertarian to be very uncomfortable with the kinds of enforcement that would be required to make this policy stick. Ultimately, the University needs to decide whether it is going to treat students as adults or not.

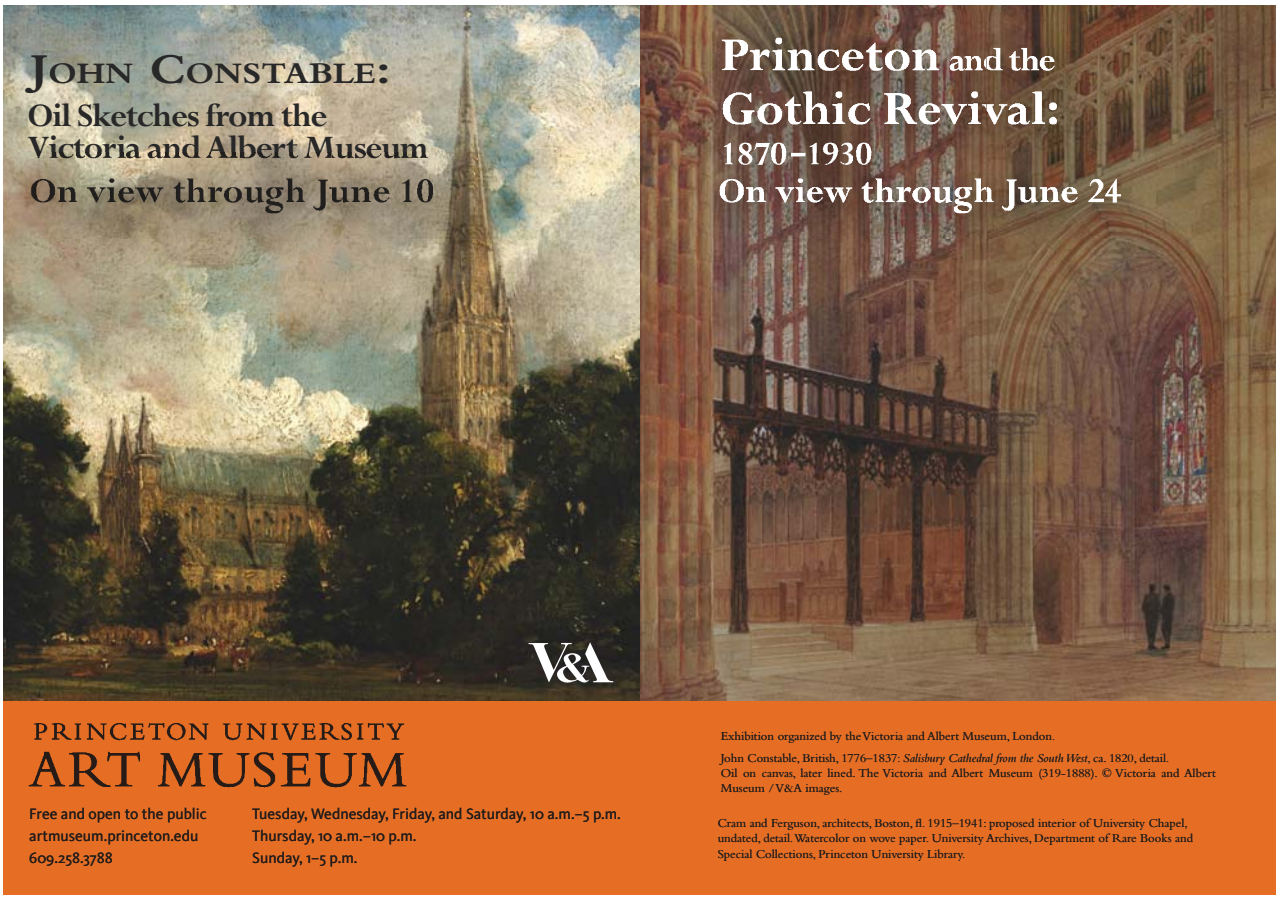
ANAND GNANADESIKAN '88 s'90 p'14
Severna Park, Md.

Sad statistics on academics

How painful to read your story, "USG surveys academic life" (Campus Notebook, April 25). Here we learn that Princeton students spend only 26 hours per week on coursework outside of class. For courses that require more than four hours per week of reading, students report that, on average, they do only 53 percent of it. A majority remain indignant, however, about a University policy that tries to keep the number of A grades to 35 percent.

Perhaps most disturbing is the comment of Michael Yaroshefsky '12, the

continues on page 13



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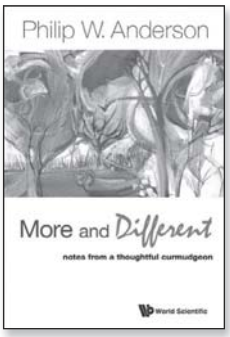

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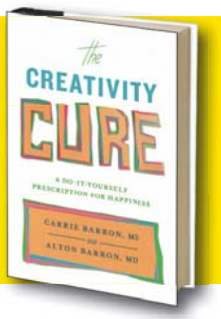

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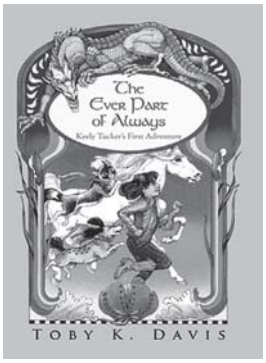

Toby K. Davis p'98

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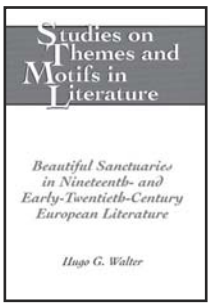

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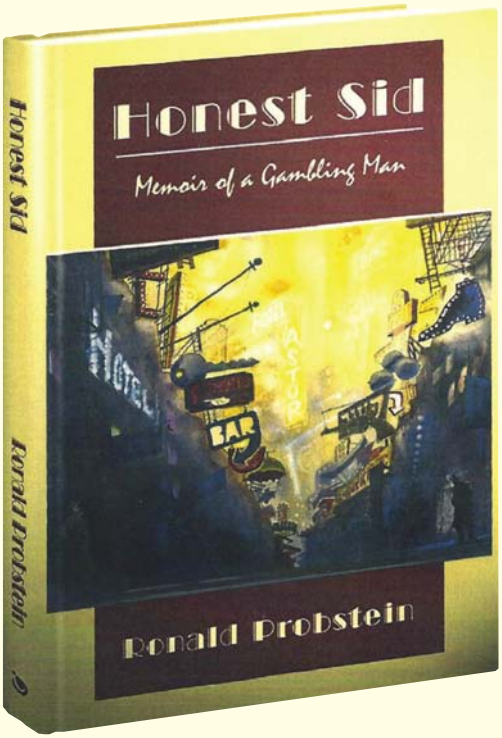

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Ronald Probstein *52

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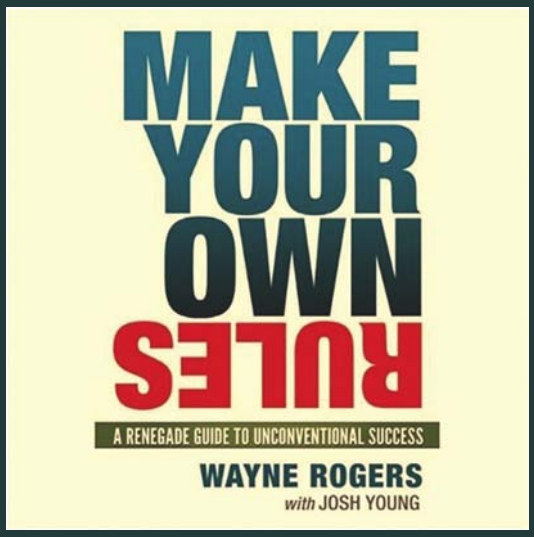

Make Your Own Rules: A Renegade Guide to Unconventional Success
by Wayne Rogers '54
(AMACOM Books, Feb. 2011)

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It's hardly a secret that the corporate ladder is no longer the path to success it once was. Wayne Rogers '54 - star of the classic TV series M*A*S*H* - has had even more success as a businessman and entrepreneur than as an actor. Applying his own unique viewpoint to a wide range of businesses (a restaurant, a vineyard, a chain of convenience stores, the world of banking, real estate, a film distributions company and even a famous bridal boutique) the iconoclastic star has steadfastly refused to accept limitation and boldly forged a path for himself beyond the stifling constraints of the corporate system.

Filled with insights and engaging stories, *Make Your Own Rules* paints a fascinating portrait of how Rogers excelled precisely because he didn't have prior experience in each of these businesses...or any preconceived notions of how they should be run. Rogers reveals the keys to his success over the past four decades - lessons that are even more important today. After all, in the current economic climate, learning to be creative, challenge convention and seize unexpected opportunities is not only liberating - it can make all the difference to success.

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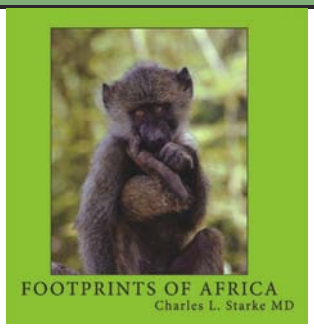

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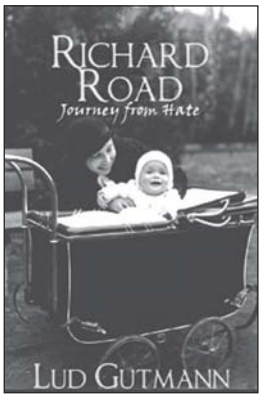

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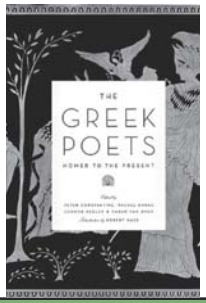

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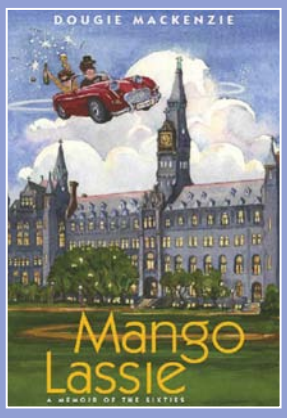

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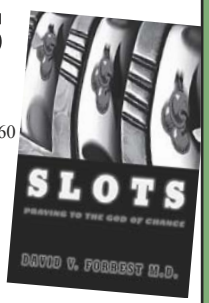


Delphinium/HarperCollins/
Open Road Media, 2012

Inbox *continued from page 9*

student leader who oversaw the survey. "Clearly," he said, "academics are a priority." Reading 53 percent of the assignment reflects a priority?

Princeton students are among the most highly selected in our country. Can there be a more poignant sign of America's decline than this?

PERRY LINK
Professor emeritus, East Asian studies
Princeton University

A Kaufmann memorial

For a memorial to Professor Walter Kaufmann, who taught in the philosophy department more than 35 years until his untimely death in 1980, I am soliciting from his colleagues and students, graduate and undergraduate, recollections of him as a teacher and scholar. My idea is to dedicate and inscribe a stone in the Chapel to his memory. Please send your responses to me at rchrisma@skidmore.edu.

RICHARD CHRISMAN '65
Lee, Mass.

Okada mourned as mentor

I was heartbroken to learn about the loss of Professor Richard Okada of the East Asian studies department (Campus Notebook, May 16). He was an intellectual idol for me and, I suspect, for countless others around him.

I had the honor and good fortune to have Professor Okada as my senior-thesis adviser. He challenged me to think harder and to be brave in my assertions in order to create something personal and unique — a series of Japanese film analyses, in my case. Thanks to his guidance and intellectual example, I won a departmental thesis award and, more importantly, I was able to write something I was truly proud of.

Aside from his kindness, what struck me most about Professor Okada was the span of his interests, from the ancient to the modern, from literature to ecology and cultural studies. When I went back to visit in 2009, we talked about scholarship he was working on in advance of the 1,000th anniversary of the classical *Tale of Genji*, and also about our favorite new Japanese reggae groups and the newest films by Hayao Miyazaki and Studio Ghibli. In this sense, he was both a rare friend who shared many of my contemporary Japanese cultural interests and an academic mentor whose intellect was always deeply inspiring.

I like to remember Professor Okada in his sanctuary in Jones Hall, where we last met in person. As we chatted, he was surrounded by books and also, it seemed to me, by ideas and intellectual excitement. It seems inconceivable that he is gone now.

CHRIS SEDGWICK '07
San Francisco, Calif.

From the Archives

Re From the Archives (April 25): This is from spring 1982 in front of 1915 Hall. It was the only all-male dorm on campus at that time, and these are some of the residents. From the foreground moving back, the sunbathers are Kent Ertugrul '85, Dave Ramsay '85, Pete Stebbins '85, me (I think), Mark Vargo '85, Don Kruger '85, and two people I can't identify.

PRINCETON UNIVERSITY ARCHIVES

BRIAN BONNYMAN '85
Knoxville, Tenn.

Reading a Taoist text

In the article about Alan Lightman '70's new novel (Alumni Scene, Feb. 8), a note surprised me: "What he's reading now: *Tao Te Ching*, an ancient Chinese text about Buddhist philosophy." That third-century B.C. work ("The Book of the Way and Its Virtue") is the most important Taoist text. It is a short collection of poems credited to the legendary Lao-tzu, the founder of Taoism.

BRIAN BATE '62
Cebu City, Philippines

Every story, letter, and memorial at paw.princeton.edu offers a chance to comment.

Major trends: Math is hot; decline for social sciences

The number of Princeton undergraduates majoring in mathematics has risen by 85 percent over the last eight years, while the number majoring in the social sciences and humanities has declined, according to Dean of the College Valerie Smith.

Smith gave an update on the Major Choices Initiative, which was begun in 2004 by her predecessor, Nancy Weiss Malkiel, to encourage students to consider less popular fields of academic concentration. The Major Choices website urges students to "study what you love" and debunks myths about majors, including "If I choose the wrong major, I won't get a good job" and "The larger departments are best for law school applicants."

In a series of charts and graphs presented at the March meeting of the Council of the Princeton University Community, Smith documented broad trends in selecting majors over the past decade. The percentage of students choosing to concentrate in the social sciences declined from a peak of 43 percent in 2004 to 38 percent in 2011, while the percentage concentrating in the humanities declined from 23 percent in 2001 to 19 percent in 2011. The percentage of students concentrating in engineering has remained roughly the same, at about 19 percent of the class.

On the other hand, the percentage of students majoring in mathematics and the natural sciences has risen significantly, from 18 percent of the class in 2001 to 24 percent in 2011.

Leading the way has been the math department, which aggressively has courted new students and has seen the number of majors rise from about 12 per year a decade ago to 40 today. The department has made an effort to improve introductory mathematics courses and offered some new, lower-level courses, such as "The Magic of Numbers" and "Math Alive," to attract more students.

"That department really went out of its way to attract students into the major in greater numbers than they have in the past," said President Tilghman, who also attended the CPUC meeting. "So there are strategies, and those strategies do work."

As the department broadens the areas of courses it offers, said math department chairwoman Alice Chang, "we expect that we will attract students

Incoming class to exceed target

The Class of 2016 loves Princeton — so much, in fact, that acceptances of the University's offer of admission exceeded the enrollment target of 1,308 students by 89.

Dean of Admission Janet Rapelye said the University expects 50 to 65 students above the target number to enroll in the fall, noting that during the past three years between 25 and 52 freshmen have not enrolled with the rest of their class. Some travel for a year; others pursue religious study, perform military service, or dance professionally, she said.

"There are many details to be worked out, but we are confident that we will be able to accommodate the incoming class comfortably," University spokesman Martin Mbugua said.

Princeton offered early admission for the first time since 2006, with an 86 percent yield for students admitted by early action. The yield for those admitted through the general admission pool was similar to last year's rate. The overall yield was 66.7 percent, which Rapelye said "exceeded our expectations." No wait-listed students were admitted.

The last class with a significant over-enrollment was the Class of 1999, with 51 freshmen above the target, Rapelye said. *By W.R.O.*

Looks like we're alone, after all

Sure, E.T. wanted to "phone home," but according to Princeton researchers, it's unlikely there were extraterrestrials on another planet to answer his call.

Dashing the hopes of alien enthusiasts — not to mention Hollywood filmmakers — astrophysical sciences professor Edwin Turner and former postdoctoral researcher David Spiegel analyzed the expectation that life has or will develop on other planets. They concluded that scientists' excitement about the possibility of extraterrestrial life was fueled by a very unscientific component: optimism.

Reporting in the Proceedings of the National Academy of Sciences in January, they found that the idea that life could arise on another planet has only a small amount of supporting evidence, and is based largely on the assumption that living creatures — from bacteria to sentient beings — would develop under the same conditions that allowed life to flourish on this planet.

But the development of life on Earth "simply doesn't reveal much about the actual probability of life on other planets," Turner said. By J.A.

ETHAN MILLER/GETTY IMAGES

interested in diversified branches — in both pure and applied subjects — of mathematics."

Economics remains the most popular undergraduate major, attracting 134 students from the Class of 2014, followed by politics (115), the Woodrow Wilson School of Public and International Affairs (85), and evolutionary biology (74). At the other end of the scale, fewer than 10 students each year major in German or astrophysical sciences.

Numbers fluctuate from year to year, however, sometimes dramatically. The history department, for example, drew 80 students from the Class of 2012, 56 from the Class of 2013, and 75 from the Class of 2014. The number of sophomores concentrating in sociology dropped from 53 in the Class of 2013 to 24 in the Class of 2014.

Although Smith believes that the Major Choices Initiative has succeeded in encouraging students to consider less traditional majors, she cautioned that other factors affect concentration preferences, many of which are beyond the administration's control. The number of students who indicated on their admission application that they intended to major in English, for example, has declined significantly over the last decade. Smith also acknowledged that the slow economy and weak job market may prompt students to major in fields that they believe will make them more attractive to potential employers.

Roughly 80 percent of seniors indicated last year that they were either very satisfied or generally satisfied with their choice of major, according to the senior survey, although the number of seniors who said that they were ambivalent or dissatisfied also rose slightly. Overall, 87 percent of Princeton students say they are satisfied with their academic experience.

Smith added that it is unclear how changes in prerequisites for prospective Wilson School and economics majors will affect not only those departments but others, such as history and politics. Starting with the Class of 2015, admission to the Wilson School no longer will be selective, but students will be required to have completed courses in microeconomics, statistics, history, and either politics, sociology, or psychology. Students who intend to major in economics will be required to have completed "Mathematics for Economists." P

By M.F.B.

THE MOST AND LEAST POPULAR MAJORS: CLASS OF 2011

LARGEST

Economics: 129 students
Politics: 111 students
History: 88 students
Woodrow Wilson School: 85 students
ORFE: 66 students

SMALLEST

Slavic languages and literatures: 2 students
Geosciences: 5 students
German: 6 students
Astrophysical sciences: 8 students
TIE: Computer science (A.B.); East Asian studies: 10 students each

Source: Registrar's office

Tilghman OKs penalties for violating Greek policy

The University's ban on freshman affiliation with fraternities and sororities will take effect Sept. 1, following a decision by President Tilghman to accept the findings of a committee on how to enforce the policy.

"The committee's recommendations are clear, thoughtful, fair, and comprehensive in identifying prohibited activities and in describing the consequences that students would face for any violation of the policy," Tilghman said April 30.

Any freshman who joins a Greek organization will face suspension, as will any Greek member who offers membership to or organizes Greek-sponsored events for freshmen. Electronic solicitation also is barred. A freshman who takes part in any other Greek-sponsored activity may face disciplinary probation.

Great race: 'Today' vs. (blindfolded) Tigers

It may not have been "a battle of epic proportions," as one participant described it, but video crews kept busy when the four hosts of NBC's Today show challenged Princeton crew members to race on Lake Carnegie.

IAN S. CAHR/OFFICE OF COMMUNICATIONS

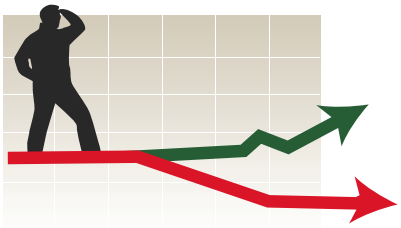
In a segment of the show that aired May 10, Matt Lauer (in photo at right greeting crew members), Al Roker, Ann Curry, and Natalie Morales first were schooled in technique and team-building by crew members Jason Kopelman '14 and Kelly Pierce '12.

Then it was time for the competition. To give the visitors a fighting chance, the Princeton crew would row with "a slight handicap" – each rower would be blindfolded and have one arm tied behind his back. Aided by four Princeton "ringers," the Today hosts won the first race.

But the broadcasters were on their own for the second race against the blindfolded Tiger rowers. In Lauer's words: "We got killed." By W.R.O.

FYI: FINDINGS

Surviving a black hole? Some black holes might wander the universe undetected, but Earth has little to fear from them. That's a finding by graduate student Yang Luo and postdoctoral fellow Shravan Hanasoge, both from Princeton's geosciences department, and Princeton professors Frans Pretorius and Jeroen Tromp. The study simulated the effect on Earth of a collision with primordial black holes formed after the Big Bang. They found that the black holes' encounter with Earth would trigger spherical waves that seismic detectors would register. Even so, the researchers concluded that such events would occur rarely and their effect would be similar to a magnitude 4.0 earthquake, causing minimal damage. The study appeared in the May 20 issue of *The Astrophysical Journal.*



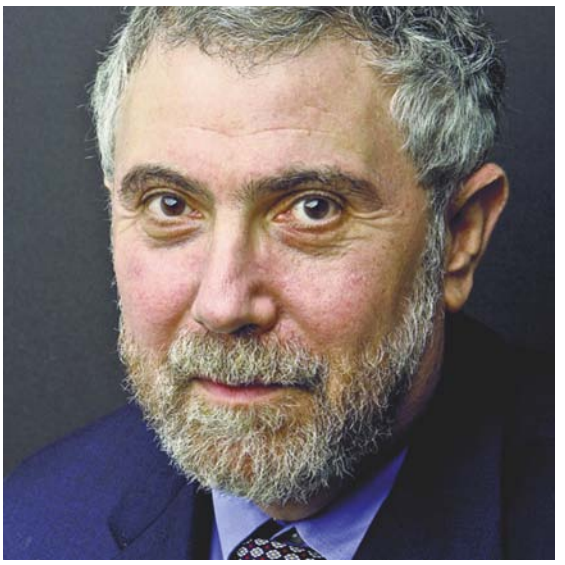
Jobless recoveries forever? The aftermath of future recessions may look much like the ones in 2001 and 2007 — sluggish. That is the conclusion of a study by Princeton economics professor Mark Watson and Harvard professor James Stock. Their research, which compared the 2007–09 recession to others occurring since World War II, found that "future recessions will be deeper, and will have slower recoveries, than historically has been the case. In other words, jobless recoveries will be the norm." The paper, "Disentangling the Channels of the 2007–2009 Recession," was presented at the Brookings Panel on Economic Activity in March. *By Nora Taranto '13*

ILLUSTRATIONS: STEVEN VEACH

PAW ASKS

Paul Krugman:

Have Ben Bernanke and the Fed done enough to encourage jobs?



In a new book, End This Depression Now! *Woodrow Wilson School professor Paul Krugman criticizes his former faculty colleague, Federal Reserve chairman Ben Bernanke, for not reacting aggressively enough to the economic recession. Krugman, a Nobel laureate in economics and a popular columnist, discussed the Fed and the international economic crisis.*

Do you communicate with Chairman Bernanke?

No. I think that's by mutual agreement. I'm a pretty hot commodity politically; I can understand that he doesn't want to be seen consulting me.

The Fed is supposed to be insulated politically, but it has been the target of some sharp criticism lately. Do you think that has affected Bernanke's policies?

He says not, but then he would have to say that, right? I'm sure that it plays a role, whether that is conscious or not. I like to think that I am doing him a favor by providing some fire from the other side. It's necessary for people to say that creating maximum employment is part of the Fed's job and there are things it could do. That's the role I've been playing.

You urge the Fed to raise its inflation target from 2 percent to 4 percent in order to stimulate the economy. Isn't that playing with fire?

No. The Fed can always tighten the money supply. If you ask, when did inflation get out of control in the past, it was because the Fed was not vigilant and failed to act when inflation was clearly rising too much. … Big inflations happen because you have a politicized central bank that either is trying too hard to boost a particular government or is simply trying to finance the government's budget. We're not talking about either of those situations here.

Do you see any cause for optimism in the economy?

I see some good things in the U.S. economy, but we are still a very long way from being anywhere close to a real recovery. Beyond that, though, the situation in Europe is approaching some kind of breakdown. They have pursued a failed strategy of austerity, yet they're not willing to reconsider it, so something awesome and unpleasant seems ready to happen there. P

READ MORE: The full Q&A with Paul Krugman @ paw.princeton.edu

— Interview conducted and condensed by Mark F. Bernstein '83

AP IMAGES

Students endorse referendum for oversight of endowment

Undergraduates voted overwhelmingly in April to call for an oversight committee to ensure socially responsible investment of the University's endowment.

Yongmin Cho '14, founder of the Princeton Coalition for Endowment Responsibility (PCER), was the author of the referendum question, which passed 1,121–450 in the spring Undergraduate Student Government election. He said he hoped that the vote would raise student awareness about the University's investment choices and pressure the administration to consider investment oversight and transparency. The endowment was valued at $17.1 billion as of June 30, 2011.

COURTESY YONGMIN CHO '14

> "The mission of my organization is to ensure that Princeton's endowment is invested in responsible ways."
>
> *Yongmin Cho '14, founder of the Princeton Coalition for Endowment Responsibility*

Prompting the ballot question, Cho said, was the recent controversy over Princeton's investment in HEI, a hospitality firm whose labor practices have been the subject of campus debate. The Princeton University Investment Co. announced in February that it would halt further investments in HEI.

"The mission of my organization is to ensure that Princeton's endowment is invested in responsible ways," Cho said. He said PCER members planned to meet with Princeton administrators.

One option may be found in the Resources Committee of the Council of the Princeton University Community (CPUC). That committee was founded in 1970 to field concerns about endowment practices and policies and to offer policy recommendations. In past years, the committee has addressed endowment issues related to investment in Sudan and University membership in the Workers' Rights Consortium.

Psychology professor Deborah Prentice, who chairs the Resources Committee, said the group's guidelines are designed to address specific investment issues, such as whether the University should divest from companies in war-torn regions. But she added that the committee could serve the oversight function recommended by PCER if it can be demonstrated that there is sustained campus interest in this move, and that a central University value is at stake.

"One of the things we've been encouraging the students to do is engage with the Resources Committee," said President Tilghman. "This is the right place to come to get the oversight."

Last year the Sustainable Endowments Institute, which issues Sustainability Report Cards for colleges, gave Princeton an A in every category except "Endowment Transparency." Princeton received a D in that category, which is based on the extent to which schools release information about their endowment investment holdings and shareholder proxy voting records. *By Abigail Greene '13*

Graduate-school applications set record; yield dips

The graduate school offered admission to 10.2 percent of a record 12,077 applicants, but acceptances dipped to just below 50 percent. The yield of accepted offers has been 51 to 52 percent for several years, reaching 53 percent in 2010.

David Redman, the graduate school's associate dean for academic affairs, said the number of departments that used their wait list — and the number of wait-list offers — was higher than usual this year. Unable to reach their target numbers, he said, were German, quantitative and computational biology, neuroscience, mathematics, computer science, philosophy, sociology, applied and computational math, mechanical and aerospace engineering, and electrical engineering.

"We will be very alert next admission season," Redman said. "We will debrief with the departments that had a low yield and/or had to go to the wait list."

Faculty changes can have an impact, he said, noting that if a senior professor leaves Princeton, "it could lower the profile of the department." He added that departments are "still getting large application numbers from very, very good students."

Redman said the master's program in finance routinely achieves a high yield, and the Ph.D. programs in music composition, religion, astrophysics, Spanish and Portuguese, history, psychology, English, and history of science meet or exceed their targets.

Applications from underrepresented groups (African-Americans, Latinos, and Native Americans) rose to 653 from 601 last year, with 81 students admitted and 47 accepting their offer. Applications from women in science and engineering rose slightly to 1,519, with 210 offers and 87 acceptances.

International students make up 41 percent of those who plan to enroll, with the largest numbers from China and India. International applicants were up 8.4 percent, outnumbering U.S. applicants for the second year in a row.

The grad school expects 610 new master's and Ph.D. students this fall. Total enrollment is expected to be a record 2,320, with another 323 students in Dissertation Completion Enrollment status. *By W.R.O.*

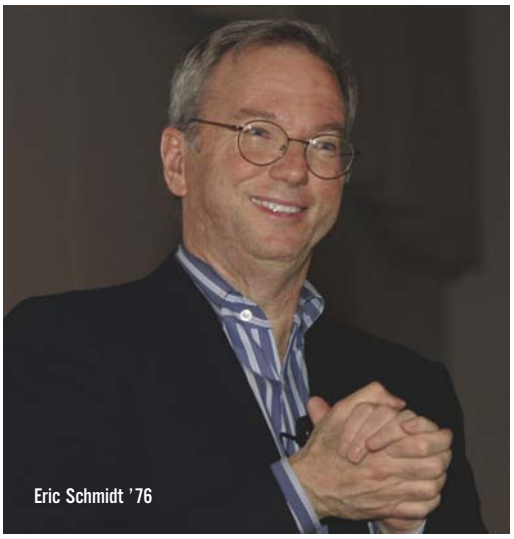
Turing events celebrate the past, imagine the future of computers

In the next decade, artificial intelligence will predict disease outbreaks and financial crises, virtual reality will enable us to be in two places at once, and driverless cars will become part of everyday life, Google executive chairman Eric Schmidt '76 told an audience that filled McCosh 50 May 10.

Schmidt was the keynote speaker for Princeton's Turing Centennial Celebration, three days of lectures and discussion to mark the 100th anniversary of the birth of Alan Turing *38. Scientists and mathematicians from around the world convened to commemorate the man who developed the idea for the stored-program computer.

"While ostensibly about the past, this event is really about the future," said computer science professor Robert Sedgewick in his introduction of Schmidt, a former University trustee. "Computer science has completely transformed the world in the past few decades, and is poised to do so again."

Schmidt agreed, describing the opportunities that he said technology soon will allow. "There is a quote from Turing that I like, 'Machines take me by surprise with great frequency,'" he said.



Eric Schmidt '76

WATCH: Eric Schmidt '76's keynote address at the Turing Centennial Celebration @ paw.princeton.edu

"That's my life every day. And I think it is true of most people in the world today."

Perhaps even more important is the interconnectedness that such technology will allow. The challenge, he said, will lie in connecting the majority of the world's population for whom "the digital revolution has not arrived" because of a lack of infrastructure or because of war or corrupt governments. The solution, he said, may be provided by new technologies and by diffuse, "cobbled-together networks" driven by cell phones.

"This network that this community is building is more than a set of objects. It's more than a set of data," Schmidt said. "I like to think of it evolving into a collective intelligence and a global consciousness."

While that journey will not be easy, he said, he remains optimistic. "What is the most humbling for me is the sense that we're just beginning, and I say *you* are just beginning, to have something of the boundless capacity for the connected humanity that we will create," he said. "The world is full of extraordinarily gifted people, and we're getting them connected." P

By Abigail Greene '13

FRANK WOJCIECHOWSKI

P 18

Rocking the house for Cornel West *80

SAMEER KHAN AND DAVID DOOLEY/PHOTOBUDDY LLC

Funk came to Princeton for Cornel West *80.

The University never has bid goodbye to a departing professor quite the way it did May 16, when it rolled out a parade of rap stars, hip-hop artists, and funk music personalities at a retirement celebration at McCarter Theatre for West, a prominent African-American studies professor.

There were tributes by actor Harry Belafonte (in person) and television personality Bill Maher (via video), and affectionate farewells from President Tilghman, students, and professors. The audience of 800 danced in the aisles – Tilghman joined in, too – and West hit the stage to sing alongside George Clinton (with West in photo) & Parliament Funkadelic.

Professor Eddie S. Glaude Jr. *97, chairman of the Center for African American Studies, said West "embodies what it means to be on fire with ideas."

"All this love at Princeton coming at me … this just blows my mind," said West, who announced in November that he is joining the faculty at Union Theological Seminary in New York. By J.A.

IN BRIEF

AP IMAGES/ALFRED A. KNOPF

The White House announced in April that professor emerita **TONI MORRISON**, above, would be one of 13 recipients this year of the Presidential Medal of Freedom, the highest U.S. civilian honor. Morrison, who taught in the creative-writing program and founded the Princeton Atelier, won the Nobel Prize in literature in 1993 and has authored 10 novels.

The University is joining forces with the Max Planck Society of Germany to launch the **MAX PLANCK PRINCETON RESEARCH CENTER FOR PLASMA PHYSICS** to enhance research on fusion and astrophysical plasmas. The center will create a trans-Atlantic collaboration between researchers from Princeton's astrophysical sciences department and the Princeton Plasma Physics Laboratory with Max Planck scientists.

President Tilghman said the partnership will "advance the development of clean and abundant energy." The center will be staffed by eight postdoctoral fellows from PPPL and the astrophysical sciences department and 13 postdocs from the Max Planck institutes. Funding for Princeton's side of the venture will come from the Department of Energy, the National Science Foundation, and the University.

Politics professor **ROBERT GEORGE** has been appointed to a two-year term on the U.S. Commission on International Religious Freedom. The commission monitors religious freedom in other countries and makes policy recommendations.

BREAKING GROUND

Piecing together Earth's history by reckoning when rocks formed

ILLUSTRATION: PHIL SCHEUER; PHOTO: COURTESY BLAIR SCHOENE

THE FACILITY A world-class laboratory in Princeton's geosciences department can pinpoint the age of rocks that are billions of years old. The radiometric geochronology lab, one of fewer than a dozen such labs worldwide, has a 3-ton, $700,000 thermal ionization mass spectrometer, the most precise tool for dating rocks available. Located in Guyot Hall, the lab, which opened in April, may help shed light on the evolution of life on Earth, the causes of mass extinctions, and why the Earth looks the way it does.

The equipment works on rocks with a high level of uranium. To determine a rock's age, a sample is crushed in a machine and high-uranium minerals are separated from the crushed rock, picked out under a microscope, and dissolved in acid. After uranium and lead are extracted from the minerals, the sample is heated to 1,400 degrees Celsius to generate lead and uranium ions, and the ratio of lead to uranium is calculated. Because lead is a key measurement in the samples, the lab's air must be kept lead-free, so ultra-pure air is pumped in.


Blair Schoene

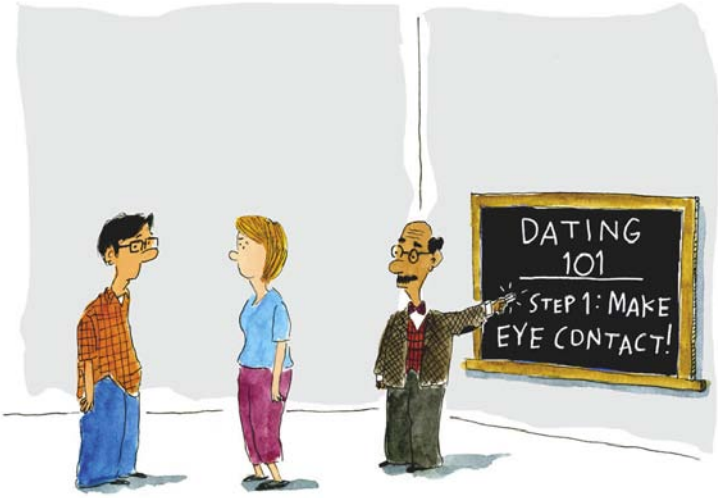
THE SCIENTIST The lab is the brainchild of Assistant Professor Blair Schoene (pronounced "Shay-NEE"), who joined the faculty in 2009. Schoene grew up in Seattle, where his love of hiking and climbing prompted him to wonder: How long did these mountains take to form? How long will they be here? Schoene's research has taken him to the Alps, Swaziland, and Australia to map rock formations and chisel samples from the earth. Out in the field "is where all the interesting questions begin," he said. Determining when rocks formed helps geoscientists to track the duration of major events, such as mass extinctions, which is critical to understanding Earth's history.

RESEARCH AT THE LAB Graduate students and postdoctoral fellows currently are conducting research, and undergraduates will be able to undertake thesis projects there starting next year. The lab also creates opportunities for Princeton geoscientists to collaborate with scientists worldwide. Schoene is working with professors at Caltech on dating samples that could shed light on the period when the atmosphere gained oxygen and made animal life possible, 2.4 billion years ago. *By J.A.*

ON THE CAMPUS

From graduating seniors: 'What I wish I'd learned'

By Tara Thean '13



Most undergraduates pick up some impressive skills in their four years at Princeton: how to solve differential equations; how to write and reason; how to work in a lab, rehearse for dance shows, perform nonprofit work, and still have time to call Mom and Dad. But some seniors say there still are a few important things they wish they had learned at the University.

"I wish Princeton had taught me how to unawkwardly ask someone on a date," Omar Carrillo '12 said. "I think Princeton students are particularly awkward at asking people on dates."

Carrillo also noted that he had yet to learn how to live in the moment and stop worrying about the future — as well as how to make small talk at dinner parties. "I often don't know when or how to excuse myself from talking to someone at those things," he explained.

Though still unsure of his plans after graduation, Carrillo said he is unlikely to enter a profession that requires frequent attendance at dinner parties. He hopes to work in urban planning, with a focus on affordable housing.

For Camille Framroze '12, an important lesson she found missing from her Princeton education was how to live on her own and fend for herself.

"I've really enjoyed being spoiled … but sometimes I feel like I should be shoved out of the nest," she said, noting that Princeton students are "very guided" on subjects such as job searches and filling out tax forms. A big part of college, she added, should be about learning how to live independently as an adult.

Emily Rutherford '12 said she wished that the University taught its students social drinking in the style similar to the pub culture found at Oxford and Cambridge.

"I've been to some great parties in Princeton, don't get me wrong," she said in an email, "but I've never had a good (and intellectual) conversation over a simple pint." At Princeton, she said, the attitude is that "drinking is when we turn our brains off, which is just not true of Anglo or European intellectual and/or student culture."

Too much conversation and social

Power in a box: Students' wind turbine wins EPA grant; next stop is Africa

By Lillian Li '13

On April 20, two professors and nine students from Princeton's EPICS (Engineering Projects In Community Service) class drove to Washington, D.C., to meet up with a large steel shipping box that had arrived on a flatbed trailer.

The container held Princeton's entry in the P3 National Sustainable Design Expo, sponsored by the Environmental Protection Agency. Dubbed Power in a Box, the turbine has solar panels and a triangular-based, telescoping 40-foot tower, on top of which rests a fan with three blades.

The project had its origins in the aftermath of the 2010 Haitian earthquake, when a group of Princeton faculty members began designing power and water sources that could be transported in a standard shipping container.

The EPICS team was formed in the fall of 2010 and devoted three semesters to creating a design for a wind turbine with solar panels that could fit in a 20-foot-long box and be erected by human power alone.

The students who enrolled in the class this spring focused their efforts on building from the blueprints. "We had a misconception that the majority of the work was done," said Angelo Campus '15. "This was quickly followed by the brutal realization that things go wrong and plans have to change."

With the deadline for the EPA Expo looming, the team had only two-and-a-half months to build a working model. Stress levels rose when a turbine cable snapped just days before the expo. Although the cable was fixed without difficulty, "it seemed pretty dire at the time," said Ryan Fauber '15.

The team made the deadline, and many of the students said that the most memorable moment was when they first saw the turbine raised. "We'd had designs and sketches for ages, but to actually look up and see the raised tower in all its 40-foot glory, and think, 'Wow, we *made* that' — that was really something," said Ben Chang '14.

ILLUSTRATION: GARY CLEMENT; PHOTOS: HABIN CHUNG '12

drinking might prove counterproductive to Joseph Barnett '12's missing Princeton lesson: how not to procrastinate. "I feel like every amount of stress and every kind of problem at Princeton is built around this procrastination mentality where everyone is always doing something at the last minute," he said.

Barnett had to ask for several extensions for papers due on Dean's Date, but he sent his senior thesis for binding five days before the April 16 deadline. His motivation: seeing his classmates work on their theses, most of which were due two weeks before Barnett's.

Victoria Tobolsky '12 said she would have appreciated finding out earlier just how much learning there is to be done outside the classroom.

"There's always a lecture you want to go to, or a free event — I don't remember a lot of the lab reports and papers I turned down these opportunities for, but I do remember I missed them," she said.

But Tobolsky said she may not have done these things even if the University had told her to. "I probably wouldn't have listened," she said. "You have to make your own mistakes and experience things for yourself." P

While the Saturday of the competition weekend was sunny, Sunday was stormy. But the turbine — which can generate a kilowatt of power — worked at full capacity both days. The team was drenched by the pouring rain, but fortunately, colds were not all that the students brought back to Princeton: The EPA judges awarded Power in a Box a $90,000 grant.

Next up for the EPICS team is construction of a full-scale model and a partnership with the African nonprofit *access: energy,* which is working to bring low-cost energy sources to rural Kenya.

EPICS adviser Catherine Peters, professor of civil and environmental engineering, never doubted the chances for the 40-foot entry in the contest. "I knew if they finished, they would be successful — it was the biggest thing that was brought to the competition!" P

From Princeton's vault

Reunion pins celebrate class spirit

What: For more than a century, colorful pins have adorned the chests of Reunion-goers, signaling membership in those very special clubs called "classes."

"Goin' Back" has been a habit at least since Princeton's centennial anniversary of 1847, when the Alumni Association of Nassau Hall encouraged "old grads" to return – and to give generously to the perennially struggling college. Under the tent on Cannon Green that day sat the original Old Guard, one a wizened member of the Class of 1770.

Later, a canny President James McCosh pitted classes against each other for fundraising. He garnered cash for an essay prize from returning Fifty-Nine in 1869, a clock for the Nassau Hall tower from Sixty-Six in 1876.

By the early 20th century, the time of most of the pins shown above, fundraising among the 7,000 living alumni had been elevated to an art form. The classes of 1877 and 1879 gave dormitories. Ten classes donated Patton Hall in 1905, each paying for a separate entry. No fewer than 66 classes gave money for a gym.

Supervising architect Ralph Adams Cram was delighted, writing: "The 'Princeton spirit' seems to do one thing, at least, and that is to loosen the purse-strings of every alumnus."

Where: Princeton Memorabilia, Princeton University Archives

By W. Barksdale Maynard '88

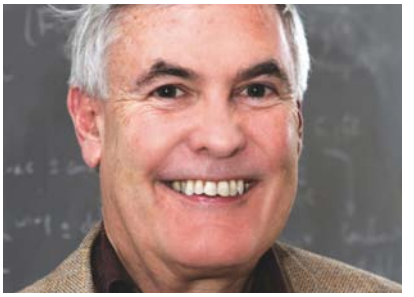
RICARDO BARROS

Eleven professors retire from faculty

These 11 faculty members, with more than 360 years of teaching at Princeton among them, are moving to emeritus status this year.

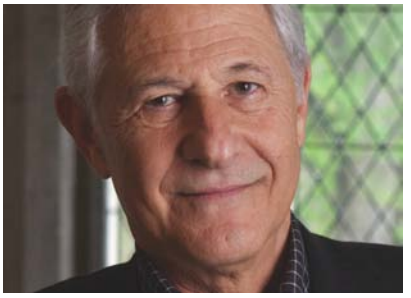
Share your story about a favorite professor @ paw.princeton.edu

LARRY M. BARTELS
Politics and public affairs
20 years on the faculty

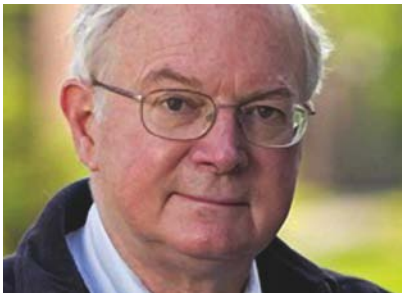


JAMES R. BROACH
Molecular biology
28 years

WILLIAM BROWDER *58
Mathematics
48 years



LAWRENCE N. DANSON
English
44 years



JOHN M. DARLEY
Psychology and public affairs
44 years

PHILIP N. JOHNSON-LAIRD
Psychology
23 years

SEIICHI MAKINO
East Asian studies
21 years

HUGO MEYER
Art and archaeology
23 years

JEREMIAH P. OSTRIKER
Astrophysical sciences
45 years

ELIAS M. STEIN
Mathematics
49 years

CORNEL R. WEST *80
Professor in the Center for African American Studies
16 years

PHOTOS: DENISE APPLEWHITE/OFFICE OF COMMUNICATIONS; JON ROEMER/COURTESY WOODROW WILSON SCHOOL (DARLEY); DAVID P. DOBKIN, DEAN OF THE FACULTY (BROWDER)

Source: Office of the Dean of the Faculty

Megan Waters '11 is one of the Princeton swimmers training for the Olympic trials.

BEVERLY SCHAEFER

Swimmers with Olympic dreams train together in advance of trials

The season ended in March for the men's and women's swimming and diving teams, which finished in first and second place, respectively, in the Ivy League. But a handful of swimmers are training as intensively as ever this spring as they prepare to compete in the U.S. Olympic Trials June 25– July 2.

Nine Princeton men and four women are eligible to compete at the Olympic trials in Omaha, Neb., and a few others are training alongside them in hopes of reaching the qualification times. These swimmers committed to a rigorous program designed by Princeton's coaches — nine practices a week, some starting at 7 a.m., along with weight training.

"It's tough, trying to go through senior spring and also trying to focus on swimming after a lot of my friends have finished," said Colin Cordes '12. "It's nice to have the other guys on the team to keep going with."

The nominal goal of training for the trials is to qualify for the London Olympics. But for the majority of competitors — including Princeton's contingent — that objective is a major reach. Only the top two finishers in each event (plus four others in some races, to fill relay teams) will advance to the Olympic Games; as of May, no Princeton swimmers were seeded in the top 40 of any event. Mostly, the swimmers are training to showcase their talents in a high-profile venue.

Megan Waters '11 — who worked with the women's swim team as a volunteer assistant this season and is the only alum in the Princeton training group — is Princeton's highest-seeded racer, ranked 43rd nationally in the 50-meter freestyle. Lisa Boyce '14 is 58th in the 100-meter backstroke and 62nd in the 100-meter freestyle, while Daniel Hasler '14 is 52nd in the 400-meter individual medley.

"It would be really cool to make it even to semifinals, but right now I'm just going to see how I can race in that kind of high-pressure environment and have fun with it," said Boyce, who placed in the top 40 in two events at the NCAA Championships in March.

The Olympic trials will be a new experience for all the Princeton swimmers except one: Meredith Monroe '12, who qualified for the 200-meter backstroke in 2008 and finished 44th. Monroe will swim in the same event this year.

"It was overwhelming. It was the biggest audience I'd ever swum in front of," Monroe said. "Having it under my belt once is going to be very helpful. Hopefully it will make me less nervous."

The swimmers will compete as individuals, but they said they felt lucky to have a group of training partners to lean on for motivation.

"It's a lot easier to wake up at 6 in the morning and head down to the pool when you know that you're going to have 15 guys down there doing it with you," Hasler said. "Swimming is a sport where you have to have teammates because it's just too hard to do on your own." P *By Kevin Whitaker '13*

READ MORE: Rowing and track and field updates @ paw.princeton.edu

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EXTRA POINT

Tigers, Tigers burning bright in distant lands

By Merrell Noden '78

Merrell Noden '78 is a former staff writer at Sports Illustrated *and a frequent PAW contributor.*

To his lacrosse teammates at the University of North Carolina, Jack McBride '11 is "Uncle Jack," in honor of his advanced age. "And I'm not even the oldest guy on the team," protests McBride, who does, however, possess something his teammates do not: an undergraduate degree.

McBride is one of a handful of Ivy League athletes who, because of a league rule that limits eligibility to four calendar years, finish their athletic careers as grad students at schools outside the league. The rule restricts athletes who want to continue competing to non-Ivy League graduate programs, a loss both for the athletes and for the Ivy schools. McBride longed to play lacrosse in grad school because an injury cut short his senior season at Princeton. He applied to the NCAA for another year of eligibility and got it. I, too, competed as a grad student, running the mile at Oxford while earning a master's in English. The satisfaction was huge.

McBride chose UNC because of the reputations of its business school and its lacrosse coach, Joe Breschi. After negotiations between the lacrosse and M.B.A. programs, McBride became the rare person admitted to UNC's business school without work experience, which he thinks is partly due to lacrosse. But he's had to make some compromises: In the fall, when the team practiced four days a week, he practiced twice a week to concentrate on academics. He's moved from attack to midfield, a fresh challenge. When the Tigers played UNC in March, McBride scored two goals against his former teammates to help UNC beat Princeton, 9–8.

It's track and field athletes who often take this route. This winter, Mark Amirault '11 won the Atlantic Coast Conference's indoor 5,000-meter title while pursuing a master's degree at the University of Virginia. In the fall, Princeton's Penn Relays hero, Donn Cabral '12, will use his final season of cross-country eligibility while enrolled in the University of Colorado's M.B.A. program.

There's something invigorating about making a fresh start. "It's like pulling your head up out of the sand," says runner Liz Costello '10. "You've been part of one program and you wonder, 'What does everybody else do?'"

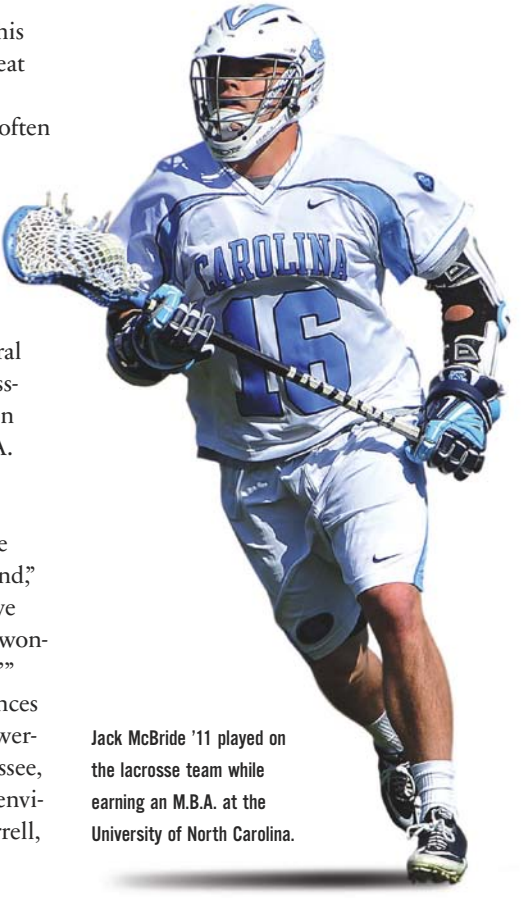
She discovered some big differences between Princeton and a track powerhouse like the University of Tennessee, where she is earning a master's in environmental engineering. "Peter [Farrell, the Princeton women's coach] understood the academic pressures of Princeton," says Costello. Farrell requires runners to attend practice once a day. Tennessee coach J.J. Clark expects his team to meet twice a day and hit the weight room three times a week.

Of course, getting a proven quantity like Costello, a cross country All-American at Princeton, is a great deal. Costello won two Southeastern Conference titles for Tennessee, and will compete at the Olympic trials.

For me, as for Costello and McBride, the choice to compete in grad school was mine alone. No one could fault me if I chose to focus on my studies. I competed purely to please myself, and that, as Costello and McBride have learned, feels liberating. P

Extra Point explores the people and issues in Princeton sports.

Liz Costello '10 ran track as a University of Tennessee graduate student.



Jack McBride '11 played on the lacrosse team while earning an M.B.A. at the University of North Carolina.

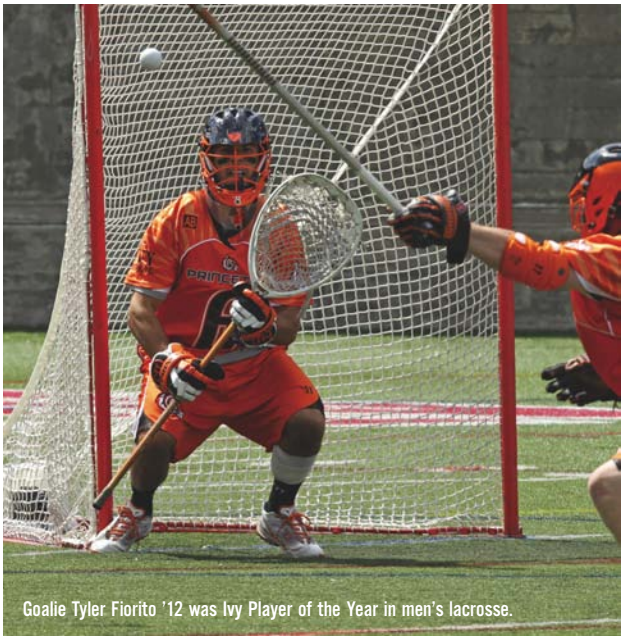
PHOTOS: CHERYL TREWORGY/PRETTYSPORTY.COM (COSTELLO); COURTESY UNC ATHLETIC COMMUNICATIONS (MCBRIDE)

Men's lacrosse falls 6–5 in NCAA playoffs

Princeton men's lacrosse ended its season with a 6–5 loss at the University of Virginia in the first round of the NCAA playoffs May 13. The Tigers had a chance to tie the game in the final seconds, but Virginia midfielder Chris LaPierre used his chest to block a shot by Forest Sonnenfeldt '13 to seal the victory.

Players other than goalies rarely use their bodies to block shots going 90 miles per hour, but LaPierre's play was a fitting end to an intense contest defined by the two defensive units. Princeton clawed back from a 5–2 halftime deficit, and Tom Schreiber '14 scored with 1:19 left in the fourth to bring the Tigers within one goal. Princeton won the ensuing face-off and generated three good scoring opportunities before LaPierre's stop gave the ball back to Virginia.

After starting the year 2–2, Princeton won eight of nine games to finish the regular season, including a perfect 6–0 record against Ivy League opponents. Goalie Tyler Fiorito '12 was the unanimous choice for Ivy Player of the Year. In the Ivy League tournament, played at the Class of '52 Stadium May 4 and 6, Princeton topped Brown in the semifinals but lost a surprisingly lopsided final to Yale, 15–7.



Goalie Tyler Fiorito '12 was Ivy Player of the Year in men's lacrosse.

MICHAEL SONNENFELDT

Despite losing the league's automatic bid to Yale, Princeton received an at-large invitation to the NCAA Championships. The Tigers finished the season with an 11–5 record. P

By David Marcus '92

SPORTS SHORTS

Women's water-polo goalie Kristen Ward '12

DAN AVILA

After qualifying for the NCAA Championships for the first time in program history, **WOMEN'S WATER POLO** finished in sixth place at the San Diego tournament and concluded its season with a 29–6 record.

WOMEN'S LACROSSE ended its season with a thrilling overtime win at eighth-ranked Penn State April 28. Despite three victories over teams ranked in the top 10 nationally, Princeton finished fifth in the Ivy League and 8–7 overall, failing to qualify for the conference tournament for the first time in three years.

MEN'S TRACK AND FIELD won the outdoor Heptagonal Championships at Penn May 5–6, completing the Ivy League triple crown — cross country, indoor track, and outdoor track titles — for a second straight season.

WOMEN'S TRACK AND FIELD placed second at Heps the same weekend, led by an outstanding performance by Eileen Moran '12, who won the 100-meter and 200-meter races.

At the inaugural Ivy League Sprints May 13, **WOMEN'S OPEN CREW** won the team points title, but Harvard upset Princeton to win the first varsity race and the official Ivy League championship.

WOMEN'S TENNIS head coach Megan Bradley-Rose announced her resignation April 30. In three seasons, she led Princeton to a 44–25 record, including an Ivy League title in 2010.

SOFTBALL head coach Trina Salcido resigned May 1 after five seasons in charge of the team and three years as an assistant coach. Salcido led the Tigers to an Ivy League title and an NCAA tournament appearance in 2008 and finished with a career record of 81–136.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If you think a scientist can't be a humanist, meet Erez Lieberman Aiden '02

BY JOCELYN KAISER '88

RENAISSANCE MAN

FIVE YEARS AGO, Erez Lieberman Aiden '02 was slogging toward the end of a laborious linguistics study when he realized he was going about it all wrong. He and fellow Harvard graduate student Jean-Baptiste Michel wanted to trace how the use of irregular verbs — such as "go" and "sing" — has evolved over time. To help them do this, an undergraduate student spent months paging through a dozen library books on old English grammar to compile a list of irregular verbs, which Aiden and Michel then analyzed for patterns.

To verify their results, the two went back to Harvard's Widener Library to check out the grammar books again. But this time, they noticed that somebody else also had been borrowing them. The books later showed up on the website of the Google Books project, in which the search giant had begun to digitize the collections of major university libraries. That's when it hit them: What they were doing "was completely obsolete," Aiden says.

Aiden realized that Google was creating a digital archive of the written historical record. Searching how the use of words has changed over centuries would make it possible to track cultural, linguistic, and historic trends, the two graduate students saw. They convinced Google to let them develop software tools to probe the company's digital library. In late 2010, they unveiled what they could do by searching 5 million books — including tracing the rise and fall of inventions, ideas, and individuals' fame; and detecting the suppression of artists and intellectuals. They declared the birth of a new field that they dubbed "culturomics." It has shaken up the world of humanities and landed the two on the front pages of *The New York Times*, *The Boston Globe*, and *The Wall Street Journal*.

THAT AIDEN, NOW 32, WOULD TAKE ON such a project at all might be considered surprising: He is first a mathematician and scientist, not a humanist; at the time of his linguistics work, he was working on his Ph.D. in mathematics and biomedical engineering. The project reinforced an important lesson, Aiden says, half-joking: "It seems to be possible to study language change and these kinds of seemingly nutty subjects without completely wrecking one's scientific career."

At least that has been true for Aiden, who as a graduate student and postdoc ranged freely across disciplines with the support of his advisers. As a biologist, Aiden produced the first three-dimensional maps of the human genome, work that may help reveal how cells malfunction in disease. As an engineer, he came up with an award-winning idea for an electronic shoe insert — now in testing — that can sense poor balance in the elderly. All six of his research papers were published in the world's top two science journals, *Science* and *Nature*, an astonishing record for a young scientist. He is now a visiting faculty member at Google and a junior fellow of the selective Harvard Society of Fellows, a position that allows him to pursue independent research for three years in any area that interests him — as befits a modern-day Renaissance man.

"Don't try to figure out what box Erez fits in. He doesn't really fit in a box," says Eric Lander '78, director of the Broad Institute at Harvard and MIT and one of Aiden's Ph.D. advisers. "He's what universities should have: people who are just broadly creative and able to be effective in many different fields."

"Erez is very different from any scientist I know," says Harvard mathematical biologist Martin Nowak, who advised Aiden on both his Princeton senior thesis and his Ph.D. Most scientists work their way step-by-step through a problem, Nowak says, but Aiden "takes a long time to just think. Then he goes for very big projects."

Aiden says that's because he is attracted to research that has a slim chance of working but could have a tremendous payoff. "I have trouble working on projects that aren't extraordinarily exciting, that I believe are game-changers.

SAM OGDEN

"Boredom is this tremendous warning sign," he continues. "If when contemplating the big picture, it doesn't make your heart race with excitement, that's a warning sign."

IN AN INTERVIEW, AIDEN COMES ACROSS as an approachable, if intense, young man bursting with ideas that he calls "cool," "super-exciting," and "super-interesting." He is sitting cross-legged on the floor in a basement student lounge on the Harvard campus, sporting his usual dark goatee, gray chinos, knit top, and hiking boots, eating a lunch of pizza and soup. It is spring break in mid-March, and the campus is quiet. He is joined by his wife, Aviva Presser Aiden, who injects another jolt of intellectual firepower to the household: She earned a Ph.D. in applied mathematics and genomics from Harvard and MIT in 2009, received a $100,000 grant from the Gates Foundation to develop a microbial-based cellphone charger for use in Africa, and is now finishing a medical degree at Harvard. The family includes a 2-year-old son; the Aidens were discussing whether their second child, due in June, would have brown eyes like dad or blue eyes like mom.

When Erez steps away to answer a phone call, Aviva recalls how they met, soon after their arrival in Boston as graduate students. While he was "obviously brilliant," she says, part of the attraction was that he thought about things "that maybe you wonder about when you're 10, then you stop thinking about them because you're thinking about practical things, like, 'Why is my experiment not working?' 'Why is my stipend check late?' " Erez, she says, never lets life's practicalities get in the way of curiosity.

Erez Lieberman Aiden '02, left, with culturomics collaborator Jean-Baptiste Michel.

Aiden grew up in Brooklyn, the son of Hungarian and Romanian immigrants who spoke Hebrew at home. His grandparents taught him Hungarian, making English his third language. (He was born Erez Lieberman; he and Aviva added the "Aiden," which means Eden in Hebrew, when they married in 2005.) On weekends his father often took him to New Jersey to the family's factory, which made high-precision industrial cutting tools. Father and son would tinker together on inventions such as a tool that produced medical-syringe needles more efficiently. That "made the concept of creating new things something I just got at a very young age," he says. He attended a private Jewish high school, where he staved off boredom by working in a college molecular biology lab.

For a brainy kid who wasn't sure what he wanted to focus on, Princeton was "a wonderful place," Aiden says. "There's so much faculty and so little Princeton," he says, referring to the abundance of leading scholars at a relatively small university. He names some who influenced him: scientists and mathematicians like Robert Austin and Andrew Wiles, but also humanists like philosopher Saul Kripke, ethicist Peter Singer, and novelist Toni Morrison.

Although Aiden majored in math and studied physics and philosophy, he felt pulled toward biology because he wanted to do something that "would have more impact on the world on a shorter time horizon." He approached Nowak, who was then at the nearby Institute for Advanced Study. "He just showed up out of the blue," says Nowak — which turned into a habit. "It was almost annoying," Nowak says, except that "any problem I was considering, he could give me good advice about how to solve it."

Each of Aiden's two senior theses — in math and philosophy — was selected as the best in its department. Still, in some sense college was a disappointment: "I was under the illusory impression that if I simply studied math, physics, and philosophy, I would be able to make all life decisions from first principles," Aiden says. "It was a complete fool's errand."

SO AIDEN DECIDED HE NEEDED TO FILL a "huge gap" in his education: history. In a master's program at Yeshiva University, he boned up on general history, from prehistoric to modern European, and took a "deep dive" into a 17th-century Jewish text called the Kol Sachal that critiques rabbinic practices. Aiden argued that its author, a Venetian rabbi, was not attacking Judaism, but instead trying to reconcile it with Christianity. His adviser, Elisheva Carlebach, now at Columbia, says he "devoured the secondary literature, but was able to see his way to a completely original insight."

On a visit back to Princeton one weekend while working on his history degree, Aiden heard Lander give a seminar about his role co-leading the recently completed project to sequence the human genome — a major scientific achievement. Aiden decided he wanted to work in Lander's lab. "He just gave such an incredibly energizing talk about what was possible in genomics that I wanted to be part of that," he remembers.

Once there, however, his first project failed. An attempt to sequence genes involved in the immune system, it sucked up 18 months before Aiden gave up. "I was really, really down about it," he says. "I was very, very hopeful about that project and had invested myself in it enormously, had spent insane amounts of time on it, and it didn't work." But he continues: "In retrospect, it was great" — besides giving him valuable tools, "it led me to dig deep to think of a project that was more creative and interesting." Failure, he says, is something to "draw on."

The new project involved zooming in on how the human

In this 2008 photo, Aiden displays the shoe insole he developed to detect when a wearer is losing balance.

genome — about two meters long — folds to fit inside the nucleus of a cell. "Usually when we put long strings into small spaces, they start to get tangled," like headphones in a pocket, Aiden explains. But the genome does not, his project showed. Instead, it nestles into a structure that is dense, but not knotted. It's much like uncooked Ramen noodles, 100 feet of which fit into a 4-by-4-inch packet, he says.

Scientists already knew that within the cell's nucleus, our 23 pairs of chromosomes aren't tangled up but instead occupy distinct sections of the nucleus. But between the whole-chromosome level and short stretches of the DNA helix that were a million times smaller, not much was known.

Aiden invented a way to measure the points where DNA strands touch adjoining strands across the entire genome, a technique called Hi-C. It worked like this: He and his collaborators injected a DNA sample with a chemical (formaldehyde) that acted as a glue and bound the DNA strands at the contact points. They then broke the genome into literally a million short lengths that they fished out and fed through a DNA-sequencing machine. By comparing these contact points to a reference copy of the genome, Aiden worked out which pieces were touching when the chromosomes were folded up inside the cell nucleus.

The folding map, published in the journal *Science* in 2009, revealed two important insights. First, chromosomes tend to move between different compartments of the nucleus, depending on whether genes are turned on or off. Second, when Aiden's team zoomed in closer, they found that DNA folds into a structure closely related to one that had been proposed by a 19th-century Italian mathematician but never observed in nature before: a fractal globule, which explains how the cell's long DNA can fit into the cell's nucleus without becoming tangled.

Because this folding pattern helps determine which genes are switched on, it may explain how a neural cell and a skin cell carrying the same DNA are so different, Aiden says. The three-dimensional maps also could shed light on cancer, a disease in which the genome malfunctions.

EVEN WHILE MAKING GENOME MAPS, however, Aiden couldn't be pinned down to one field. Around the same time, he was winding up the irregular-verbs project, which had been inspired by a talk he had heard at Princeton by Harvard psychologist Steven Pinker. Pinker had discussed the curious fact that while only a few English verbs are irregular, they are among the most widely used verbs. That mystery, Aiden says, seemed like something that "might be amenable to some sort of mathematical analysis."

The study he did with Michel — on the evolution of 177 verbs from about 800 A.D. until today — made the cover of the journal *Nature* in 2007. The researchers found that the less often an irregular form is used, the more quickly it is replaced with the regular form. ("Finded" has not replaced "found," but the rarely used "chode" has given way to "chided.") The data did indeed fit a mathematical relationship: Verbs used 100 times less often become regular 10 times as fast.

After that, the idea of trolling Google's book collection seemed "irresistible." Google provided enough access to allow the researchers to begin playing with the data, though it didn't publicly release full texts for copyright reasons. Aiden and Michel converted the books into a single database of text that could be searched for words or phrases — known as ngrams — using a software tool they called an

PHOTOS, OPPOSITE PAGE: STEVEN SENNE/AP IMAGES; THIS PAGE: KRIS SNIBBE/HARVARD UNIVERSITY

ngram viewer that produced graphs showing how usage of the word in question rose or fell over time.

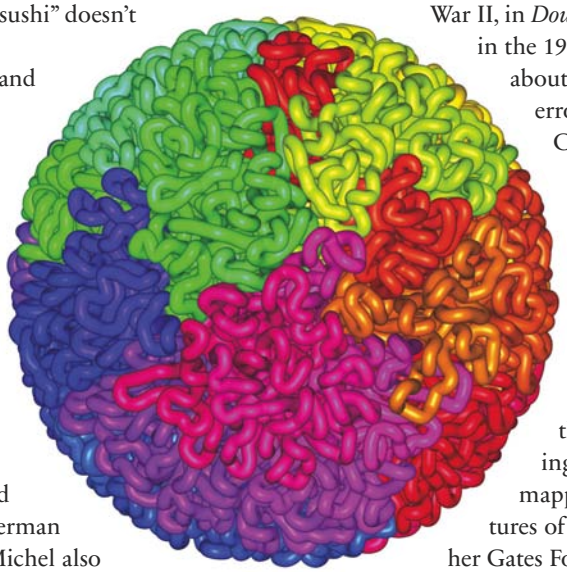
Instead of reading a few books closely, the researchers could "read" millions superficially. Their paper was published online in *Science* in December 2010. "Two weeks before it came out we convinced Google to create a Web version [of the ngram viewer], and it all came out at the same time and it was just super-exciting," Aiden says.

In the *Science* paper, which focuses on more than 5 million books in six languages published between 1800 and 2000 (4 percent of all books ever published), Aiden and Michel offer a taste of how this database of 500 billion words can be used to study the evolution of language and culture. The English lexicon is growing fast: The number of words has doubled in the past century, to 1 million. The use of "woman" caught up with "man" only in the mid-1980s. "Ice cream" peaked in 1950, while "sushi" doesn't take off until about 1980.

The *Science* paper charts the rise and fall of the famous: Sigmund Freud surpassed Charles Darwin in 1949 in terms of how often his name appears in books; Jimmy Carter's fame surpasses that of Marilyn Monroe, Mickey Mouse, or Che Guevara. Actors' fame emerges at about age 30, the researchers reported, while politicians' comes later, in their 50s. The study found examples of political suppression: The names of Jewish artists such as Marc Chagall and others considered "degenerate" almost vanish from German books in the Nazi era. Aiden and Michel also leavened their paper with jokes: "God is not dead but needs a new publicist," they wrote, noting that use of the word "God" has fallen off since the mid-19th century.

The study grabbed headlines and popular attention — the ngram viewer recorded 1 million hits in the first 24 hours it was public, Aiden says. But the reaction from scholars wasn't entirely positive. Some complained that humanists were not among the paper's authors (false, says Aiden; his co-authors included two literature Ph.D.s and he has a graduate degree in history). Another complaint was that "culturomics" was simply a new name for existing studies within the digital humanities. Aiden responds that the Google ngram viewer is "an insane change in scale" compared to what came before, insisting that humanists would benefit enormously from compiling large datasets the way genome researchers have. (Try the ngram viewer at http://books.google.com/ngrams/.)

"To my mind it's hugely interesting," says Princeton history professor Anthony Grafton, who first had feared that culturomics would sweep aside the traditional practice of — and funding for — closely reading books. "If you want to try to understand a culture, you need a lot of data. And this is a more rigorous and powerful way of gathering that data than anything we've ever had."



MUCH OF AIDEN'S WORK TODAY takes place in what he and Michel call their Cultural Observatory. Although the words "Aiden Lab" are written on the oak door in gold, old-fashioned letters, the room looks much like a student study spot, with a worn couch and chairs, a half-dozen carrels, and blackboards covering one of the mint-green walls.

Sitting in one of the carrels is Benjamin Schmidt, a graduate student in history at Princeton who is spending a year at Harvard working at the Cultural Observatory. He shows off a new ngram viewer that the team has created to search Arkiv, an online database where most physicists deposit their papers. (The full text is free online.)

Schmidt has been using the Google Books ngram viewer to analyze the accuracy of period television shows. He has found numerous anachronisms, such as the mention of the term "black market," which came into use during World War II, in *Downton Abbey,* the British drama set in the 1910s. In *Mad Men,* the hit show about an advertising firm in the 1960s, errors are more of emphasis: Characters often say "feel good about," which rarely was used in the '60s. Michel and Aiden are working to add newspapers, periodicals, and other print materials to the Google ngram database.

Aiden's biology work continues as well. A couple of miles away at the Broad Institute, he is developing techniques similar to Hi-C for mapping the three-dimensional structures of proteins. He works with Aviva on her Gates Foundation fuel-cell project. On the "back burner," he says, is iShoe, the sensor-filled insole project he helped develop as an intern at NASA.

On the side, he and Aviva run a nonprofit, Bears Without Borders, that pays local artisans in developing countries to make stuffed animals for children in hospitals and orphanages. "I have very complex theories about how my work is actually helpful to the universe, and it's nice, once in a while, to do something that one can see has a tangible and immediate impact," says Aiden.

But his growing family may force some new realities to take hold. Once known for regularly pulling all-nighters, then sleeping in to catch up, he has been forced into "a normalized sleep schedule," says Aviva, explaining that Gabriel, their toddler, "is up at 7, no matter what." Aiden says that's OK with him.

After all, his son has taught him about learning, too. "In the best possible week," he says, "I won't learn as much as Gabriel does." P

Jocelyn Kaiser '88 is a writer at Science *magazine.*

ABOVE: Image of a fractal globule. Aiden's team found that the structure explains how DNA can fit into a cell's nucleus without getting tangled.

PHOTOS, THIS PAGE: COURTESY MIRIAM HUNTLEY, ROB SCHAREIN, AND EREZ LIEBERMAN AIDEN '02; OPPOSITE PAGE: COURTESY LEMELSON-MIT PROGRAM


$t_{1/2} \propto \sqrt{w}$
$\frac{\partial I}{\partial t} = -d(w) I(w,t)$

THE DISSENTER

Most experts think an asteroid killed the dinosaurs. Not Gerta Keller

BY JOEL ACHENBACH '82

P
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Gerta Keller in the atrium of Guyot Hall, with an Antrodemus dinosaur excavated during a 1941 dig.

THE SEPIA-TINTED PHOTOGRAPH shows a farm family in Switzerland a few years after the end of World War II. There's a mother, a father, and a swarm of children. The family eventually will have a dozen kids, six boys and six girls, plus 18 cows and a dozen pigs and some workhorses. In the photo they pose next to a wagon. The girls wear aprons to protect their hand-sewn clothes from getting soiled. They're poor. It's a pastoral but cramped existence, the horizon limited by poverty and, for the girls especially, a social code that tells them they can dream of little more than being a nurse or a seamstress.

PETER MURPHY

In the photo, most of the children look wary; some smile timidly. But one little girl, on the left side of the frame, smiles broadly for the camera. She occupies a special position, at the edge of the group, sitting on the wagon, and one can sense her independence.

"I was always a bit separate from the rest," says Gerta Keller.

Professor Keller, that is. Her rags-to-riches story has wound up improbably on the third floor of Guyot Hall at Princeton. It has been a very long journey by way of England, North Africa, Australia (where she was shot and nearly killed by a bank robber), and San Francisco during the heyday of Flower Power. There were many way stations in the middle of nowhere, among outcroppings, riverbeds, quarries — amid the rocks that tell the story of the planet's history. Keller is a geologist and paleontologist.

She's also a catastrophist. Her world isn't one of gradual, uniform change. It's a lot more dramatic than that.

Keller, who never has let other people tell her what to do, is today one of the most controversial figures in her field. She's an indefatigable critic of the most widely accepted theory of what wiped out the dinosaurs 65 million years ago and brought the Cretaceous Period to an end. She has a rival hypothesis, and is determined to prove she's right.

She's once again separate from the rest.

On a terrible day about 65.5 million years ago, a mountain-sized object from space crashed into the Earth near what is now the tip of the Yucatan Peninsula. The so-called Chicxulub (CHEEK-shoe-lube) impact, named for a Yucatan village, excavated a 110-mile-wide crater and sent a tsunami the height of a Manhattan skyscraper crashing onto the shores of the Gulf of Mexico. The impact ejected enough dust into the stratosphere to darken the planet and temporarily shut down photosynthesis. The effects were devastating, and global.

Half the genera on the planet disappeared, including the dinosaurs (or, as we are compelled to say now that we know a chicken is a distant cousin of T. rex, "the non-avian dinosaurs"). This was the most recent of the five great mass extinctions in the fossil record. The discovery of the Chicxulub catastrophe has obvious implications for our own species, which, though currently in a period of efflorescence, could discover one day that it has no more permanent sovereignty on the planet than did the giant reptiles that ruled for 150 million years.

The impact hypothesis for what's called the K/T extinction (K for the German word for Cretaceous, T for Tertiary) dates to 1980. Geologist Walter Alvarez *67 had been doing fieldwork in the late 1970s in Gubbio, Italy, studying an outcropping that featured a thin clay layer marking the boundary between the Cretaceous and Tertiary rock formations. It was one of the best-known sites for seeing the change in the fossil record that occurred 65.5 million years ago. Below, the older rock contains fossils of numerous species of foraminifera, which are planktonic marine organisms. Above the clay layer, in younger rock, the forams, as they're commonly called, are smaller, and represent only a few species.

Alvarez wanted to know how long it had taken for the clay layer to be deposited. An enduring mystery was whether this change in the fossil record reflected a sudden die-off or something more gradual. Sedimentary strata can be deceptive: It's hard to know how much time is represented by any particular layer. There can also be gaps in sedimentation. Alvarez's father, Nobel laureate physicist Luis Alvarez, suggested that it would be possible to estimate the time it took for the clay layer to be deposited by studying the quantity of iridium in the clay. Iridium is a rare element on Earth but steadily rains upon the planet from space in small quantities.

The father-son Alvarez team made a startling discovery: The clay layer contained an anomalously large quantity of iridium. This suggested a new idea: The iridium came from a large asteroid that had struck Earth.

The Alvarezes and two colleagues published their earth-shaking paper, "Extraterrestrial Cause for the Cretaceous-Tertiary Extinction," in the journal *Science* in 1980. There remained one obvious hole in the impact theory: Where was the crater? As it happened, in the late 1970s, geologists working for a Mexican oil company studying gravity maps off the coast of the Yucatan discovered what appeared to be a buried, eroded crater. They didn't know if it was from a volcano or an impact. They said little about it. Throughout the 1980s, the mystery of the crater's location bedeviled scientists, but they gradually began homing in on the Gulf of Mexico after finding what appeared to be tsunami debris in southern Texas. Finally, in 1990, they put it all together, and Chicxulub soon became known as the Crater of Doom.

Keller doesn't dispute that there was a giant impact event at Chicxulub. But …

"I'm an impactor, too," she says. "It comes down to the age of the impact. Very simply, the age. It is much older than the mass extinction."

It's all about the timing, the sequence of events. The Chicxulub impact, she has argued, predates the extinction by roughly 150,000 to 300,000 years. She bases this on fieldwork that has taken her to 150 K/T boundary sites around the world.

So what caused the extinctions? Volcanoes, for starters, she says. Specifically, the Deccan Traps. The Deccan Traps ("traps" comes from the Swedish word for stairs) comprise a vast area of lava flows, much larger than the state of Texas and in some places more than two miles thick, on the Indian subcontinent. The main eruption occurred very close to the end of the Cretaceous period, pumping enormous quantities of sulfur dioxide, carbon dioxide, and chlorine gases into the atmosphere and causing dramatic climate change. Add to that the impact *events* — plural. Chicxulub wasn't the only impact, Keller says. In her scenario, the planet endured not just one but a series of catastrophes that caused the mass extinction.

She is fighting an intellectual war in two distinct theaters — the Gulf of Mexico and India. She spends a great deal of time along the Brazos River in Texas, a key K/T boundary site. At multiple sites around the Gulf of Mexico, she says, tiny spherules from the impact are below the K/T boundary,

Keller, left, in a family photo taken after World War II.

which suggests that the impact and the extinction were separated in time. She notes that there are several locations where the spherules appear to be right at the K/T boundary, but says this is the result of erosion that has reworked the sediments. It's a debate that is literally and figuratively granular: Most of us have no way to know if she's right.

She says of the proponents of the Chicxulub theory: "It's a beautiful scenario that they made. Only that it's all wrong."

I ask her if she thinks the Chicxulub impact had caused any extinctions whatsoever. She pauses, and looks at me steadily.

Then she says: "Not a single species."

Her mother was the oldest of a dozen, her father the youngest of 18. She was the sixth of 12, and her mother's confidante. She was born in Liechtenstein, just weeks before the close of the Second World War. The family soon moved just a few miles away, across the border into Switzerland. There still were military camps nearby, and the kids would go to the soldiers to ask for leftover food.

Their farm in Switzerland went on the auction block every six months or so, but there were no buyers because no one wanted to put a family with a dozen kids on the street. Eventually the government stepped in and ran the farm, giving the family an allowance.

Gerta learned to find snails, which she could sell for a few dollars a kilo.

"Even when I was 4 years old I would go all day long with two buckets to look for escargot. I would walk as much as five to 10 miles a day, all over Liechtenstein and Switzerland, and collect these white, big snails," she says. "I loved the mountains. I would go hiking in the mountains, the forest. I

COURTESY GERTA KELLER

One little girl, on the left side of the frame, smiles broadly for the camera. She occupies a special position, at the edge of the group, sitting on the wagon, and one can sense her independence. "I was always a bit separate from the rest," says Gerta Keller.

didn't pay much attention to rocks. I mostly paid attention to flowers."

But she wanted more.

"I really longed to see the world. I was a voracious reader. I would see planes occasionally going overhead, and I would dream of what it would be like to see other places."

In another black-and-white photo on her office wall, she's standing by a watering trough, wearing a new, home-sewn dress. "My mother made it," she says, "but she was a very bad seamstress. It was so tight that that was the only day I could wear it, because it tore apart. But I was very proud of that dress, the few hours it lasted."

At 12, she decided she wanted to be a doctor. She remembers being told that she had to be realistic: "You can be a housemaid, a salesgirl, or you can be a dressmaker."

At 14, she became an apprentice to a dressmaker. She gradually grew depressed. She started working as a waitress, saved some money, and finally, at the age of 18, hit the road. She went to England to study English. She visited North Africa, the Middle East, Eastern Europe, and Greece, and caught hepatitis along the way. She returned to Switzerland to recuperate, and then, at 20, emigrated to Australia.

One day she and a friend were returning from a trip to the beach near Sydney when they noticed that there were no other cars on the road. A man in a trench coat was running, shooting a rifle. A movie, they thought — someone's filming a movie. Except there were no cameras. The man — a bank robber — came up to their car and demanded that they get out; then he shot Keller in the upper arm, and the bullet went through both lungs. She collapsed and her friend pulled her out of the car.

"I looked up at the sky. The whole sky seemed like a canvas. My life from my youngest days all went by. I thought, so, that's it, this is what it's like when you die."

At the hospital, a priest insisted that she make a final confession.

"I have nothing to confess," she said. She thinks her anger in that moment — her contrarian rage — saved her life.

That was 1967. She was not quite 23 years old. When she recovered, she flew with her boyfriend, Tim Callahan, to San Francisco and began to reinvent herself as a student. The counterculture was in full flower. She married Callahan — the union would last four years — and started taking college classes, first at City College, then graduating from San Francisco State. She was obviously bright, and determined, and she won over the geologists at Stanford, who accepted her as a Ph.D. candidate in 1973.

Sometimes, though, she got on people's nerves. The field was dominated by men, some of whom were not accustomed to dealing with a strong-willed woman.

"She's very stubborn, independent, not afraid to express her opinion," says John Barron of the U.S. Geological Survey, who knew her in the 1970s. "She's just so much different from what women were at that time."

He adds: "She once told me that 'Gerta' was the spear wielder in German. She has certainly lived up to her name."

Geology is a field that gets shaken up regularly.

When Alfred Wegener proposed his theory of continental drift early in the 20th century, few people took him seriously. There simply was no way that something as huge as a continent could plow through the crust of the Earth, it seemed. Now, in revised form, continental drift is the orthodoxy; it's impossible to discuss the history of the Earth without referring to plate tectonics — a theory developed to a significant extent at Princeton in the 1960s under the leadership of geology department chairman Harry Hess *32.

The Alvarez theory, likewise, redeemed the musty, prescientific notion that the Earth's history has been shaped by catastrophic events. The field of geology in 1980 long had been dominated by the doctrine known as uniformitarianism. First promulgated by James Hutton and Charles Lyell in the 18th and 19th centuries, this was the belief that the planet had changed very gradually over long periods of time, an idea boosted by the discovery of Darwinian natural selection.

This is a field, it seems, where there is rarely anything that might be called a settled fact. It's innately interpretive. Geologists work with broken, eroded, baked, compressed, and very old material. Rocks don't speak. There always will be arguments about what the geological record is trying to say. "Geological data are messy, by necessity. There is always a devil in paradise," Jan Smit, one of the originators of the K/T impact hypothesis, has written.

So it was that, as the Alvarezes' impact theory was being developed, there remained skeptics such as Keller. Even after the discovery of the Crater of Doom, hailed as a smoking gun for the impact, a number of scientists challenged the orthodoxy. Two of the most prominent were professors at Dartmouth, Charles Officer and Charles Drake, both of whom preferred the Deccan Traps as the killing mechanism.

Keller was a bit late to get into the debate ("I didn't want to jump on a bandwagon like everyone else," she says). It was only in the mid-1980s that she dove in, first at a conference at Snowbird, Utah, where, as she recalls, she was such an unknown that she was introduced as "George." She presented slides, based on her study of the K/T boundary, indicating that the extinction didn't happen in one instant but rather over a broader period of time. A line quickly formed as one scientist after another wanted to take issue with her argument.

"That was considered incredibly heretical and I was attacked unbelievably," she says. "It was almost pandemonium at the end."

She recalls a colleague coming up to her at lunchtime, saying, "Gerta, you should know when you should shut up. You have to be more diplomatic." Her response: "I can't shut up if it's so untrue what they're saying."

Keller has suggested that the mass extinction came from a one-two punch: The volcanic eruptions changed the climate, and weakened species then were finished off by a meteorite impact — though not the one at Chicxulub. She co-authored a study reporting signs of a meteorite strike in India from the time of the mass extinction. Such an impact could explain the iridium found at the K/T boundary, she says. Or perhaps the iridium came from volcanism bringing material from

deep within the Earth. "I can't say one way or another," she says. But she's convinced that the Chicxulub impact didn't cause the K/T iridium anomaly or the mass extinction.

Over the years she has argued her case tirelessly, and has gained some allies. Volcanism has acquired new scrutiny as a possible cause of mass extinctions. The worst mass extinction in the fossil record, at the end of the Permian — the last period of the Paleozoic Era — seems to have coincided with massive volcanic eruptions.

"Her opponents have failed to adequately address the issues she has raised, and often choose to ignore her work because — to paraphrase a phrase from elsewhere — what she has discovered are inconvenient truths that cast severe doubt on a model that they have been peddling," says Andrew Kerr, a petrologist at Cardiff University in Wales who supports Keller.

Ted Nield, editor of the journal *Geoscientist* and author of the book *Incoming!,* which features a chapter on Keller, says, "Gerta is the sort of person for whom universities were created — and for whom the protection of tenure is so vital. She has had the guts and determination to stand out against an unstoppable bandwagon that itself started off as heresy but which has quickly become a rather oppressive orthodoxy."

Is she right? Nield says he can't say. But he finds Keller to be a compelling figure — and has written about her despite criticism that she doesn't deserve the attention.

The impact theory for the K/T mass extinction isn't universally acepted, but any rival hypothesis carries the heavier burden of proof at this point. The impact theory is based on multiple lines of evidence at both the macroscopic and microscopic level. It also has the lovely feature of parsimony. It's not very complicated. In science, simpler is usually better. And if a giant rock hit the Earth very close to the time that all the dinosaurs disappeared, it's hard to think of that as a mere coincidence and not a matter of causality.

But you can say the same thing about the Deccan Traps.

The K/T event, says Paul Wignall of the University of Leeds, "qualifies as the biggest coincidence in world history — peak volcanism coincided with the impact of the largest meteorite to hit in the past billion years."

The K/T extinction controversy shows no sign of abating more than 30 years after the Alvarez paper was published. In a 2010 review of the issue in *Science,* German geophysicist Peter Schulte and 40 co-authors declared flatly that the Chicxulub impact alone triggered the mass extinction. The scientists said multiple lines of evidence, including the pattern in which material had been ejected from the crater, place the impact at the K/T boundary. Deccan volcanism, they wrote, would have resulted in "only moderate climate change" during the last 400,000 years of the Cretaceous.

That article stirred the pot again, and a number of scientists published letters to *Science* objecting to the case-closed conclusion of Schulte and his co-authors, and arguing for multiple causes of the extinction. Keller also weighed in, reiterating her argument, in a letter, that Chicxulub predates the K/T boundary and that Deccan volcanism could have had as dire an effect on global climate as the impact event.

Scientists Luis, left, and Walter Alvarez '67, father and son, at the K/T boundary in Gubbio, Italy, in 1981.

LAWRENCE BERKELEY NATIONAL LABORATORY

The father-son Alvarez team made a startling discovery: The clay layer contained an anomalously large quantity of iridium. This suggested a new idea: The iridium came from an asteroid that had struck Earth.

Keller says of her critics, "The reason they cannot accept it is because it would mean they would have to admit that their theory was wrong." Few people, she says, could admit that for 20 years, "they've been preaching up the wrong tree."

She adds, "That's probably a wrong way of saying it."

"Barking," I suggest. Barking up the wrong tree.

She laughs, and says, "I once said, 'You can kill this bird with two stones.'"


Keller in her office in Guyot Hall.

Keller is now 67, a successful renegade. She's been married for three and a half decades to the New York University mathematician Andrew Majda. In her third-floor office in Guyot Hall, ornamental plants — jade, euphorbias, bougainvillea, Christmas cactus — bask in the sunlight streaming through tall windows. She has antique filing cabinets and chairs, rescued from one of the department's overhauls some years back. Her shelves are filled with books and manila folders, hardly a square inch unoccupied.

"It's a crazy life, but it's the best I could do," she says.

She chose her passion well: "If you like to sit on a beach and watch the sundown, if you like to travel and experience different culture, then you should become a geologist, because you can always dream up a project involving rocks anywhere in the world, and somebody's going to pay you for that."

It's easy to forget, as we discuss the events that ended the Cretaceous period, that we're speaking of disasters, of global catastrophes. It was so long ago. It doesn't feel, to me, completely real. I asked her if it could happen again — meaning another volcanic eruption on the scale of the Deccan Traps.

"It will happen again. Of course," she says. "There's nothing we can do. These eruptions are absolutely unbelievably giant. What would we do? We're causing extinctions even without those eruptions. We're right in the middle of one."

There's a subtle, slightly political element to Keller's thesis: Her view of volcanic activity causing extinctions more gradually has an echo in the current concerns about climate change. She says of the impact scenario — the Hammer of God bringing instant catastrophe — "It's a very sexy, beautiful theory. It appeals to everyone's imagination. It's simple. It absolves you from having done anything that might have caused a mass extinction."

She draws another lesson from the forams:

"If we take the analog to these critters we are studying in the ocean, the more specialized we get, the less we are going to survive. We are specialized. Rats and cockroaches are not specialized at all. They've been the same for the last 250 million years. They're going to survive. But I have my doubts *we* will."

Wow.

"It's a comforting thought, isn't it?" she says sarcastically.

We have lunch at Frist, and she ruminates on her status as a heretic (she can't be described as an apostate because she never believed in the orthodoxy).

"I would prefer everyone to love me instead of hate me. But that's not going to happen," she says.

Hate, really? How do they manifest that, I ask.

"Stare. Some of them shout. 'You're wrong. You don't know what you're doing.'"

We then visit her lab in Guyot. I look through a microscope at some of her forams. She shows me some big ones, the diverse ones from before the K/T extinction.

"They expend a lot of energy being pretty and big," she says.

Magnified 120 times, they look to me like little white blobs.

Through another microscope I examine the post-extinction forams. Smaller, yes. But still blobby.

"The difference is enormous, as you can see," she says, though I find it challenging to make head or tail of these little things.

This kind of work takes a trained eye. Patience. Doggedness. These are not charismatic megafauna — they're the size of grains of salt, or smaller. And Keller has lots of them. She has a tremendous archive of foraminifera, packaged and labeled in drawers in a room adjacent to the lab.

Whoever wins the K/T debate will not win because of a vote. Science isn't a democracy. Yes, Keller still is regarded as a contrarian, but that may not be a permanent status. When I email my freshman-year geology professor, Ken Deffeyes *59, and ask him about Keller's contrarianism, he writes back:

"The winner of a war gets to write the history. Gerta is a contrarian only if she loses." P

Joel Achenbach '82 is a writer at The Washington Post.

PETER MURPHY

Photo: Princeton University, Office of Communications

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A moment with . . .

Kathy Kiely '77, on transparent elections

"My rule of thumb is to check at least one source that you don't agree with."

Kathy Kiely '77, a former reporter and editor for several news organizations, including USA Today and National Journal, has covered every presidential campaign since 1980. Since last December, she has been managing editor of the reporting group at the Sunlight Foundation, a nonprofit organization dedicated to increasing transparency in government. She talked with PAW about the current presidential race and how politics has changed.

You have covered a lot of campaigns. Have they gotten nastier and less substantive?

Whenever people tell me they think that politics has gotten as bad as it can get, I remind them about Sally Hemmings, who, as most people know, was a slave and Thomas Jefferson's mistress. We know about her because of James Callender, a hack journalist whom Jefferson hired to dig up dirt on his opponents. When Callender discovered that Jefferson's opponents paid better, he switched sides and began digging up dirt on Jefferson, including the Sally Hemmings story. So campaigns have always been dirt-throwing operations.

However, I do see more nastiness in Congress itself. When I first went to Washington, covering Congress was fun because it was unpredictable. Now members of Congress are like little robots, and their party affiliation pretty much determines what they are going to say and how they are going to vote.

What has caused that polarization?

Some people blame jet travel, which enables members to travel home on weekends, so they no longer stay in Washington, where they might get to know each other a little better. I think the new forms of media are another reason. The Internet gives us fantastic opportunities to broaden our perspectives, but it also enables us to put blinders on. If we use this wonderful new technology to get news that is by, for, and about people who already agree with us, it limits our perspective. We stop realizing that there are other people who may legitimately have different points of view.

What effect are the so-called super PACs having?

They have become an avenue for unlimited money raising and spending, and that doesn't even count the money that corporations now can spend to influence elections in the aftermath of the Supreme Court's decision in the *Citizens United* case. Corporate spending is not just limited to large, well-known, and publicly traded companies like IBM or General Electric. We're also talking about incorporated nonprofits that don't have to disclose their members or donors.

Some people rebut calls for campaign-finance reform by claiming that Americans spend more on potato chips than on elections. How do you respond?

When you're watching a commercial for potato chips, you know who is paying for that commercial. When you're watching a commercial that is brought to you by some group with an Orwellian name like Americans for a Better America, you have no idea who is paying for that commercial or what their agenda is. If you're electing a president and someone is trying to influence your vote, you have a right to know about them.

Do journalists have less access to candidates than in the past?

In 2008, I had far better access to then-Sen. Obama and Sen. John McCain when they were on the Hill. That's one reason why I liked covering Congress, because I could walk right up to the newsmakers and talk to them. On the campaign trail, it's a much more stilted environment. I don't entirely blame the candidates for that. It's part of the digital era, where everyone has a flip cam or a smartphone and can video anything. You just can't have those off-the-record conversations with candidates anymore.

For citizens who want to follow politics in an intelligent way, what sites would you recommend, besides your own?

My rule of thumb is to check at least one source that you don't agree with. If you're a conservative, tune into MSNBC or NPR once in a while. If you're a liberal, tune into Fox or read *The Weekly Standard*. People who have grown up on the Internet need to be taught to be skeptical about what they find online. Some of the techniques of Journalism 101 need to become part of our training in Citizenship 101. With so much unfiltered information coming at us, everybody has to become a more intelligent consumer. P

— Interview conducted and condensed by Mark F. Bernstein '83

COURTESY SUNLIGHT FOUNDATION

The new South Sudanese bride

*By Sandya Das *08*

*Sandya Das *08 is a Foreign Service officer living in South Sudan. She previously served in Mumbai, India, and earned an M.P.A. degree at the Woodrow Wilson School.*

The rains had stopped in October, opening up a view of volcanic mountains in the distance. Mounds of dust covered the dirt roads; an orange film stained dried-up plants bordering the only road for several counties. The onslaught of heat and the burning glow of the sun scorched the back of my neck. The land was lifeless and parched; there had not been a single drop of rain since the dry season began. Two months later, dust rose into my nostrils as we jolted back and forth on the road to the southern border of South Sudan.

Since I arrived in the capital city of Juba 10 months ago on a dirt tarmac, ready to embark on my one-year assignment at the U.S. embassy in South Sudan, my feelings of apprehension and anxiety had not fully dissipated. South Sudan celebrated independence on July 9, 2011, becoming the newest democracy in the world. Although free from the North, the fledgling country faces enormous challenges of deep ethnic tensions, conflict and violence due to the widespread availability of weapons after the war, and a citizenry with an illiteracy rate of more than 75 percent and little access to clean water, electricity, and educational opportunities.

Despite having an interim constitution and autonomous rule for more than six and a half years, South Sudan continues to grapple with advancing the rule of law and equality of men and women. It remains a strongly male-dominated society where traditional attitudes about gender persist. The founding father of South Sudan, John Garang, called women "the most marginalized of the marginalized," and customary practices continue to discriminate against women and relegate them to objects of family wealth.

It has been months since I made that trip to the town of Morobo, in South Sudan near the border of the Democratic Republic of Congo (DRC), yet I still think about it — particularly about a middle-aged South Sudanese woman, named Keji, whom I met there. I saw her pounding away at the earth with her shovel. I watched her closely as she readjusted the thinning strap of the sack carrying her 3-month-old daughter. When I asked about her daily routine, she replied, "I work and cook all day for my family." But I saw more than that in the intensity of each throw of her shovel onto the soil.

Keji spends the first morning hours of each day digging into the earth in hope of a better harvest of cassava and groundnuts for her family of nine daughters. As the sun rises and the wind spreads the heat, drips of sweat trickle down her face and onto her oversized T-shirt — the last gift from a transient NGO worker who thought it might give the woman a bit of respite.

As midday approaches, she must trek five miles to the nearest borehole to fetch her daughters and idle husband two heavy pails of water for the evening meal. She warms the blackened clay pot over burning coals on the side of the family's rounded *tukul,* or small hut. While she grinds the grainy, white sorghum into a powder on a wooden palette, her older daughters wash the pots and dutifully mind their two baby sisters, unaware of the future that awaits many young women — a future limited by early marriage and pregnancy, cutting education short.

Fifteen years ago, Keji was forced to marry at a young age to improve her family's financial status; in return for a wife, her new husband's family paid a "bride price," in cattle. The status of a woman in society depends on the wealth — valued in terms of the number of cattle — that she is able to

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CAROLE HANAFF

Mary Solanto '73 developed a therapy program for adults with ADHD.

MARY SOLANTO '73

Treating adults with ADHD

When Mary Solanto '73 opened a center for attention deficit hyperactivity disorder (ADHD) at New York's Mount Sinai Medical Center in 1999, she was expecting to primarily treat children with the disorder. But some of the parents of her patients recognized in themselves the same symptoms their children had, and asked for help.

Studies indicate that about 8 percent of children and 4 percent of adults have the disorder, says Solanto, an associate professor of psychiatry who specializes in ADHD. But only about 25 percent of adults with ADHD have been diagnosed, she says, and 10 percent received treatment in the last year.

The disorder can take a toll on a person's work and social life. Adults with ADHD are more likely than the average person to be underemployed or unemployed. Symptoms of the disorder in adults include difficulty sustaining focus and finishing things, distractibility, problems with time-management and organization — and, in some adults, impulsiveness. These symptoms can lead to difficulty in completing tasks and to problems with money and relationships. Adults with ADHD, notes Solanto, also are more likely to be divorced, marry prematurely, get into car accidents, and abuse drugs and alcohol.

Solanto and colleagues at the Center of Excellence in ADHD and Related Disorders at Mount Sinai have developed an award-winning cognitive-behavioral therapy program for adults with ADHD, about which they published a 2010 paper in the *American Journal of Psychiatry.* Patients learn strategies and skills for time-management, organization, and planning. They learn to keep a daily planner, break overwhelming tasks down into manageable parts, prioritize tasks and

> "There's a lot of work to be done, but it does seem very hopeful."

SUSAN WATTS/NY DAILY NEWS VIA GETTY IMAGES

COURTESY ERIC SALAZAR '11

STARTING OUT: ERIC SALAZAR '11

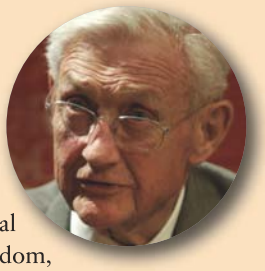
Professional golfer based in Carmichael, Calif. This summer he will play on the Canadian tour and in September he plans to participate in the PGA Tour qualifying tournament. Played four years on the Princeton golf team. Princeton major: religion.

Training: When he isn't playing in a tournament, Salazar spends four to seven hours daily on the golf course. About half of his practice time is spent putting. He also works out for one to two hours in a gym – lifting weights, doing balance drills and yoga, and working on flexibility.

What he loves: preparing for tournaments. "When I'm off by myself practicing, I put on my headphones and I get off in my own little world."

Most challenging: As a new professional, it's difficult to make enough money in tournaments to pay his expenses week to week, says Salazar. So he is raising money from sponsors. "I'm basically a startup company," he says. "It's been hard to ask for money. But I feel very strongly that this is what I'm supposed to be doing right now."

NEWSMAKERS



FRANK WOJCIECHOWSKI

Civil-rights pioneer **JOHN DOAR '44** was among 13 people to be honored with the Presidential Medal of Freedom, the nation's highest civilian honor, along with music legend Bob Dylan, who received an honorary degree from Princeton in 1970. As assistant attorney general in the Department of Justice, Doar was a key figure in many

develop long-range plans, and deal with negative thoughts.

Adults with ADHD, explains Solanto, can get depressed and anxious because they feel they are underachieving or having trouble maintaining healthy relationships. Because they're behind so much, many people with ADHD feel they don't deserve any time off from work, she says.

Solanto and her colleagues created a treatment manual (included in their 2011 book, *Cognitive-Behavioral Therapy for Adult ADHD: Targeting Executive Dysfunction*) that other therapists can use. Medications often are helpful in controlling symptoms of ADHD, she says, but medication is not enough for many adults. The program she developed has helped patients become more productive and less distractible, she says.

The disorder, she observes, has been under-diagnosed by professionals, but awareness has grown in recent years. With treatment, children often find they get better grades and have a more positive school experience; adults find they have more control in their lives.

Solanto is looking into developing new cognitive-behavioral therapy groups for adults: for parents with ADHD, for parents who are taking care of adult children with ADHD, and for people in various professions to help them with specific strategies geared to their work environments. "There's a lot of work to be done, but it does seem very hopeful." *By K.F.G.*

key civil-rights crises in the 1960s. The White House announcement of his honor noted that he singlehandedly prevented a riot in Jackson, Miss., after the death of civil-rights leader Medgar Evers in 1963, obtained convictions in the killings of three civil-rights workers in Neshoba County, Miss., in 1964, and led the effort to implement the Voting Rights Act of 1965. … Cardiologist and researcher **GARY GIBBONS '78** was selected to lead the Bethesda, Md.-based National Heart, Lung, and Blood Institute. A leader in research related to cardiovas-

continues on page 45

Tiger profile

Robert Root-Bernstein '75 *80

A researcher of the arts-sciences connection

Robert Root-Bernstein '75 *80 surveys scientists and engineers about their artistic activities.

EXPLORING A SUPPOSED DIVIDE While Robert Root-Bernstein '75 *80 was earning his Ph.D., he came across a number of very successful scientists who bridged the supposed arts-science divide by achieving scientific discoveries while creating art — such as the first winner of the Nobel Prize in chemistry, who was a semiprofessional flutist and wrote poetry. Eventually, Root-Bernstein began studying the connections between scientific innovation and arts-and-crafts avocation (from painting and writing poetry to music and woodworking). His 1981 MacArthur fellowship allowed him to pursue the research initially: "This was not an acceptable field when I started."

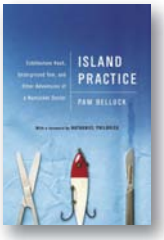
Résumé: Physiology professor at Michigan State University who conducts biological research on human autoimmune diseases and cellular regulation systems. MacArthur "genius grant" winner in 1981. Majored in biochemistry and earned a doctorate in the history of science.

READ MORE: Take Root-Bernstein '75 *80's survey @ paw.princeton.edu

SCIENTISTS' CREATIVE SIDE Through surveying and interviewing scientists and reading autobiographies, he has found that the more arts activities scientists are involved in over a long period of time, the more successful they are in terms of papers published, awards, and inventions. Root-Bernstein's latest research involves engineers, and he's finding the same holds true for them. Part of the reason for the link between science and technology and arts experience, he says, has to do with the similarity of creative thinking and problem-solving skills involved in those fields. One scientist Root-Bernstein interviewed installed an art studio next to his lab. When the scientist runs into trouble with a scientific problem, he heads to the studio to paint and gain inspiration.

IMPLICATIONS FOR EDUCATION/TRAINING Given the high correlation he's found between being inventive and having extensive arts experiences, the arts should be a bigger component of science and technology education and training, says Root-Bernstein, who also is a visual artist. However, in many states, he says, students can graduate from high school having taken just one art class. Studies have shown, he notes, that the best predictor of success in science and engineering is not IQ or test scores, but visual-thinking skills — which are developed by activities such as painting and drawing. *By K.F.G.*

G.L. KOHUTH/NSU



READING ROOM: PAM BELLUCK '85

The adventures of an island doctor

For many people, Nantucket is an easy, high-speed ferry journey from the mainland. But when the island is fogged in or storm-battered, those 30 miles can mean life or death. Timothy Lepore (rhymes with *peppery*), the only full-time surgeon on Nantucket, is the one who must operate on a patient if an emergency occurs, far from the backup support of mainland hospitals.

He takes his role so seriously that he rarely leaves the island; when he is there, he does not touch alcohol. He also makes 3 a.m. house calls, plucks ticks off dead deer to test for diseases, performs cesarean sections, sets bones, consults on homicides, and treats the occasional pet horse.

An outspoken political conservative (who nevertheless is the only doctor to perform abortions east of Boston), Lepore is an archetype of the islander: slightly odd and fiercely independent.

WHAT SHE'S READING:
The Inner Game of Music by Barry Green and W. Timothy Gallwey

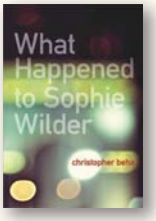
What she likes about it:
"As a jazz flutist, I find that it helps me free myself from all the inhibitions one can lay on oneself when performing and improvising; you get out of your head and stop overthinking."

New York Times health and science reporter Pam Belluck '85 has been following Lepore since she profiled him in 2007. The result is her first book, *Island Practice: Cobblestone Rash, Underground Tom, and Other Adventures of a Nantucket Doctor* (PublicAffairs), about a doctor who is vital to a small, isolated community in an era of increasingly impersonal medicine. Indeed, not only does Lepore help patients at all hours, but he often cuts deals with those who cannot afford his services — such as accepting a weekly delivery of oatmeal cookies in exchange for an appendectomy.

Lepore's commitment to doing what is "right" is set among a community often known as a gilded summer playground. "People have a sense that Nantucket is a lot more homogeneous than it is," Belluck says. "But it has an incredible diversity of immigrant populations and economic diversity."

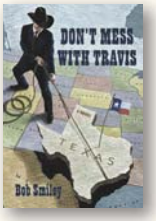
DAVID BEYDA STUDIO

NEW RELEASES BY ALUMNI

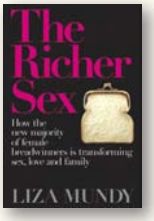


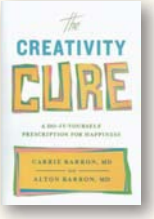
CHRISTOPHER R. BEHA '02's debut novel, *What Happened to Sophie Wilder* (Tin House Books), follows Charlie Blakeman, a writer in New York struggling with his second novel, and his troubled college love. An associate editor at *Harper's Magazine*, Beha is the author of the memoir *The Whole Five Feet*. … A heart surgeon in New York,

HAROLD FERNANDEZ '89 came to the United States from Colombia as a youth. In his memoir, *Undocumented: My Journey to Princeton and Harvard and Life as a Heart Surgeon* (Tate Publishing), he shares his story. … In *Freedom and the Arts: Essays on Music and Literature* (Harvard University Press), **CHARLES ROSEN '48 *51**, a pianist and critic, covers topics ranging from the tonal logic of Mozart's operas to the "transfiguration of poetry." Rosen writes that he aimed to "keep in mind that listening and reading with intensity for pleasure is the one critical activity that can never be dispensed with or superseded." … The main character in **BOB SMILEY '99**'s comedic political novel *Don't Mess with Travis* (Thomas Dunne Books) is Ben Travis, a Texas senator who unexpectedly becomes governor. When he suspects that the U.S. president is up to something shady, he teams with a tweedy Princeton politics professor and leads an effort to have Texas secede. …



LIZA MUNDY '82 writes in *The Richer Sex: How the New Majority of Female Breadwinners is Transforming Sex, Love, and Family* (Simon & Schuster) that "we are entering an era where women, not men, will become the top earners in households." She examines how this "big flip" is changing dating, marriage, and home life. … **CARRIE BARRON '81** and her husband, Alton Barron, argue in *The Creativity Cure: A Do-It-Yourself Prescription for Happiness* (Scribner) that engaging in creative outlets is critical to easing depression and anxiety and leads to well-being. Carrie Barron is a psychiatrist/psychoanalyst on the faculty of the Columbia College of Physicians and Surgeons.





The year-round community struggles with the effects of its isolation and an unstable, tourism-based economy. Alcoholism, depression, and teen suicide are major problems, but Nantucket is a loyal and supportive place that embraces and returns Lepore's commitment to it.

As the book paints a picture of the island and its year-round and summer residents, it deftly transitions into a commentary on today's health-care system. While Lepore spends more time with his patients than most doctors and refuses to turn away those who cannot pay, this comes at a price: He always is on call, and increasingly, he chafes against the demands of the new, corporate owners of the island's hospital.

Lepore, who has run 44 consecutive Boston Marathons, is 67 years old. Both he and the island look nervously toward the future. "This is a quintessential American character and story," Belluck says, "the kind of relationship people want when they talk about what we're missing in health care in America." *By Kathryn Beaumont '96*

READ MORE: **An alumni book is featured weekly @ paw.princeton.edu**

Newsmakers *continued from page 43*
cular health of minority populations, Gibbons is expected to start his new position in the summer. … **ROBERT CARO '57**, who just published the fourth volume of his biography of Lyndon Johnson, received New York City's inaugural literary award for nonfiction in April. … **JOHN ARMSTRONG '84**, a former trauma surgeon and until recently the chief medical officer at University of South Florida Health's Center for Advanced Medical Learning and Simulation, became Florida's surgeon general in May. … Architect **ERIC KUHNE *83** and his London-based firm designed Titanic Belfast, an exhibition center that opened in the Northern Ireland city March 31. Titanic Belfast is located on a waterfront that once housed one of the world's premier shipbuilding centers, including the shipyard that built the *Titanic*.

PAUL ZWOLAK

Young alumni create job website

Busy with their job hunt in their senior year, several members of the Class of 2011 knew that the investment banks and corporate consulting firms had well-organized recruiting programs and accessible employment information. But in other sectors, they found that it was more challenging to find and apply for jobs and internships.

Conversations about their scramble to find jobs led to the birth of a collaborative website, Nations' Service (http://nationsservice.org/), a free resource for students and alumni from Princeton University and other universities to find a wide variety of career paths and avenues for professional development. "The purpose of the site is to help support people to find meaningful and satisfying work in jobs that impact society for the better, whatever sector that may be in," says Bryan Locascio '11, who conceptualized the site.

The website — a wiki where users can create and edit content — contains job, fellowship, and internship postings; job-search tips; and a profile section where alumni reflect on their work and offer advice on postgraduation challenges such as finding housing and making new friends.

Launched in March, the website is aimed at people who are "looking for a way to do well by doing good." The jobs and internships represented range from a position as a farmers market associate for the nonprofit organization Boston Public Market to an internship in an entrepreneurial finance lab.

The co-founders stressed that Nations' Service does not aim to exclude any particular type of work from its offerings, but the wiki hopes to provide information about industries that may not normally have the means to scout on campus. "Nations' Service was developed to help other types of organizations, such as nonprofits and social enterprises, that tend to be less able to devote time and money into streamlined, large-scale recruiting," says website co-founder Jane Yang '11.

Job resources featured on the website include a social-enterprise database, a guide to careers in international affairs, and a how-to for starting a nonprofit. Any college student or graduate may create a profile on the website and add to its postings. Locascio hopes to see more alumni and students from Princeton and other schools contributing resources to the site.

"The most important thing is just attracting people to the site — to join it and begin to use it," he says. "Whether you run an inner-city theater group or you work to fight negative influences in the financial-services industry from within, or even if you're not sure yet what you want to be doing, we want to hear your voice on the site." *By Tara Thean '13*

Class notes

From the Archives

Vaulted ceilings and elegant architectural details are evident in this photo of Upper Madison Hall, known as "Commons" to generations of Princetonians. When Madison was constructed in 1917, it had the capacity to feed the entire freshman and sophomore classes, as well as juniors and seniors who were not in eating clubs. Commons was incorporated into the Rockefeller-Mathey complex when the University's residential-college system was created in the 1980s. Larry French took the photo, which accompanied PAW's March 22, 1989, feature story "Chow's On!" — as did a recipe (yield: 800 servings) for Cantonese Chicken Breasts, described as "an undergraduate favorite."

Online Class Notes are password-protected.
To access Class Notes, alumni must use their TigerNet ID and password.

Click here to log in.

http://paw.princeton.edu/issues/2012/06/06/sections/class-notes/

connect

"I have truly enjoyed reading the Facebook feeds and e-updates from PAW. It is always nice to get the hard copy, but I love being able to incorporate all of the info into my day."

– Jackie Bruce '99

comment

"Inspiring
Arrogant
Touching
Unjust Indefensible
Hilarious
Disturbing"

See stories come alive

PAW Online

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provide for her family. Like her own daughters, Keji lived a life where her father did not work, where the parents did not have enough cows to feed their family of six, and where her family members were outcasts in the bordering region of the DRC as the civil war continued endlessly. At the time of her marriage, she was still an adolescent, her chest as flat as an ironing board.

She says her life could have ended on the day her eldest daughter, Mundara, was born: The birth caused excessive bleeding, and the baby came six weeks early and weighed a mere four pounds. Keji says she and her baby survived only because a *khawaja,* a foreigner, who worked with an NGO drove her to the nearest clinic with a midwife, 15 miles away.

Today, the women of South Sudan are mired between tradition and 21st-century modernity. Their fathers, brothers, and husbands fought vigorously for freedom, democracy, and human rights, yet the women are unable to see these newfound ideals develop into gender equality. They have constitutional rights and serve as members of Parliament, giving the illusion of power. Unless the young nation addresses traditional, discriminatory practices and educates women about exercising their rights, women will continue to be marginalized and prevented from achieving full equality in South Sudan — leaving them little opportunity to experience the freedom and the founding principles on which their country was built.

Weeks after I meet Keji and her daughters, I find some solace in better understanding the lives of women from a different culture, facing challenges different from my own with strength and hope.

And so the image of Keji's daughters sticks with me. I see them preparing the evening tea; Mundara, now 13, finishes heating the water over the coals. She is tall and slender — a mark of her Dinka heritage. Soon her father will consider her for a bride price. Her physique should bring a high price in a bidding war this year. The man with the most cows will become her husband. P

SANDYA DAS '08

Sandya Das *08

Memorials

THE CLASS OF 1940

ALFRED R. REPPERT '40 Al's health had been declining. He succumbed Feb. 15, 2012, on Sea Island, Ga.

He prepared at Mercersburg Academy and majored in geological engineering at Princeton, where he was a member of the boxing team and Tower Club.

Upon graduating, he joined the family-owned coal business until 1964. After being named to the board of directors of Union National Bank of Clarksburg, W.Va., he joined the bank full time as a vice president and was named president in 1962. He led the bank to rapid growth and was appointed a director of the Baltimore branch of the Federal Reserve Bank of Richmond. In the 1980s he led in the formation of Union Bancorp (now a part of JPMorgan Chase).

Al is survived by his wife of 68 years, Elizabeth Long Reppert; daughters Elizabeth Reppert Abruzzino and Anne Reppert Williams; three grandchildren; and two great-grandsons. Al's classmates extend their deep sympathies to all of the above.

THE CLASS OF 1941

ROBERT L. BRIGHTMAN '41 Bob died Feb. 22, 2012, in Van Dyk Manor of Montclair, N.J.

A graduate of Montclair Academy at age 15, Bob spent a postgraduate year at Exeter and graduated *cum laude* before entering Princeton. Bob majored in economics and graduated at age 20. He was on the varsity crew, played 150-pound football, served as secretary of the Contract Bridge Club, and was a member of Cannon Club.

Joining the Navy Supply Corps as an ensign in 1942, Bob was assigned to the aircraft carrier USS *Monterey* in the Pacific theater under Adm. Halsey's task force, until typhoon damage sent troops home. He separated as a lieutenant. Bob went into the import-export business with Johaneson, Wales & Sparre, becoming first a vice president and then owner. He then joined Grängesberg-Oxelösund as vice president, before leaving to become vice president of purchasing for West Point Pepperell, retiring in 1988. He was an avid golfer and tennis player.

In later years, he and his wife, Vera, spent several months each year in her hometown of Göthenberg, Sweden.

Bob is survived by Vera; his son, Richard; daughters Shelley and Susan; two grandsons; and two great-grandsons. He was predeceased by his first wife, Marion Altreuter.

NORMAN J. HILTON '41 Norm died Oct. 31, 2011. Formerly a resident of Rumson, N.J., Norm had resided at Sea Island, Ga., since 1995.

Born April 13, 1919, he enrolled at Harvard Business School after graduation from Princeton. Norm also served in the Navy during World War II, achieving the rank of lieutenant.

In July 1947 he married Constance Carens of Wellesley, Mass. Norm entered his family's 80-year-old clothing manufacturing and retail business, and quickly became a pioneer of the emerging "Ivy League" look in menswear. His Norman Hilton brand of fine, traditional suits and sports jackets achieved nationwide renown for quality and style. In 1967, Norm was the first investor in Polo/Ralph Lauren, effectively making him the man who helped to found Polo Ralph Lauren. Selected by Burberry of London as U.S. agent, he grew the sales of the Burberry brand 30-fold between 1975 and 1987.

He participated in the board of directors of Riverview Hospital in Red Bank, N.J. He was an avid golfer and member of the clubs at Sea Island, Ocean Forest, Pine Valley, and the Royal Company of Edinburgh Golfers in Muirfield, Scotland. Survivors include his wife of 64 years, Constance Hilton; sons Norman Jr. (Nick), Alexander, and Thomas; a daughter, Laura; and 13 grandchildren.

THE CLASS OF 1942

JAMES J. HOWLEY '42 Jim Howley died Feb. 12, 2012, in Florida after a brief illness.

Jim was born in Jersey City, N.J., in 1920 and graduated from St. Peter's Preparatory School at age 16. He went on to Hotchkiss and later to Princeton, where he was an outstanding lineman on the football team for three years and a member of Cap and Gown. At all of these schools, Jim's ability to make and keep friends became apparent.

In the middle of his senior year, Jim left Princeton and made an unsuccessful attempt (because of poor vision) to receive a commission in the Navy. Instead he worked for Pan American Airways in Brazil and later for the OSS in Africa. Following the war he returned to Princeton and received his degree.

In 1948, Jim married the renowned fashion designer Tina Leser. As a honeymoon the couple took a trip around the world, during which Tina looked for inspiration in exotic lands such as India. Subsequently Jim worked as director of manufacturing in Tina's dress-design business.

Tina died in 1986. Following the death of his second wife, Virginia, Jim married Donna Ullery. He is survived by Donna; daughter Georgine; three stepchildren; and 12 grandchildren. The class extends sympathy to them.

THE CLASS OF 1944

KONRAD C. MUELLER '44 Konrad died in Hot Springs, Ark., March 10, 2012.

Born in Germany, he lived in Scarsdale, N.Y., before coming to Princeton. Konrad was on the staff of the *Bric-A-Brac*, served as president of the International Relations Club, and was a member of the Madison Debating Society and Court Club. He roomed with Ho Marchant and Bill Rusher. He left to serve three years in the Field Artillery's 31st Division in the Pacific before returning to get his degree in 1947, with highest honors in history.

Konrad received a fellowship to attend Harvard for a master's degree. He later earned a Ph.D. and then spent two years teaching at Harvard. He married Georgia Voorhees in 1947 and taught at the University of Miami before taking a job in the federal government's Foreign Broadcast Information Service, where he had a 26-year career including seven years overseas.

As an immigrant himself, Konrad reached out in friendship and teaching to other Americans and was a founding member of the Linden Project to assist underprivileged children in Washington, D.C. He joined his classmates for the 40th, 50th, and 55th reunions in Princeton.

Georgia died in 2008. Konrad is survived by his son, Stephen; daughters Margaret and Marianne; three grandchildren; and five great-grandchildren.

THE CLASS OF 1945

JAMES S. LESTER '45 *48 Jim Lester died May 17, 2011.

Jim was a "dyed-in-the-wool" alumnus of Williams and received a bachelor's degree from that institution in 1947. According to Princeton records, he enrolled here in 1943 but then left in March 1944. He spent two years in the Navy as an engineering officer aboard the USS *Sierra* in the Pacific. Upon his return to Princeton, he was awarded a bachelor's degree in engineering from the University in 1947 and a master's degree in engineering in 1948. He always has been included in the class rolls of 1945. No one is sure how that happened, but we have always been happy to have him as a member of the Class of 1945!

Jim joined Sun Oil Co. in Philadelphia and married Anne Davidson in 1948. He then worked for CPC International, where he remained for his entire business career.

Jim and Anne had five daughters but were divorced in the 1970s, after which Jim married Jane Kirkpatrick. They moved eventually

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to Maine for several years and then finally to Knoxville, Tenn., where Jim remained until his death. In addition to Jane, Jim is survived by his daughters, three stepsons, and one stepdaughter. The class expresses its sympathy to the family.

MYLES C. MORRISON JR. '45 Mike died April 2, 2010, at home, surrounded by his loving family.

A graduate of the Pingry School, Mike loved Princeton and Tiger football. He played freshman football, waited tables at Commons, and joined the Glee Club and Campus Club. He was in the accelerated undergraduate premed program during World War II. Mike earned a medical degree at the University of Rochester, and served the Navy in Trinidad and at Bethesda (Md.) Naval Hospital. He completed his residency in surgery, obstetrics, and gynecology at Strong Memorial Hospital in Rochester, N.Y.

Mike married his beloved Pat (Lorraine Porter) and they moved to Morristown, N.J., in 1954, beginning his 55-year affiliation with Morristown Memorial Hospital. He served as chairman of the department of obstetrics and gynecology and as vice president and president of the medical staff. Mike was an associate clinical professor at Cornell, a diplomate of the American Board of Obstetrics and Gynecology, and a fellow of the American College of Surgeons and the American College of Obstetrics and Gynecology. He served as a delegate to the American Medical Association and the state and county medical societies.

In addition to Pat, Mike is survived by his sons, Myles III '73 and Scott '76; daughters Kim, Robin Parlee '78, and Heather Yader; and eight grandchildren. The class expresses sympathy to the family.

THE CLASS OF 1947

WILLIAM T. FLEMING '47 Bill, who had a very distinguished legal career, died peacefully at home March 17, 2012, after a brief illness. After graduating from St. George's School in Newport, R.I., in 1943 he entered Princeton, but his education was interrupted by the war. He served 2 1/2 years in the Army, principally in a machine-gun platoon that participated in three campaigns in Western Europe.

In 1949, Bill received his Princeton diploma from the Woodrow Wilson School and then entered Columbia Law School, from which he graduated in 1952. He joined the law firm of Vinson & Elkins in Houston, Texas, upon his graduation from Columbia. At that firm he founded the corporate- and securities-law section and for many years was on the firm's management committee. He was a director of numerous corporations, including Rowan Companies Inc. and Fairmont Foods Co.

After retiring in 1992 from Vinson & Elkins he lived the rest of his life with his wife, Kathryn, at their cherished Harmony Farm in Millican, Texas. He is survived by Kathryn; two sons from his first marriage, William Fleming and his wife, Norma, and Alexander; stepdaughter Robin Woodworth and her husband, John; his sister, the Rev. Julie Nelson; and seven grandchildren. To them all, the class extends deepest sympathy.

JAMES K. MERITT '47 When Jim died Jan. 2, 2012, Princeton and the Class of 1947 lost a good friend.

Jim entered Princeton in November 1943 in the Navy V-12 program. Before returning to the University in 1946, he served in the American theater and separated as an ensign. Jim graduated *magna cum laude* in February 1948. After a short time working on Wall Street he was called to serve in the Korean conflict for 3 1/2 years.

In 1954, Jim joined General Electric and in 1959 was transferred to the company's Philadelphia plant, where he worked as a financial analyst. Upon his retirement in 1984, Jim and his wife, Rose, moved to Turnersville, N.J.

Jim's great interest after career and family was ornithology, which involved studying birds in America and a lot of international travel. On other occasions Jim and his family took trips to different parts of the West. He followed Princeton sports and attended football and men's and women's lacrosse games. Jim also was a frequent presence at Reunions.

Jim was predeceased by his first wife, Ann Farr, in 1959, and by Rose and his son Andrew in 1999. The class extends its deepest sympathy to his sons James Jr. and his wife, Marilyn, and Ben; his daughter, Cornelia, and her husband, Robert; and his brother, Arthur '57.

ORSON D. MUNN JR. '47 Orson Munn died Aug. 25, 2011, at his home in Southampton, N.Y. He was 86.

Orson was very much a man of his generation. He attended Lawrenceville before entering Princeton in 1943, where he enrolled in the Navy V-12 program. After receiving his commission, he served as an officer on a torpedo boat. He returned to Princeton, graduated in 1948, and married Patricia Geoghegan the same year.

He began a very successful investment career at Wood Walker & Co. and became its CEO and chairman of the executive committee. He founded Orson Munn & Co. in 1983 and subsequently merged his firm with Bernhard Associates to create Munn Bernhard & Associates in 1990. He retired in 2007.

Orson was a great sportsman, well known as a star fisherman and an excellent waterfowl and upland game shooter.

He served on the Southampton Village Board of Trustees for 19 years (1967-1986) and was responsible for the creation of many of the parks in the village.

Orson's most outstanding characteristic was his love for Patricia and their two children, Linda and Orson III. He is survived by them and by his daughter-in-law, Christine; and four grandchildren, to whom the class extends its deepest sympathy.

THE CLASS OF 1948

HENRY S. BEERS JR. '48 *50 Hank Beers died Feb. 29, 2012.

A longtime resident of Huntington, N.Y., Hank was born in Hartford, Conn., attended local schools and graduated from Kingswood School. Entering Princeton in June 1944, he was secretary of the Institute of Aeronautical Sciences (student chapter) and a member of the Flying Club, and he took his meals at Key and Seal. He graduated with honors and stayed on to earn a master's in aeronautical engineering in 1950.

Hank's early career was with United Aircraft, Curtiss-Wright, and Grumman Aircraft. In 1970 he became an aviation industry casualty and changed his focus to leasing computers. He wrote many articles on the subject and lectured frequently. His book, *Computer Leasing,* established him as an expert in the field. He retired from NYNEX in 1992. Late in life he earned a law degree and established a practice in family law.

Hank and Carol Voss were married in September 1950. He is survived by Carol and their three children, Joanne Cree, Linda, and John '76. The class offers its condolences on the death of a loyal classmate.

THE CLASS OF 1950

WILLIAM H. BOOTH III '50 Bill died Nov. 19, 2011, in Lafayette, La.

He was born in Shreveport, La., and graduated from Culver (Ind.) Military Academy. At Princeton, he majored in politics and belonged to Terrace. At graduation, he received his commission as an officer in the Field Artillery Officers' Reserve Corps.

Bill was called to active duty in 1951 and served as a first lieutenant in Tokyo, Korea, Malaya, and Indochina. After his discharge in 1953, he returned to Shreveport to work for his father (a member of the Class of '24) for a few years before going to southern Utah to prospect for uranium. After a serious automobile accident interrupted prospecting, he decided on a less rigorous job: oil exploration for Exxon in Illinois and Michigan.

A family tragedy prompted Bill's return to Louisiana, where he worked as a real-estate developer until he joined the family leather-

tanning and manufacturing business. When the business was sold in 1968, he took over management of the family real-estate holdings in Buford.

Bill was passionate about golf and college football.

We extend our condolences to his children, Rosemary and John; his sister, Joan Barton; and six grandchildren.

PAUL M. INGERSOLL '50 Paul died of respiratory failure Jan. 2, 2012, in Philadelphia.

He graduated from St. Paul's. At Princeton, where his father was in the Class of '22, he played freshman football, was a member of the Rugby Club, belonged to Ivy, and majored in history.

After graduation, he was called to active duty in the Army as a second lieutenant. His early career included working for Penn Mutual Life, co-founding a plastic- and metal-container distributorship, and holding various assignments with Provident National Bank, which culminated in becoming its president in 1974. He left the bank in 1979 to start a rewarding, 30-plus-year relationship with the international auction house Christie's. He became a senior vice president in 1990 and remained a consultant after retiring in 1995.

Paul served on the boards of many companies and nonprofits. He was an 18-year trustee of Drexel University, which was founded by his great-grandfather.

He was an avid antique toy collector, and enjoyed accompanying his wife when she traveled for her antiques business. He took pride in being a founding member of "The Unnamed Group," a reading group that just marked its 50th year.

We extend our sympathy to Mimi, Paul's wife of over 60 years; and his daughters, Lea, Rita, and Francie, to whom he was devoted.

THE CLASS OF 1951

DONALD B. CASTLEMAN '51 Don was born April 26, 1929, the son of Godwin Munn '27 and Eleanor Brook Castleman.

A graduate of Poly Prep in Brooklyn, he was an economics major at Princeton, a member of Charter, played football and lacrosse, and roomed with Frank Collins, Hugh Corroon, and Ham Crawford.

After graduation, he served for two years in the Army as a member of the Counter Intelligence Corps. In 1956 he and Suzanne Stephens were married. Upon discharge from the service, he joined Bankers Trust Co. in New York as a commercial loan officer. After 41 years at Bankers Trust, Don retired in 1996 as a managing director.

Longtime residents of Little Silver, N.J., Don and his wife were active in civic affairs. He served for six years on the board of education, two as president. Suzanne was mayor of the borough for 17 years. They were members of the Rumson Country Club and the Sea Bright Beach Club.

Don died May 24, 2011, at home, to be followed by Suzy, who died July 29, 2011. He is survived by his daughters Anne (Mrs. Daniel) Connell and Elizabeth Castleman-Halpin; four grandchildren; and his sister, Sally (Mrs. Homer) Eckerson.

JOHN G. LAUFF '51 Jack was born Oct. 14, 1929, in Milan, Mich., the son of John and Mary Klein Lauff.

He attended the University of Michigan for a year prior to coming to Princeton. Jack was an economics major and active in Orange Key, Whig-Clio, and the band. He was a member of Cloister Inn, NROTC, and Catholic Club and roomed with Bill Brinckerhoff.

Jack was a Naval officer in the Atlantic and Mediterranean for three years before going to work for an advertising agency in New York. His promising potential was cut short when he developed behavioral abnormalities in his late 20s, which now are recognized as characteristic of bipolar disease. He spent much of his adult life in California in a dysfunctional family and returned to Michigan after the death of his wife and adult son. He moved to a senior home in Greenville in 2002 and then relocated in 2011 to the Grand Rapids Home for Veterans, where he died April 6, 2011, of cardiac arrest.

Jack is survived by his brother, George. His brothers Bernard and Raymond and his sisters Catherine, Mary, and Justina predeceased him. Jack's ashes were buried at sea, as were those of his son, Johnny.

THE CLASS OF 1952

CONSTANTINE SIDAMON-ERISTOFF '52 Connie died peacefully Dec. 26, 2011, at home in New York City. He was 81.

A prominent New York environmental attorney and senior government official deeply involved in civic and charitable organizations, Connie graduated from Princeton as a geological engineering major before serving as an Army lieutenant in Korea, where he received a Bronze Star for meritorious service.

Connie earned his law degree from Columbia in 1957. After several years in private practice he entered government under New York Mayor John V. Lindsay, eventually serving as administrator of a new transportation "super agency." His government service also included 15 years on the Metropolitan Transportation Authority board and four years as Region 2 administrator of the Environmental Protection Agency in the administration of President George H.W. Bush, where he successfully advocated an innovative watershed-protection plan that has allowed New York City to avoid building a multibillion-dollar drinking water-filtration plant.

Connie was active throughout his life in many charitable causes, including Princeton, and at his death was board chairman of Audubon New York.

He is survived by Anne, his wife of 54 years; his sister, Anne S. Eristoff; children Simon '80, Elizabeth, and Andrew '85 and their spouses; and eight grandchildren.

THE CLASS OF 1955

JOHN C. COOPER III '55 John Cooper, son of John Crossan Cooper Jr. '23, was born March 23, 1933, in Baltimore. He died March 7, 2012, at Baltimore's Keswick Multi-Care Center after suffering from Alzheimer's disease.

At Gilman School, John was active in publications, football, and wrestling. At Princeton, John's major was history. For Colonial Club, he participated in IAA basketball, squash, and softball. He won numerals in freshman lacrosse and lettered in 150-pound football. His senior-year roommates at 411 1901 Hall were George Carey, Tom Parr, Malcolm McCorquodale, Tom Gorter, George Wagner, Henry King, Rollin Otto, and Richard Willis.

John served two years as an Army officer, graduated from the University of Virginia Law School, and became a partner at Piper & Marbury. As a man who valued family, friends, and co-workers, John will be sorely missed. To his wife, Mimi Cooper; sons Michael, Mark, and Curtis Cooper; his sister, Mrs. David A. Robertson Jr.; and cousin Jay W. Cooper '53, the class extends sympathy.

FREDERICK A. LONDON '55 Fred London, a maverick who inspired admiration and love in those who knew him, was born Oct. 6, 1934, in New York City and, to widespread regret, died Dec. 3, 2011, in San Rafael, Calif.

Gregarious and with an inquiring mind, Fred had a ready laugh, loved life, and had the self-confidence to tell jokes about himself. An outspoken staff member at Kaiser Permanente, he was much admired for his courage in disagreeing publicly on issues promoted by his "superiors." After learning to play as an adult, Fred became passionate about tennis. He loved poetry and, though suffering from Alzheimer's, was able to compose poems right up to the end.

Fred was a longstanding and admired member of a men's club in Marin County, Calif., and his memorial service, crowded with former friends and colleagues, was enhanced by the musical talents of six classmates: Joe Bacheller, Tom Jordan, Mike Lee,

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Steve McNamara, Nelson Wild, and Jack Wilson, who sang "Old Nassau" and "Going Back" to a house with no dry eyes.

From his wife, Trudie, who along with children Ryan and Adam, survives Fred, there is a wonderful reminiscence that will be posted on our class website, www.princeton55.org.

JOHN B. MORTON '55 John Morton was born Jan. 25, 1934, in Greenwich, Conn., and died peacefully Feb. 9, 2012, also in Greenwich.

Speaking several languages and understanding how to navigate the investment world, John was sent by the Navy to Morocco and later to Washington, where he marveled at Ralph Nader's talent for backing young women into corners and advising them that their vehicles were unsafe at any speed. Following his government stint, John joined First National City Bank, which sent him abroad to focus on international markets. While working, he earned a master's degree from New York University and became a chartered financial analyst.

In the late 1960s, John joined Fairfield Partners in Greenwich, one of the first Connecticut-based hedge funds. At Fairfield Partners and later at Goodnow Gray and Associates, John served as a partner for many years. A licensed pilot, he was on the Greenwich Library board and served as president of the Greenwich Skating Club. He was a member of the Round Hill Club, the Greenwich Field Club, and the Sankaty Head Golf Club of Nantucket.

To John's wife, Robin Morton; children Sarah Goldman and Ian Morton; and four grandchildren, the class sends its sympathy.

THE CLASS OF 1958

FRANKLIN R. MASON '58 Chip died Jan. 25, 2012, in Lajeado, Brazil, due to complications from pneumonia and multiple strokes.

He came to Princeton from St. Albans in Washington, D.C. At Princeton, he majored in civil engineering and took his meals at Quadrangle Club. During his senior year Chip roomed with Walt Strine, John Danielson, Dick Nelson, Raud Johnson, and Dick Howard.

After Princeton, he earned an M.B.A. from the Kellogg School of Management at Northwestern University. He worked for Ford Motor Co. for 15 years, a job that took him and his family to Italy, France, and Portugal over a period of nine years. In 1975, Chip moved to Houston, where he worked for Raymond International and Gulf States Toyota. He retired in 1998.

Chip loved to travel, visiting every capital city in the United States and every continent except Antarctica. After moving to Brazil in 2003, he worked hard to master the Portuguese language and to learn the culture and customs of his newly adopted country.

Chip leaves his wife, Ivete Kist; children Bill and Lisa from his previous marriage to Layne Mason; grandchildren, Kate Mason and Theo Thompson; and two stepchildren. To them all, the class sends its condolences.

THE CLASS OF 1959

MANDEVILLE A. FROST '59 Tom died of heart failure Oct. 13, 2011, at home in Rhinebeck, N.Y.

Born 59 seconds into 1938, Tom was raised in Hyde Park, N.Y., attending Roosevelt High School, where he captained the basketball and soccer teams and presided over the student council. Tom played varsity baseball and basketball at Princeton, served on Cannon Club's bicker committee and as club editor for the *Nassau Herald*, worked on the Campus Fund Drive, and inhabited the infamous "Rockefeller Suite." He majored in English.

While attending law school at the University of Virginia, Tom married Barbara Bowen, sister of our classmate Buck Bowen. After a brief Army tour, Tom entered private practice in Rhinebeck in 1963.

His distinguished law career met a tragic end in 1978, when Tom was in a head-on automobile collision causing severe injury and short-term memory affliction. His heart stopped beating for several minutes, causing him to suffer several heart attacks over ensuing years. Despite this, Tom retained his irreverent humor, his mischievous spirit, and his love of literature and sports. With his great friend and classmate, Hans Mautner, he pursued his passion for fishing.

Divorced from Barbara, Tom married Sue Chamberlain in 1992. He is survived by Sue; daughter Bentley Hardwick; sons Scott and Thomas; seven grandchildren; and his brother, Louis '63. We have sent condolences.

HARRY H. HUMMER '59 A resident of North Falmouth, Harry died of leukemia Nov. 26, 2011, in Sandwich, Mass.

Born in Lead, S.D., Harry grew up in Madison, Wis., and prepped at nearby Wayland Academy, where he played tennis, ran track, and captained the swim team. Bringing those talents to Princeton, Harry played on the freshman and varsity tennis and squash teams and swam with the varsity team. He majored in politics and ate at Tower Club.

Following graduation, Harry earned a master's degree in Asian studies at the University of Wisconsin. In 1966 he joined Chase Manhattan, serving as country manager for South Vietnam during the war. In 1978, he was named chief credit officer for Chase, later heading the bank's home-mortgage unit. His 30-year banking career included service with American Express, and as chief credit officer for Meritor, Anchor, and Dime savings banks.

In 1981, while living in New Canaan, Conn., Harry married Carolyn Morner. After his retirement they lived for 15 years in Santa Fe, N.M., before settling on Cape Cod. An accomplished golfer, Harry won numerous club tournament honors at clubs in Pennsylvania, New Mexico, and Massachusetts.

Harry is survived by his wife, Carolyn; his stepson, Gary Oakley Jr.; his stepdaughter, Sara Mullaney; and five grandchildren. We have sent condolences.

THE CLASS OF 1965

PETER WHITNEY '65 Pete died Feb. 9, 2012, from a stroke following cardiovascular surgery.

He came to Princeton from Horace Greeley High School in Chappaqua, N.Y. He majored in history and co-chaired the Intercollegiate Conference on Latin American Affairs. He pitched freshman baseball, played freshman soccer, and ate at Tower Club.

After graduation, Pete spent a year in Brazil on a Fulbright. He earned master's degrees from Vanderbilt (economics) and Harvard (public affairs) and was a graduate of the National War College.

Pete was a career Foreign Service officer, serving in Portugal, Japan, Brazil, Chile, Jamaica, Argentina (where he founded the Princeton Club), and Washington. After retirement, he taught economics and international trade at Duke, American University, the University of Denver, and the National Foreign Affairs Training Institute. He was a senior adviser on Latin America for Control Risks Group and co-authored *Fundamentals of U.S. Foreign Trade Policy*.

Pete's active mind and spirit encompassed many areas. He was treasurer of the Vinifera Winegrowers Association, president of the Washington Botanical Society, a board member of the C&O Canal Association, and Little League commissioner in Annandale, Va.

The class sends sympathy to Peter's wife of 44 years, Martha; sister Mary Whitney Hoch; daughter Martha Savanna Whitney; son Tyson Peter Whitney; and granddaughters Eva Maria and Marta Mireia Whitney.

THE CLASS OF 1969

JAMES B. BLACKBURN '69 Jim Blackburn died March 5, 2012, in Matthews, N.C., from complications relating to a stroke.

Born in Pittsburgh and raised in Michigan, Jim graduated from Grosse Pointe High School and followed his father, uncle, and grandfather to Princeton. Jim majored in English, was a member of Quadrangle Club, wrote for the *Prince*, and often played bridge late into the night.

After graduating, Jim ended up in North Carolina for a brief stint in the Army. He stayed down South, receiving a master's in public administration from North Carolina State University and a law degree from Duke. For over 25 years, he served as general counsel to the North Carolina Association of County Commissioners. In 2011, Jim became a member of the Order of the Long Leaf Pine in celebration of his commitment to North Carolina and dedication to public service.

Jim is survived by Cyndy, his wife of 37 years; their children, Sarah, Jamie '08, and Natalie; and his grandson, Coleman. Jim had a nearly perfect Reunions attendance record and was a regular sight on campus for sporting events and alumni weekends. His keen sense of humor and dry wit will be missed by all.

THE CLASS OF 1972

ALOYSIUS L.K. AMENUVOR '72 Aloysius Lotsu Kwaku (or "Quarcoo") Amenuvor of Edison, N.J., died Feb. 8, 2012, at Robert Wood Johnson Memorial Hospital in New Brunswick after a sudden illness. He was 67.

Known as Lotsu, he came to Princeton from Keta in the Volta region of Ghana. He had taught secondary school there before applying for admission through the African Scholarship Program of American Universities (ASPAU), which brought African students to U.S. college campuses during the 1960s and '70s.

Lotsu lived in Foulke, dined at Wilson College, and earned a bachelor's degree in electrical engineering. He was active in the Foreign Students Association and the Pan-African Students Association.

After graduate studies at the University of Michigan he worked at AT&T Bell Laboratories. An expert in complex computer-systems testing, he then joined ITT Exelis Inc., where he was employed at the time of his death.

Lotsu is survived by his wife, Eyriam Fianenu Amenuvor; and his son Elikem Setor Amenuvor. To them, his extended family, and many friends and admirers in the United States and Ghana, the class offers sincere condolences.

Graduate alumni

C. BOYD SHAFFER *41 Charles Shaffer, the retired director of toxicology at American Cyanamid Corp., died Oct. 4, 2011. He was 94.

Shaffer graduated in 1938 from Lebanon Valley College, and in 1941 he earned a Ph.D. in biology from Princeton. From 1941 to 1952, he was at the Mellon Institute (now Carnegie Mellon University). Shaffer became the director of toxicology at American Cyanamid in 1953, and retired in 1980. In this position, he was in charge of all testing except for the drug division.

PAW posts a list of recent alumni deaths at paw.princeton.edu. Find it under "Web Exclusives" on PAW's home page. The list is updated with each new issue.

A pioneer in the field of toxicology (the science of dealing with the effects, antidotes, and detection of poisons), Shaffer was one of the founders of the Society of Toxicology in 1961, and its second president in 1962-1963.

Shaffer's son, William '68, relates that his father didn't have a subject for his doctoral dissertation at Princeton and thus readily accepted his adviser Professor Wilbur Swingle's suggestion to write on the emerging field of toxicology. This work was important in American Cyanamid's hiring him.

Shaffer had been a sustaining member of the APGA since 1986.

He was predeceased in 2002 by Louise, his wife of 60 years. Shaffer is survived by two sons, four grandchildren, and three great-grandchildren.

ROBERT T. PETERSSON *46 Robert Petersson, professor emeritus and former chair of the English department at Smith College, died peacefully April 8, 2011, at the age of 92.

Petersson graduated from UC, Berkeley, in 1942 with a bachelor's degree in classics. He then came to Princeton and received a Ph.D. in English in 1946. (A lung condition made him ineligible for military service.)

He began his full-time teaching career in 1945 at the University of Chicago, and then taught at Yale from 1947 to 1952 before going to Smith as an assistant professor of English. He was promoted to associate professor in 1957 and to full professor in 1964. He became emeritus in 1985. At that time, Richard B. Young, a Smith College professor of English, wrote that Petersson's "colleagues will miss the friendliness and decency with which he insisted we conduct our affairs."

One of Petersson's four books, *Shakespeare's King Richard II* (in the Yale Shakespeare series, 1957 and 1965), was a Book-of-the-Month Club selection. Among his awards were grants from the American Philosophical Society and the American Council of Learned Societies.

Petersson is survived by Suzanne, his wife of 64 years; four children; and eight grandchildren.

GEORGE B. RATHMANN *51 George Rathmann, Amgen's first CEO who built it into the world's largest biotechnical company and was the recipient in 2002 of the James Madison Medal from Princeton, died April 22, 2012, at the age of 84.

Generally viewed as one of the founders and senior statesmen of the biotech industry, Rathmann led Amgen in the 1980s as it developed two very successful drugs — Epogen (for anemia) and Neuprogen (for avoiding infection from chemotherapy). After leaving Amgen in 1990, Rathmann helped found ICOS Corp. and was its chairman from 1990-2000. ICOS developed Cialis (for erectile dysfunction) and was bought by Eli Lilly & Co.

Rathmann graduated from Northwestern in 1948, and in 1951 earned a Ph.D. in chemistry from Princeton. From 1951 to 1972, he worked for 3M, and then from 1972 to 1975 for Litton Medical Systems. In 1975, he became head of research and development for the diagnostic division of Abbott Laboratories.

After scientists learned how to splice genes from one organism into another in the late 1970s, Rathmann (on leave from Abbott) worked in a UCLA laboratory to learn the technology. The professor who ran this lab started Amgen, and Rathmann joined the start-up in 1980.

Rathmann is survived by Joy, his wife of 61 years; five children; and 13 grandchildren.

DONALD W. BUSHAW *52 Donald Bushaw, retired professor of mathematics emeritus at Washington State University (WSU), died Jan. 15, 2012, at the age of 85.

After serving in the Pacific with the Navy during World War II, Bushaw graduated from WSU (then Washington State College) in 1949. In 1952 he earned a Ph.D. in mathematics from Princeton with a dissertation on optimal-control theory under the noted professor, Solomon Lefschitz.

Bushaw then began teaching at WSU, where he served as chair of the mathematics department, director of libraries (twice), and vice provost for instruction. In 1972-1973, he was at Jagiellonian University in Krakow, Poland, on an exchange between the National Academy of Sciences and the Polish Academy of Sciences. He retired in 1993.

WSU honored Bushaw with: the Faculty Invited Address (1968); the first Faculty Excellence Award for Instruction (1983); the Distinguished Service Award from the College of Arts and Sciences (1987); and the College of Sciences 2008 Legacy Award.

Bushaw is survived by Sylvia, his wife of 65 years; five children, including Amy '81; five grandchildren; and three great-grandchildren. A grandson died in 1988.

Graduate memorials are prepared by the APGA.

*This issue has undergraduate memorials for James S. Lester '45 *48 and Henry S. Beers Jr. '48 *50.*

POST A REMEMBRANCE with a memorial @ paw.princeton.edu

Final scene

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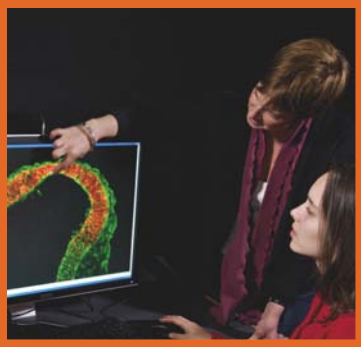
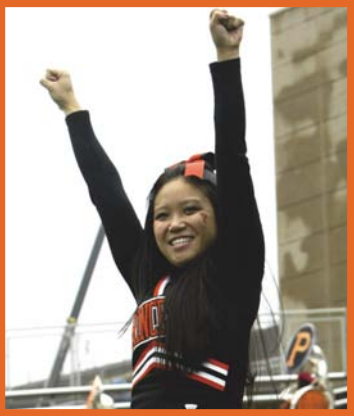
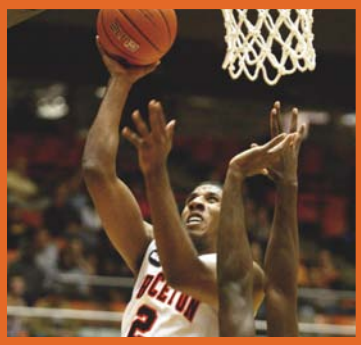
Student Colony Bricks, tools, and plywood were all that remained of the Princeton Student Colony, an Atelier project – nicknamed "Occupy New South" – in which students created a settlement under an orange domed tent. In the group's final act, May 7, the students lifted the dome and carried it away. *Photograph by Ricardo Barros*

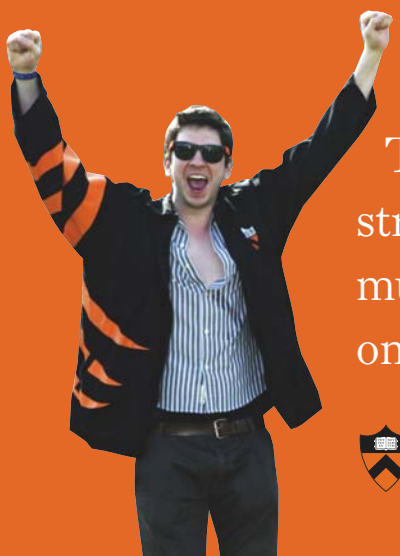






Aim *High. Be* Bold. *We're* Counting *on You.*



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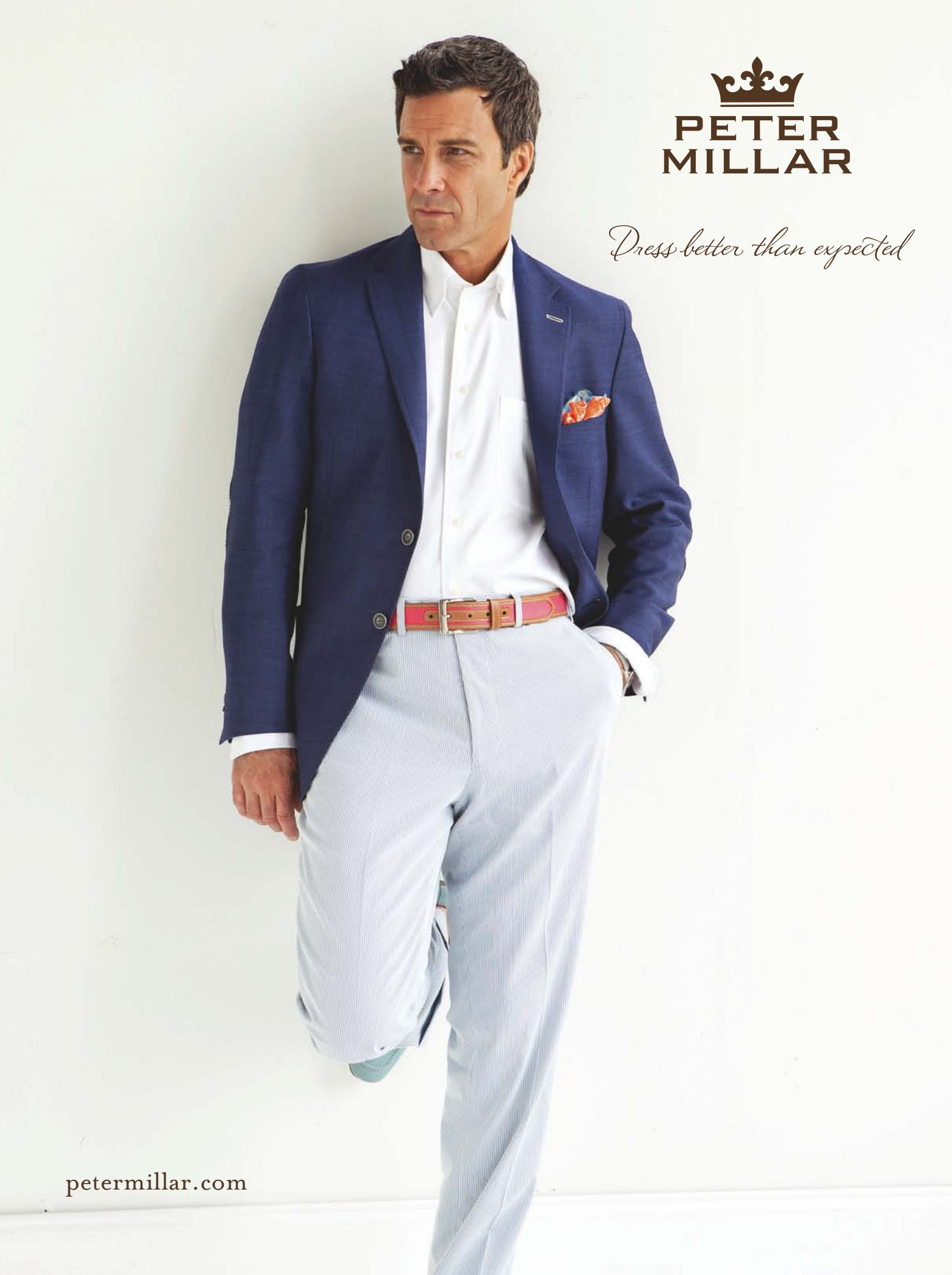
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