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PRINCETON ALUMNI WEEKLY

THE CREATIVE LIFE

Nikki Muller '05 keeps working toward that breakout role

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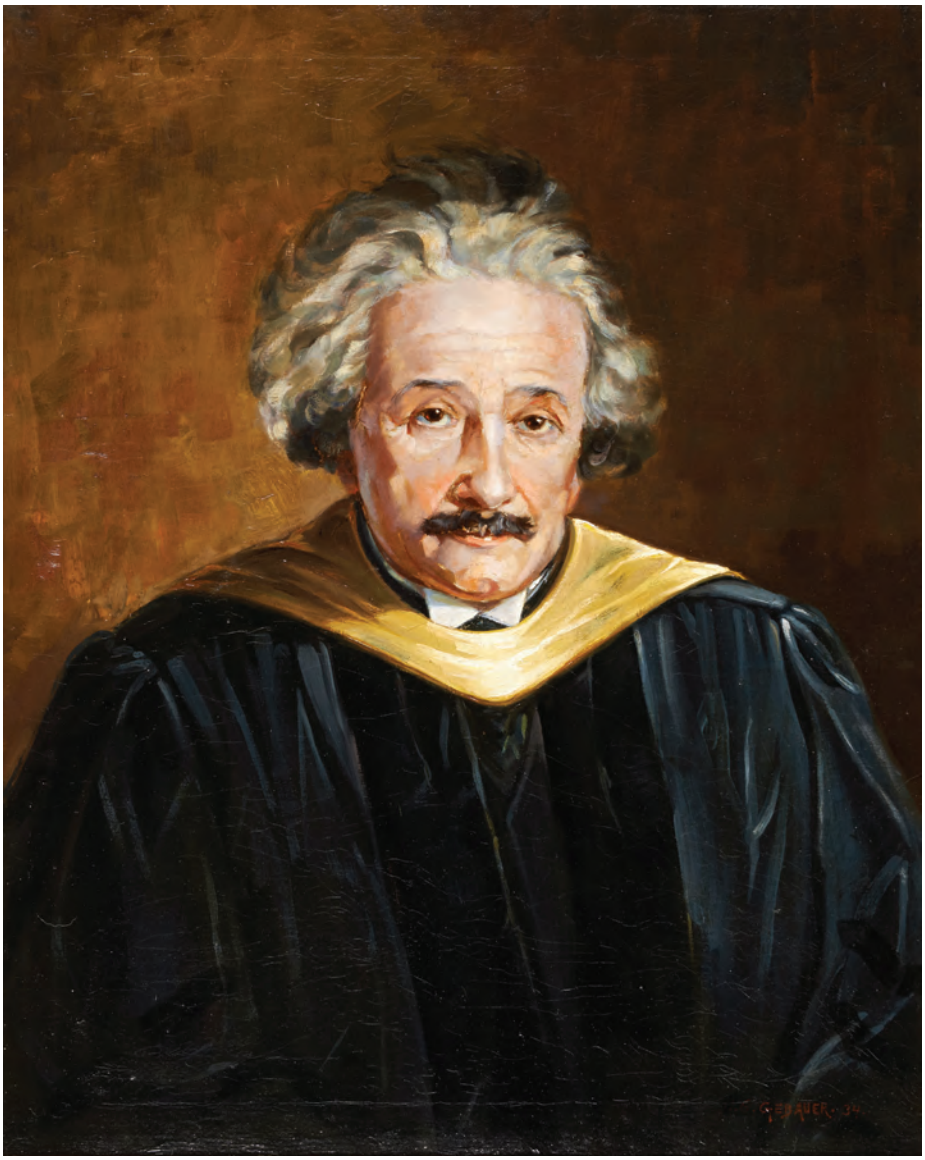

The Princeton Portrait

Albert Einstein, 1934, by Charles Gebauer (25″ x 30″)

In 1933 the Nazi government stripped Albert Einstein of his citizenship and possessions including the home he built in Caputh and his beloved sailboat. On March 24, 1934 the state of New Jersey organized a major event to officially declare Einstein a citizen of Princeton, New Jersey. The event featured a portrait of Albert Einstein by Charles Gebauer who had previously painted Thomas Edison and Franklin Roosevelt. The Newark Evening News used as its illustration of the two day event a photograph of the just completed painting. Of the seven known portraits of Einstein, The Princeton Portrait is the finest and most important in America. It is a powerful depiction of Einstein at a critical time in his life. The portrait commemorates the moment when the world's greatest scientist moves to America to live in Princeton. The Princeton Portrait was featured in the Einstein At Home Exhibition held at the Princeton Historical Society in 2011.

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December 2, 2015 Volume 116, Number 5

PRINCETON ALUMNI WEEKLY

An editorially independent magazine by alumni for alumni since 1900

PRESIDENT'S PAGE 2

INBOX 5

FROM THE EDITOR 8

ON THE CAMPUS 9
Fung Global Forum • NPR's "math guy," on teaching at Princeton • Whig-Clio: Highlights over 250 years • STUDENT DISPATCH: Designing the Hyperloop • SPORTS: Chris Young '02 in World Series • Road to Rio

LIFE OF THE MIND 17
Adele Goldberg on appetizing metaphors • Sheldon Garon on Americans and saving • Fixing photo-bombs

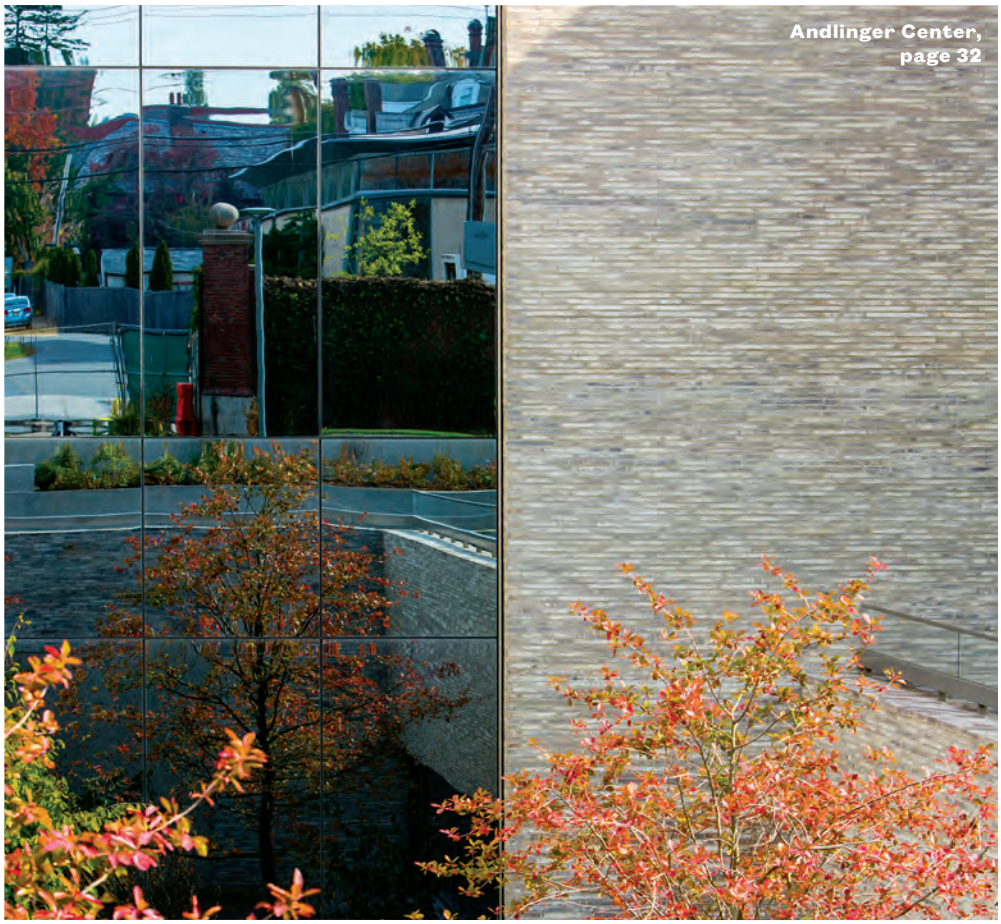
PRINCETONIANS 39
Musician Adam Ollendorff '00 • Alumnae at the new Whitney • 35 YEARS OUT: Tim Koons-McGee '80 • Essay: The night John Lennon died

CLASS NOTES 44

MEMORIALS 63

CLASSIFIEDS 70

THAT WAS THEN 72



Andlinger Center, page 32

The Creative Life 28
Writer and comedienne Nikki Muller '05 and other millennials follow a road less traveled. Health insurance can wait.
By David Walter '11

Where Collisions Are Key 32
A look at the new Andlinger Center for Energy and the Environment — and at the work of its researchers.
*By Carmen Drahl *07 and Inga Saffron*

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Study Break
Senior writer Mark F. Bernstein '83 spoke with Princeton grad students after a screening of *The Ph.D. Movie 2* for the latest edition of "PAW Goes to the Movies."

Conversations
Gregg Lange '70 revisits a classic Princeton book that features Robert Goheen '40 *48, Pete Carril, and others.

Tiger of the Week
Browse our weekly online profiles and nominate your top Tiger.

Laugh Tracks
Listen to songs by Nikki Muller '05.

Top: Ricardo Barros; left: Frank Wojciechowski; John Allen Phillips/ClickWestPhoto

On the cover: Nikki Muller '05 wearing her *kigurumi* costume: "He's basically a response to Hello Kitty, showing that animals aren't inherently cute and will kill you if they're hungry or something." Photograph by Joseph Puhy

The Power and Promise of Computer Science

When I matriculated at Princeton more than 35 years ago, my parents worried—as many parents do—that I might not find a job when I graduated. Fortunately, they put aside their concerns and let me pursue my intellectual passions, from physics to philosophy, from constitutional law to comparative literature. They imposed only a single restriction on my course selections—they insisted that I take at least one computer science class.

They were prescient. Over the last four decades, computers have transformed our society and our lives, revolutionizing how we communicate, interact, work, shop, travel, and play. Teenagers now spend their days tethered to phones and watches more powerful than the bulky VAX computer that I used to carry out the calculations required by my senior thesis.

When I took computer science from Professor Forman S. Acton in the early 1980s, the class was small, probably about 30 students. Now, Princeton undergraduates flock to the subject in droves. Computer science has become one of Princeton's three largest concentrations and the department's innovative introductory course, "General Computer Science," has the largest enrollment of any undergraduate course this semester. Fifty-six percent of the Class of 2015 graduated having enrolled in at least one computer science course. The department is a leader among American universities in the percentage of female majors; in 2015, 28 percent of Princeton's undergraduate computer science degrees were conferred to women, far surpassing the national average of 18 percent.

The field has obvious practical appeal—job openings have exploded. The U.S. Bureau of Labor Statistics has projected that between 2012 and 2022 we will see more job openings due to growth and replacements in computer occupations than in all other fields of science and engineering combined.

The power and promise of computer science go far beyond job openings. Computer science brims with intellectual excitement, offering new insights into age-old questions and novel ways to solve major societal challenges. In a 2010 report, the President's Council of Advisors on Science and Technology declared that advances in "networking and information technology" were "at the center of our Nation's ability to achieve essentially all of our priorities and to address essentially all of our challenges."

Princeton's computer science professors are asking questions about the potential of artificial intelligence and machine learning, the relationship between genomes and diseases, Internet privacy and security, and the reconstruction of damaged artwork—to name just a few topics.

Many human endeavors and scholarly disciplines now emphasize not concrete answers to particular questions, but rather algorithms, or recipes, for producing such answers. These algorithms automate our work and yield unprecedented insights into the problems we are solving. Algorithms enable biologists to analyze the human genome, sociologists to graph social networks, and financiers to evaluate reams of commercial data. Computational thinking is rapidly becoming the fourth leg of knowledge, along with "reading, writing, and 'rithmetic."

In light of the extraordinary demand for computer science classes (from concentrators and non-concentrators alike) and the pathbreaking research taking place in the field, Provost David S. Lee, Dean of the Faculty Deborah Prentice, and I have taken an unusual step: we added 10 new faculty slots to the department. Annual Giving dollars enabled us to authorize the department to begin hiring immediately in advance of fundraising to support its expansion over the long term.

The new faculty positions will allow the department to build on this University's storied tradition in computer science and related fields. Alan Turing *38, often described as the founder of modern computer science, earned his doctorate in mathematics at Princeton, studying with other giants of the field including Professor Alonzo Church '24 and Professor John von Neumann.

BENTLEY DREZNER

Student demand for computer science courses is skyrocketing. Here, students collaborate on computer science problem sets in the Friend Center.

Princeton's computer science department is an intellectual powerhouse and a fertile training ground for scholarly talent, sending high numbers of both undergraduate and graduate alumni onto the faculties of leading universities. Indeed, both the current chair of Princeton's department, Jennifer Rexford '91, and her immediate predecessor, Andrew Appel '81, are undergraduate alumni of the University.

Princetonians from across the disciplines, including computer science, economics, and electrical engineering, have been at the forefront of the digital revolution outside the academy, too. The creative leadership of Jeff Bezos '86 (Amazon), Tom Leighton '78 (Akamai), Eric Schmidt '76 (Google and now Alphabet), Meg Whitman '77 (eBay and now Hewlett Packard Enterprise and HP Inc.), and other alumni has, to put it quite simply, changed our world.

The pace of that change has been dazzling. Few of us could have foreseen 20 years ago the technology that is today so familiar, and so intertwined with our lives, that we can barely imagine living without it. It is hard to say what miracles or challenges the future will bring, but this much is clear: computer science is critical to the world's future and to Princeton's mission, and we will need to invest in it aggressively to sustain the excellence of our superb department.

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SEXUAL-MISCONDUCT REPORT

If the figures are right, they are not just heartbreaking, they are appalling ("Inappropriate Sexual Conduct Reported by 20% of Students in Campus Survey," On the Campus, Oct. 21). The percentages are approaching those in prisons. Better security and the usual suspects are fine, but what is the root cause?

Claudio Bruno *77
East Hartford, Conn.

The article concerning inappropriate sexual conduct evokes strong sadness and concern in me. I am also profoundly worried about the report methodology. Forty-eight percent of the students did not respond to this important survey, and I can find no indication that the survey scientists took steps to understand the reasons for this noncompliance.

Who were these students who did not take the survey? Were they the most traumatized or were they the least affected? Are the PAW and online reports representative or an under- or over-estimate of the problem, or are these reports otherwise seriously skewed by incomplete reporting?

Good data-gathering is essential for good policy. The presently reported data sets are not properly gathered or analyzed: They are not sufficient. This reflects poorly on the University and its competence to address sexual abuse on campus.

Richard A. Albanese '62
San Antonio, Texas

ALTERNATIVE SLOGANS

The article "Sexual Misconduct: The New Rules" (feature, Sept. 16) included numerous photos from the SpeakOut photos collection. These photos (http://bit.ly/SpeakOutPhotos) bear slogans, the general theme of many of which a wag might characterize as "responsible promiscuity" (e.g., "Sober Sex. Try It" and "Consent. Get Some"). What a refreshing contrast it would be if there were slogans along the following lines:

"I should give you the most intimate access to my body ... because why?"

"No thanks. Condoms don't shield hearts."

"The trip from *my* bathroom to *my* bedroom is not a 'walk of shame.'"

"Why should I put steroids into *my* body so *you* can have pleasure?"

"No one gets STDs from chastity."

"Tell me again why letting a guy sleep with me who barely knows me isn't using me?"

"Test drive a car, not a person."

Walter Weber '81
Alexandria, Va.

A LOSS OF INTERACTION

The Q&A with Professor Christy Wampole ("The End of Irony," Life of the Mind, Oct. 7) struck a powerful chord in me. Technology is supposed to be a help to us, but often gets in the way of real interactions. We are conditioned to respond to sound bites when we should consider profound questions. We observe rather than create. We engage in "shouting cleverly" in social media, not knowing how it affects our readers.

Our media fuel this life. Movies, TV shows, and commercials are constructed more than ever with frenetic scenes that are no more than a couple of seconds long — enough to jar us and keep us off balance. Reading real books where the reader sets the pace is no longer fundamental. Children's movies are even more frenetic, perhaps building the next attention-deficit generation.

Peter Way '77
Fort Collins, Colo.

THE BEAUTY OF BIKING

As a faculty member at another institution that struggles with the

continues on page 8

FROM PAW'S PAGES: 3/16/65

Social Starvation?

Dear Sir:

Referring to statements in PAW regarding complaints made by some Princeton students that they were starved locally, and advocating that the University should become co-educational, I cannot refrain from contrasting their present advantages with those that prevailed when I was a student there.

I am one of the unburied dead of the "Golden Nineties" and the old Princeton College of New Jersey before it became a university. We had none of the present attractions such as Lake Carnegie, swimming pool, student athletic field, automobiles, movies, radio, television, electric light and toilet facilities in the dormitories. We had an old gymnasium with four zinc lined bathtubs, in only one of which you could get any hot water. The food was poor, furnished by town boarding houses, and there were no Commons. There were three or four upper class social clubs, to which only a small percentage of students belonged.

The old Colonial Nassau Inn still was on Nassau Street and on lower Stockton Street were still standing the buildings of the famous Edgehill Grammar School, which my grandfather managed for a period. At that time he brought to Princeton Karl Langlotz as a German and music teacher, and who was later famous as the composer of "Old Nassau."

Princeton was a beautiful old New Jersey town in those days, and the home of well-known families affording a very pleasant local society.

David B. Helm '96
Brooklyn, N.Y.

PAW TRACKS

FITTING IN: Before Van Wallach '80 came to Princeton, his dad urged him to learn more about opera, to match his cultured peers. "What I found out was not knowing about Bruce Springsteen was a bigger social impediment," he said. Listen to our oral history interview with Wallach at paw.princeton.edu.

Van Wallach '80 at *The Daily Princetonian* office

Courtesy Van Wallach '80

FOOTBALL AT PRINCETON: READERS RESPOND

IS COLLEGIATE FOOTBALL TOO DANGEROUS?

In a letter in the Oct. 21 issue, Fred Doar '77 called on Princeton to end the football program, saying the game "is causing massive brain damage to its players." His idea prompted many readers to write letters and post comments at PAW Online. Here are some of them.

I served as a lineman at Princeton for four years in the 1970s, when Princeton football was noted largely for its mediocrity, and when the Ivy League, wisely, had begun its descent into the lower echelons of college football as part of its collective acknowledgement that we had more important things to do. The pain at the base of my skull, and my relative inability to flex my left ankle (a gift of a broken leg from Harvard in 1974), are daily reminders of that time served.

I am grateful for the opportunity, insofar as I am perpetually aware of the fact that were it not for the game, I would have never gained admission to Princeton. The game has never been without risk. Our increasing understanding of some of those risks, particularly the neurological ones, and the anecdotes that accompany them, make for great drama, but do not change the larger issue.

Our culture is replete with dangerous games. Individuals who engage in them, particularly young men and women who have the wherewithal to gain admission to Princeton, are capable of making some assessment of risk before and during their participation. The game of football is only one of them. The game, for all of its inherent lack of intellectual purpose, is embedded in the history of the University and embedded further in the collective consciousness of millions, and while it may ultimately go away, it will not do so quickly.

President Eisgruber, allow individuals, and at most, their parents, to make responsible risk assessments, and let them play their games. I hold no one — no coach, no institution, no parent — accountable for my aches and pains. My gratitude to the game, and to Princeton for allowing me to play it, knows no boundaries.

Kevin R. Fox '77
Philadelphia, Pa.

Mr. Doar has written to recommend an end to football for health reasons.

Since our University was a partner in introducing the sport, perhaps it should sponsor a review "in the nation's service." To me, the most disconcerting fact about the new evidence is that some players who develop chronic traumatic encephalopathy have no history of concussions or on-field injury, just repeated head bumps.

Could there be, hiding within modern football and rugby, an undiscovered sport just as exciting, but without the head trauma? After all, round balls and peach baskets were here for centuries before Dr. Naismith put them together and called it basketball.

W.R. Cunnick Jr. '47, M.D.
Port Washington, N.Y.

I strongly disagree with the view that Princeton should give up football. The writer makes some sweeping statements such as it is "undeniable" that football is bad for all players from peewees to the pros. Not true.

I played football for three years in high school (with leather helmets) and another three years at Princeton with plastic helmets but no face guard. We played both offense and defense with no platoon systems.

I am now 91 years old, and I have absolutely no ill effects from playing football. I have two good knees, two good hips, a strong heart, and mentally am just as sharp as in college. In fact, football added greatly to my maturity as a person and gave me the self-confidence that I needed. I look back on my football days with absolutely no regrets and as one of the really fun times of my life.

It is true that some smaller, lightweight players should not be playing football, for today the game is very fast with huge linemen, but blocking and tackling rules have changed from my day to protect players from leg and bodily injury. In fact, I find it amazing that football players today don't even get their uniforms dirty. Princeton should keep playing football along with all other college sports. Go Tigers.

Tom Finical '47
Scottsdale, Ariz.

Mr. Doar's letter was disturbing, both in tone and substance. But that's OK, as he clearly intended to be provocative. What's not OK, at all, is for an adult to falsely accuse a team of 18- to 22-year-olds of being "damaged." Why PAW felt justified in passing along that obscenity is beyond me. Fortunately, Tiger football players, young and old, have broad shoulders.

Jim Petrucci '86
Far Hills, N.J.

Editor's note: Jim Petrucci was co-captain of the football team in 1985.

If Princeton got rid of football, then it might as well change the mascot to a declawed kitten. Athletes know the dangers of sports and, yes, some sports are more dangerous than others, but everyone who plays football is not "damaged." I'm married to a football player and, ironically, I'm the one who could be considered "damaged" as I suffered a serious concussion pole vaulting for the University in 2009. I still chose to pole vault after that injury, fully aware of any risks. I chose to do this because I am the type of person who does not shy away from a challenge or hide when the going gets tough — champions rise to the occasion and "catch fire" (Peter Farrell, Princeton women's track and field coach).

Those are the types of traits that athletics instill in players, and they are lifelong. I would not be the person I am today without athletics, both my own with track and field and going to football games with friends. If Princeton did cut football, then lacrosse would be next, then soccer, and hockey, and field hockey. Pretty soon there would be no Princeton athletics.

Athletics are an important part of a University experience. Athletes choose to play their sports (Princeton does not offer athletic scholarships); they can walk away at any time (as many have). However, athletes should continue to have the right to make that decision for themselves and not have it taken away from them by cutting programs because of inherent

risk. We cannot actually live in an orange bubble, as Mr. Doar would like. Food for thought: Motor-vehicle accidents are the top cause of brain trauma; by Mr. Doar's logic, the University should eliminate all parking lots so as to not support such a dangerous activity.

Bianca (Reo) Charbonneau '12
North Bergen, N.J.

Re Fred Doar's letter, two thoughts come to mind: First, why would he write it? Was he or someone close to him badly hurt playing football? It appears he played football for a time at Princeton. Perhaps he had a terrible experience; otherwise, it's hard for me to understand his heavy-handed and negative attitude. Second, is PAW simply looking to generate reader reaction?

I played football for Princeton, and being part of the team was the most rewarding aspect of my Princeton experience. I suffered my share of injuries, but the benefits of playing far outweigh the toll it took on my body.

When commanding players to "just walk in and quit," saying, "You will never regret it," Mr. Doar's advice is plain wrong. Of all the players I've known at all levels, including two sons, playing football is among the greatest joys of our lives.

When he "challenges" President Eisgruber to end football, he ignores the benefits football brings to Princeton. In 2012, Princeton football energized the entire University community with a thrilling victory over Harvard and a Big Three championship.

Why is Mr. Doar picking on football? People get injured playing soccer, lacrosse, softball, and hockey, as well as skiing, skydiving, and mountain climbing. Perhaps he'll expand his mission so that Princeton bans every activity capable of inducing human injury.

On one thing, Mr. Doar and I agree. Princeton is the No. 1 school in the country. Let's keep it that way.

Ted Fire '86
Stow, Mass.

I've been a football fan all my life. Unlike some fans, I enjoy it for its artistry, not its violence. But as Fred Doar correctly points out, it's a deliberately violent sport that has been shown to cause serious brain damage for many players. Thus it's a good question as to whether Princeton, which prides itself on its cultivation of the mind, should continue sponsoring a sport that often harms the mind. Other sports such as track and field, soccer, and field hockey — though not without certain risks of their own — do not promote violence the way football does. I think that's an important distinction to keep in mind in this interesting and worthwhile conversation.

Tom Huckin '64
Salt Lake City, Utah

Recently, poignant questions have been raised about student-athlete health and welfare, and where it ranks in the continuum of universities, their football programs, and the men who lead them. However, as a former student-athlete for head coach Bob Surace '90, I know better than to question my alma mater.

As a direct result of Surace-implemented education programs on neurological symptoms of concussion, Tiger football players have saved the lives of two teammates that presented with non-football-related neurological episodes — one a stroke, and the other an aneurysm. In each instance, Surace was the first person to the hospital to be with the young men and the last to leave once the players' families arrived.

Surace has chosen to become a father figure to young men who otherwise never would have the opportunity to attend Princeton, and who upon matriculation often are told that they do not belong at Princeton. Through meticulous and genuine leadership, Surace convinces student-athletes to have the audacity to achieve and the resolve to sing "Old Nassau" with unabashedly vigorous pride. The program he has fashioned focuses on the achievement and value of the individual within the team.

One need look no further than Mason Darrow '17's experience as the first openly gay football player on an active NCAA roster to know that Surace is a leader of whom we can all be proud. With humble tenacity, Bob Surace embodies the athletic department's mission — "education through athletics."

Tom Moak Jr. '13
Atlanta, Ga.

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FROM THE EDITOR

Giving Up the Day Job

Back in 2012, Nikki Muller '05 seemed to be on the verge of becoming a star. Her parody video "The Ivy League Hustle" — part feminist manifesto, part post-college lament — was a YouTube hit, and suddenly Muller was giving interviews on national television. Some fans loved the video for the pure fun of it — its music, its swagger, and yes, its poke at Penn. But we also admired this young woman who pursued a creative life, even if that meant waiting tables, tutoring, and working odd jobs to support it. One scene in the video shows her panhandling on a curb, holding a sign that reads: "Will explicate Baudelaire sonnet 4 food."

David Walter '11

Muller's moment of fame faded, but she continued to produce sharp, interesting work. PAW assigned freelancer David Walter '11 to write a profile. In a way, Muller's story is Walter's, too. After college, he worked briefly at a hedge fund. Then he moved to Hong Kong to take a newspaper job, which led to freelancing: "It proved to me that there were different ways to live and that I could feel just as happy and secure not holding down an office job."

Walter eventually returned to a day job, writing freelance articles at night. He loved journalism more than his daytime responsibilities. Last month, he became a full-time freelancer. He already has a file full of ideas and plans to report stories from the island nation of Palau, where he had spent a month. He might take a job later; for now, he says, "I want to become a better writer and report some stories that might not otherwise get told, and there are a lot of ways to do that nowadays."

He has something else in common with Nikki Muller, as well: Both of them are stars.
*— Marilyn H. Marks *86*

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continued from page 5

impacts of automobiles on its campus, I applaud President Eisgruber '83's leadership ("Scenery vs. Speed: The Presidential Commute," On the Campus, Oct. 21). I have commuted by bicycle or on foot for nearly 20 years; it changes the way you see the world.

Stephen Buonopane '91
Lewisburg, Pa.

ASPECTS OF DIVERSITY

Oh, the deafening drumbeat of "diversity" — which brings to mind Martin Luther King's "I have a dream" speech, in which children will live "in a nation where they will not be judged by the color of their skin but by the content of their character." And Michael Bloomberg's more recent suggestion at Harvard that there may be less diversity of opinion among Ivy League faculty "than existed in the Soviet Politburo."

Diversity is less meaningful when hobbled by narrowness of mind.

George W. Gowen '52
New York, N.Y.

FOR THE RECORD

An article in the Oct. 21 issue about the new tapestry in Firestone Library's third-floor reading room included a photo of a detail of the 1455 Gutenberg Bible in the Scheide Library collection. The article incorrectly identified the copy as a fragment.

WE'D LIKE TO HEAR FROM YOU

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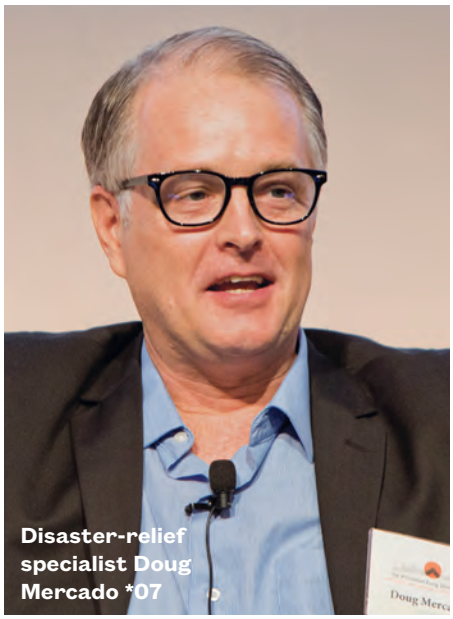
Matthew Cohen

On the Campus

A red maple provides Firestone Plaza with a splash of fall color near the Jacques Lipchitz sculpture "Song of the Vowels." ***Photograph by Ricardo Barros***

CDC epidemiologist Rebecca Levine '01


Disaster-relief specialist Doug Mercado *07

Economics professor Angus Deaton

Taking Aim at Plagues

Princeton-Fung Global Forum looks at lessons learned from the Ebola crisis

With the recent Ebola crisis largely under control, experts gathered in Dublin in November at the Princeton-Fung Global Forum to discuss lessons learned. But while they agreed on the need for an international response to epidemics in developing countries, they differed on what that role should be — some calling for a large-scale effort to strengthen health-care systems in the region; others suggesting that such a task should not be forced on nations with many needs.

The views about the role of global relief organizations provided perhaps the sharpest contrast during the Fung forum. Nearly 300 people attended the conference, listening to a series of panels and keynote talks by professors, medical scientists, leaders of nonprofits, information-technology experts, cultural anthropologists, aid workers, and public officials.

The event provided an opportunity for Princeton to showcase its multi-disciplinary global-health research, with talks by more than a dozen professors in departments that included the Woodrow Wilson School, politics, economics, sociology, anthropology, molecular biology, ecology and evolutionary biology, and history. A team of students live-tweeted the event.

Some of the experts, including leaders of NGOs, said the global community should help rebuild and strengthen health-care systems in developing nations like those at the epicenter of the Ebola outbreak that has killed more than 11,300 people. Peter Piot, co-discoverer of the Ebola virus, argued that without stronger systems, "it will be very difficult to absorb the shocks" and prevent small outbreaks from becoming major ones.

Rebecca Levine '01, an Epidemic Intelligence Service officer deployed to Sierra Leone by the U.S. Centers for Disease Control, agreed. Absent health-care systems that are as strong as those in the West, she said, crises are bound to recur — and health-care providers will be unable to deliver the services people

Photos: Angela Halpin

MAJOR PANDEMICS THROUGH HISTORY

The Ebola outbreak that was first reported in March 2014 has infected more than 28,000 people, with more than 11,300 deaths.

Pandemics are generally defined as epidemics that occur over a wide area, crossing international boundaries and affecting a large number of people. Following are some of history's largest pandemics, with their estimated death tolls. *Compiled by Jennifer Shyue '17*

541–42
Plague of Justinian
Byzantine Empire
Bubonic plague
25 million

1347-51
Black Death
Europe
Bubonic plague
75–200 million

Sources: Centers for Disease Control; World Health Organization; Wikipedia; *The New York Times*

Getty Images: from left: ullstein bild; Hulton Archive

need. Later, Levine explained that Western action is important not only to assist developing nations, but as a matter of national security for the West as well. "We live in a global society," she said. "Nobody is safe from these diseases until everyone is safe from them."

Princeton economics professor Angus Deaton said the history of humanitarian aid shows that sometimes it works — with the Ebola response "more on the positive side" — but sometimes the results are "a catastrophe."

"People say we have to construct health systems all over the world," he said. "Who the hell is this 'we'? It's not the people who are being affected, for sure. It's some undefined community of global well-wishers."

Surveys have shown that health-care issues are not a top priority for people across Africa, Deaton said, and "throwing money at them without dealing with underlying problems is often going to have unintended consequences that undermine what you are doing."

Doug Mercado *07, who led USAID's Disaster Assistance Response Team for the Ebola crisis, said that humanitarian aid "did achieve a success" in West Africa. Mercado, who has worked on disaster-relief efforts for 25 years, said that in contrast to long-term aid programs in countries such as Syria and South Sudan, in West Africa "for once, the humanitarian community could play a role in bringing the crisis to an end, and that's what we've done there."

Still, several speakers criticized the failure to respond quickly during the early months of the Ebola outbreak. Many said the crisis highlighted the need to better understand and incorporate the concerns and cultural practices of people in affected areas — such as caregiving rituals and burial practices — in working to gain the community trust that is essential to stemming an epidemic. The critical role of local health-care workers — many of whom were unpaid — was cited repeatedly, though there was disagreement over whether there should be a push to pay them as public employees.

The Ebola outbreak sounded a second alarm for the global community, experts said, following the HIV/AIDS epidemic that began in the 1980s. "When are we going to learn from the wakeup calls?" asked Woodrow Wilson School professor Adel Mahmoud. "We know we're not prepared; we know we *can* be prepared; and we know we're not doing anything about it." Mahmoud repeated his call for governments, nonprofits, and drug companies to support a global fund that would develop and deploy promising vaccines.

"Epidemics are inevitable; pandemics are optional," said Jeremy Farrar, director of the Wellcome Trust, a London-based biomedical research charity. "We can change things," he added, noting estimates that an international campaign to combat malaria has averted more than 3 million deaths since 2000.

The Dublin conference was the third annual Fung forum. The conferences are supported by a $10 million gift in 2012 from William Fung '70 to promote analysis of global issues. Prior conferences focused on the future of the city and of higher education. *By W.R.O.*

Angela Halpin

Late 1800s-early 1900s
Third Plague Pandemic
China/India and beyond
Bubonic plague
12 million

1918–20
1918 Flu Pandemic
Worldwide
H1N1 influenza virus
24–40 million

1981–present
HIV/AIDS
Worldwide
HIV
39 million

Getty Images: from left: Culture Club; PhotoQuest; Photofusion

Q&A: RAPHAEL FRANKFURTER '13

Building Trust in an Ebola Hot Spot

Raphael Frankfurter '13 was executive director of Wellbody Alliance, a health-care organization in Sierra Leone, from 2012 to 2015. A panelist at the Fung forum, he is now pursuing M.D. and Ph.D. degrees.

You were an anthropology major. How did that help you when Ebola arrived in Sierra Leone?
My interest is in community interactions with the health system. I began going to Sierra Leone as a freshman and went back each summer as a part of my anthropology training, thinking about issues of trust and local forms of caregiving in a region that became an Ebola hot spot. Because Ebola is spread through acts of local caregiving and burial practices, it has brought into view the importance of thinking about these sociocultural issues.

Fung forum speakers described the importance of earning the trust of local residents. What are your thoughts on that?
Trust is built both in ensuring high-quality access to care for the poor, but also in thinking about and reflecting the values that communities have — so that when there's an emergency, they will want to go to a health-care system.

What's the outlook for the future in Sierra Leone?
It's ironic that we're talking about trust when much of the humanitarian apparatus is dismantling and scaling down what's been created over the past two years. There's a huge amount of attention and resources in Sierra Leone right now, and I think what is really going to make the difference is what is sustained. *Interview conducted and condensed by W.R.O.*

Ricardo Barros

Q&A: KEITH DEVLIN

Math as Auto Mechanics

'Math Guy,' a visiting professor, teaches course aimed at non-mathematicians

Keith Devlin is a mathematician, an entrepreneur, and NPR's "Math Guy" on *Weekend Edition*. But this fall, he's on campus as a visiting professor, teaching "Introduction to Mathematical Thinking," a course he created in 2012 as the first math MOOC to be offered on the Coursera platform.

In the class, non-math majors apply mathematical principles to everyday situations in a "flipped lecture" format, watching lectures online before class to free up class time for discussion and collaboration. Devlin spoke to PAW about the course, his role as adviser to a television series, and the cost/benefit analysis of airport security.

How do most people view math?
Mostly they don't know what it is. People have this view of mathematics based on their last experience ... and in most cases, not only is it frozen, but it was frozen at a point that they didn't really understand. So they've got this confused notion of something that isn't representative of mathematics either in its content or its quality.

What's your goal in teaching the class?
The assumption is that this is the last math course they'll ever take, and I want it to be better than the one they took previously. So No. 1 is that they go home with a positive attitude about mathematics and its efficacy because most of them, if not all of them, will never need to do mathematics themselves. But the chances are high that they'll have to work closely with someone who does. ... You need a level playing field where both people understand enough about the other person's domain that they can have a good collaboration.

How is teaching non-math majors different than teaching math majors?
If you're teaching a course to mathematicians, it's very prescribed. You know they've got a certain kind of background, it's focused entirely on the mathematical facts and procedures and on getting them right. ... A course in the mathematics department is like a class on auto mechanics: It's about how to build and maintain your automobile. I'm teaching people how to drive and enjoy their automobile.

Do you see the "flipped lecture" style of teaching becoming the norm?
Yes. To just lecture on the basic unchanging material that's in the textbook is pointless. What you should do are little lectures tailored to [the students'] backgrounds. Doing that is valuable. It's a much better use of time if the professor can sort out the problems and clarify the misconceptions.

Do you think that some people's lack of knowledge about math prevents them from understanding larger national issues?
Oh yeah. The amount we spend on airport security is insane for such a minute risk. We're essentially basing policy on a small example that's not representative of what's really going on. If the government is serious about saving lives, you ban tobacco, put significant limits on alcohol and driving, you do a bunch of other things. You don't throw away billions of dollars in the airport for a risk that for almost everyone in the population picked at random is zero. A little bit of mathematics can override a lot of instinctive human reactions.

You served as an adviser for the CBS crime show *NUMB3Rs*, in which a mathematician helps the FBI. What did you do?
I wanted to make sure the math was right. For example, I had a long discussion with [the co-creators] about what area of mathematics the character Charlie [a mathematician] could be doing. I helped to create the character by thinking about what he could be doing — they said, "Well, he'd be interested in flowers and plants." And I said, "No, he wouldn't." So we ended up coming up with an area of mathematics that matched his character.

They wanted to get the math right, and they were very receptive to having me on board. I thought it was important because if you're going to tell the story, let's tell the right story. *Interview conducted and condensed by A.W.*

A WHIG-CLIO TIMELINE

250 Years of Exposition and Debate

Founded in 1765 as the Plain Dealing and Well Meaning clubs, Whig-Clio is the nation's oldest college literary and debating society. The organization is celebrating its 250th anniversary with several events, including a Nov. 21 gala in Washington, D.C., and a campus event Dec. 4. Following are highlights from its long history. *By A.W.*

▶ **1765:** The Plain Dealing Club and the Well Meaning Club are founded. The groups dissolve in March 1769 but re-form in 1769 and 1770 as the American Whig Society and the Cliosophic Society, respectively.

◀ **Early 1770s** James Madison 1771 (a founder of Whig) and Aaron Burr 1772 (a founder of Clio) develop their debating skills at the societies.

◀ **1893** The current neo-classical marble halls are erected, replacing smaller wood and stucco structures built in 1838.

1928 Whig and Clio merge and move into Whig Hall.

1930s Whig-Clio sponsors the International Relations Council; other subsidiaries include the Princeton Debate Panel and Mock Trial.

▶ **1954** Then-Sen. John F. Kennedy speaks about national security.

1956 Whig-Clio invites Alger Hiss, a State Department official accused of being a Soviet spy, to speak. Alumni threaten to cut off donations, but the content of Hiss' talk is not controversial.

◀ **1968** A fire in Whig Hall destroys most of the society's records and much of its portrait collection. Whig-Clio temporarily relocates to Palmer Hall during the reconstruction.

▼ **2000** Former president Bill Clinton receives the club's James Madison Award for public service.

2008 Supreme Court Justice Antonin Scalia receives the James Madison Award.

◀ **2014** Former president Jimmy Carter is given the James Madison Award.

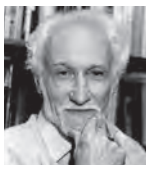
Princeton University Archives (1765, 1954, 1968); Bettmann/Corbis; unknown (1770s); *Nurseries of Letters and Republicanism* by J. Jefferson Looney *83 (1893); Denise Applewhite/Office of Communications (2000); Amanis Hardy/Office of Communications (2014)

IN SHORT

ADAM COHEN, deputy director for operations at the Princeton Plasma Physics Lab, has been named deputy undersecretary for science and energy in the U.S. Department of Energy. Among his responsibilities will be heading the U.S. delegation to ITER, the international fusion experiment under construction in France. At PPPL, Cohen was in charge of the recently completed $94 million upgrade of the National Spherical Torus Experiment, the lab's major fusion experiment.

The University will have the burden of proof in a lawsuit filed by four Princeton residents who are challenging its PROPERTY-TAX EXEMPTION. Tax Court Judge Vito Bianco rejected the University's legal arguments and found that the residents have standing to bring the suit. The case is tentatively scheduled for trial in 2016.

The FORMER ACCOUNTANT for the Princeton Triangle Club, Thomas J. Muza, was sentenced to three years in prison and ordered to pay the club $240,000 in restitution after pleading guilty to theft over a five-year period. Muza lost his positions with the Triangle Club and as general manager of McCarter Theatre in 2013 after the financial irregularities were uncovered.



IN MEMORIAM Political theorist and politics professor emeritus SHELDON WOLIN, whose work addressed participatory democracy and its intersection with power and the state, died Oct. 21 in Salem, Ore. He was 93. Wolin's 1960 book, *Politics and Vision: Continuity and Innovation in Western Political Thought,* has been credited with reinvigorating the field of political theory and received the American Political Science Association's Benjamin E. Lippincott Award in 1985, which recognizes work with lasting impact. Wolin, a faculty member from 1972 to 1987, led the successful faculty effort to call on the University trustees to divest endowment investments from firms that supported South African apartheid.

Office of Communications

STUDENT DISPATCH

All Aboard the Hyperloop, a Futuristic Transit Competition

Jean Wang '16

Imagine traveling from San Francisco to Los Angeles in a mere 35 minutes. That's the idea behind the Hyperloop, a transportation system in which pods would travel at incredible speeds through low-pressure tubes on a cushion of air. Led by Yash Patel '18, a group of Princeton students is competing in a SpaceX competition to create the pods that could make it happen.

"It's still a little bit of sci-fi right now," adviser Daniel Steingart, assistant professor of mechanical and aerospace engineering, said of the idea, proposed by Tesla Motors and SpaceX CEO Elon Musk. "But I think the idea of exploring the concept of alternative mass transit is certainly a great idea."

Patel came upon the competition in June in a Facebook group for hackathon participants. A Cornell student had posted a call for collaborators in the Hyperloop challenge. Now Princeton is working with five other schools, including Cornell. (As of October, there were 318 teams.) While it's heavy on electrical engineers, Princeton's group draws from other fields, too: Patel is a math major, and a few Woodrow Wilson School and economics majors work on the business aspects.

Princeton is the consortium's electrical team, responsible for selection of the battery, designing the cooling system, and determining the necessary sensors. Patel noted that the team has made rapid progress. One member, Peter Russell '19, had done extensive prior research on energy storage, having patented a super-capacitor to capture and store solar energy. He called the project's goal a "cross between train and mail tube."

"Engineers are always fascinated by difficult problems," Russell said. "If we were able to succeed in designing and successfully testing a Hyperloop pod, be it us or another team in the competition, that would revolutionize transport and just how we understand it."

After the design deadline, in January, there will be a build phase that culminates in Competition Weekend, when the pods will be tested on a one-mile track by SpaceX headquarters in California.

While Patel's goal is "hopefully to win," he wants the team to become a competitions club for engineers. "We're hoping to do different types of competitions each year, so that it really attracts different types of engineers to compete," Patel said.

Steingart admitted to being "a bit skeptical" about the Hyperloop and similar competitions, because the companies behind them "are bringing ideas together for essentially the cost of nothing." But he is happy the students are involved. "It's a great way for students to deepen thought," he said. "I think it beats student government any day of the week."

RARE VIEWS FROM A VOYAGE OF THE HINDENBURG

A 16-mm black-and-white film of a June 1936 voyage of the HINDENBURG is now part of the manuscripts division of Princeton's Department of Rare Books and Special Collections. The 12-minute film, donated by author and journalism professor John McPhee '53, was shot by architecture professor Jean Labatut on a trip from Lakehurst, N.J., to Frankfurt, Germany.

Labatut gave the film to McPhee more than 40 years ago when the author was researching a book about an aircraft developed during the 1960s and '70s. McPhee presented a digitally remastered version to the University Library. It offers views as the airship flies along coastal New Jersey, New York City, Canada, Greenland, Iceland, and Europe. The Hindenburg exploded and burned in May 1937.

The film can be viewed at http://bit.ly/HindenburgVoyage.

From top: Ron Barrett; Jean Wang '16; Papers of Jean Labatut, Manuscripts Division, Department of Rare Books and Special Collections, Princeton University Library

Chris Young '02 started game four of the World Series in New York.

Sean Haffey/Pool Photo via USA TODAY Sports

BASEBALL

On Top of the World

Young '02 pitches in two World Series victories for the Kansas City Royals

Two years ago, pitcher Chris Young '02's baseball future was in doubt. He had missed parts of three seasons because of injuries and did not throw a single pitch in the major leagues in 2013. But after undergoing surgery to repair a nerve problem in his shoulder, the veteran right-hander returned to top form. Last month, as a key contributor for the Kansas City Royals, Young reached the pinnacle of his sport, becoming the first Princeton alumnus to win a World Series title.

"It's made the hard times worthwhile," Young told PAW. "Certainly, I didn't go through the rehab, the surgeries, and the tough times just to make it back and be average. I wanted to be part of something special."

Young won 11 games in the regular season and posted a 2.87 earned run average in 15⅔ postseason innings. He was the winning pitcher in Kansas City's dramatic 14-inning victory in the World Series opener. Realizing his childhood dream of pitching in the series was "everything I expected it to be, and more," Young said.

For Princetonians in the major leagues, this fall was one to remember. Pitcher Ross Ohlendorf '05 and outfielder Will Venable '05 each played in the American League playoffs with the Texas Rangers, and three alumni landed prominent front-office jobs: Mike Hazen '98, general manager of the Boston Red Sox; Mike Chernoff '03, general manager of the Cleveland Indians; and Mark Shapiro '89, who left the Indians to become president and CEO of the Toronto Blue Jays.

Young's performances topped Princeton's postseason headlines — and thrilled coach Scott Bradley, who watched from the grandstands and marveled at his former pupil's uncanny calm. Bradley said that Young's shoulder injuries have made him a more complete pitcher: He developed better breaking pitches and refined his already-meticulous game-planning. Now, with his arm back at full strength, Young can mix a 90-mph fastball into his repertoire of sliders and change-ups.

Though Young's season ended in triumph, it also included deep sadness: His father, Charles, died of cancer in late September. Young said that having his mother, sisters, and wife and children with him throughout the postseason enabled him to celebrate his dad while mourning the loss. Two teammates also lost parents during the season, so being in the clubhouse provided additional support. "We just all felt a bond together," Young said. "We were helping our families heal, and then baseball was healing us." *By B.T.*

Russell Dinkins '13, right, and Daniel Thomas are training in Iten, Kenya.

THE ROAD TO RIO

Former Rivals Dinkins '13, Thomas Unite To Pursue Olympic Dreams

Elite athletes regularly make sacrifices in their quest to reach the Olympics. For many who have Olympic potential, the task appears too daunting: They can't bring themselves to make the commitment necessary to capture that coveted berth. They let the dream slip away.

Track athlete Russell Dinkins '13 and his one-time Ivy League rival Daniel Thomas, a 2012 Cornell graduate, are not backing down. Since late September, the two 800-meter specialists have placed other aspects of their lives on hold to spend four months training at the world-renowned High Altitude Training Center in Iten, Kenya — thanks to financial support raised through the crowdfunding website GoFundMe.

Dinkins, a Philadelphia native, and Thomas, whose dual citizenship allows him to compete for Mexico, aim to meet the Olympic qualifying standard and earn spots on their respective national teams.

One of the most decorated middle-distance runners in Princeton history, Dinkins holds the school indoor records in the 800 meters (1:48.29) and the 500 meters (1:01.70), and was a member of three record-setting relay teams, including the distance-medley relay squad that captured the NCAA indoor crown in 2013. Soon after graduation, his running career began to sputter as injuries and the challenge of juggling part-time jobs blunted his attempts to compete against the sport's elite.

Dinkins did not know Thomas well during college, but they reconnected through coach Kevin Thompson, a longtime friend of Dinkins' family and Thomas' mentor at Cornell. Princeton and Cornell have dominated Ivy League men's track and field for more than a decade, and Thomas said the rivalry generated respect. "We went out, we gave it all we got, and after the race we realized it was cool to get together and compete," he said. "There is no other league that really prizes its championships as much as we do."

Dinkins, who had been training at Princeton, clearly remembers the moment he decided to commit to the Kenya trip, which allows him to run with reigning Olympic champions David Rudisha and Mo Farah. "I was on the phone with Coach Thompson," he recalled with audible emotion, pausing to regain his composure. "I had to make a decision for myself. I knew that in 2016, if I didn't do anything drastic and change my situation, the same thing would occur that happened the year prior: trying to work through an injury, not really getting anywhere."

"Being on campus, I got the sense that I was being viewed as just someone who was hanging around and helping out — and not someone who was very serious about his training. That was something that was weighing on my psyche," Dinkins admitted. "I needed not only to show other people, but also prove to myself that I am serious about this, that I really want it."

While making an Olympic team is the ultimate goal, the chance to train unbridled by the constraints of everyday life comes with another benefit: Dinkins and Thomas are about to learn just how good they can be. *By Dave Hunter '72*

SPORTS SHORTS

WOMEN'S SOCCER tied Penn, 0–0, Nov. 7 to complete an unbeaten Ivy League season (6–0–1). Tyler Lussi '17 scored her team-high 13th goal of the year in an Oct. 31 win over Cornell.

Penn scored a touchdown in overtime to edge Princeton FOOTBALL 26–23 at Franklin Field Nov. 7. Joe Rhattigan '17 ran for 116 yards and two touchdowns in the loss.

WOMEN'S CROSS COUNTRY held off second-place Yale at the Ivy Heptagonals at Van Cortlandt Park in the Bronx Oct. 30, placing three runners in the top six spots. Lizzie Bird '17 won the individual title. MEN'S CROSS COUNTRY placed fifth at Heps, led by Michael Sublette '16's 10th-place finish.

Ryan McCarthy '18 scored the game-winning goal in overtime as FIELD HOCKEY topped Penn 2–1 Nov. 7. With the win, Princeton earned the Ivy championship and secured the league's bid to the NCAA Championships for the 11th consecutive year.

WOMEN'S VOLLEYBALL won four consecutive home matches, including a 3–0 sweep of first-place Harvard Oct. 31, to move into second place heading into the final weekend of the Ivy season.

Matt Isaacson

Life of the Mind

PSYCHOLOGY

Sweet Discovery

Brain research by linguist Adele Goldberg explains why metaphors are so appetizing

She's a sweet girl. He peppered her with questions. She stayed to the bitter end. We use metaphors that engage the taste buds so often we barely think of them as figurative. "When you talk about abstract ideas, you can't help but use metaphorical language," says psychology professor Adele Goldberg. "Pick a topic — love, anger, anything — and you start to talk using words from a more concrete domain."

Among linguists like Goldberg, there is an ongoing debate about how people make meaning out of such words. Are they just symbols that stand in for more literal substitutes or — as some research has suggested — do people implicitly imagine the physical sensation behind the metaphor as they use them? To investigate this question, Goldberg recently used a brain scanner to figure out how subjects processed such phrases. She found that, indeed, people engaged the regions of the brain involved in taste when they encountered a tasty metaphor.

But she and her co-researcher Francesca Citron, a neuroscientist at Lancaster University in England, also found something they didn't expect: that metaphors engage the part of the brain involving emotional processing as well. "Since literal ways exist to say something, it's interesting to ask, why do we even use metaphors?" Goldberg says. "The emotional engagement provides some of that answer."

For their experiment, which took place at the Freie Universität in Berlin, Goldberg and Citron had native German speakers lie in an fMRI scanner while they were read sets of sentences. Some contained taste metaphors, such as "She treated him sweetly." Others substituted a more literal word: "She treated him kindly." When the listeners encountered the metaphors, the parts of the brain collectively known as the gustatory cortices lit up — the same parts activated when tasting a meal — suggesting that the listeners were using their sense of taste to make meaning of the words.

In addition, Goldberg and Citron saw activation in the amygdala, a part of the brain sometimes associated with fear, but which actually is involved in a wide range of emotional experiences. The finding, while unexpected, makes intuitive sense, Goldberg says: "Part of the reason we rely on this language may be that it is just more evocative."

Over the past year, Goldberg and Citron have looked beyond taste to examine the effects of metaphors on the brain — for example, a bad day versus a rough day, or a good argument versus a strong argument. They found that in these cases as well, the metaphors elicited a response in the amygdala, as their literal counterparts did.

Interestingly, the subjects of these experiments didn't consciously find the sentences more emotional — the greater emotional engagement was only evident by looking at the brain activity. By using neuroimaging to examine exactly what is going on in people's minds when they hear metaphorical language, the research helps explain the underlying science behind what poets and orators have known intuitively for centuries. "There is just something more engaging in saying, 'she smiled sweetly at him,' rather than 'she smiled kindly,' " says Goldberg. "It could be connected to the fact that your physical experiences are more involved in the processing." ◆ *By Michael Blanding*

Metaphors engage the parts of the brain associated with emotion and taste, psychology professor Adele Goldberg has found.

Sameer A. Khan

Professor Sheldon Garon studies postal savings banks, which offer banking services at the post office for working people in financially underserved areas.

Frank Wojciechowski

HISTORY

America the Profligate

Why we save so little, spend so much, and borrow like crazy

Professor Sheldon Garon studies why Americans save far less — and spend and borrow far more — than people in most other developed countries. In comparing the last 200 years of saving and spending in the United States to Europe and Asia, he has concluded that it's not nature or culture that makes us big spenders, but government policy and institutions.

The United States has a much weaker history of institutions that encourage "small savers" — people saving amounts that commercial banks generally consider too low to be profitable, says Garon, a professor of history and East Asian studies. Victorian England was a pioneer in creating institutions such as postal savings banks, which offer banking services at the post office to ensure that working people in financially underserved areas can earn interest in no-fee accounts. Britain also was an early promoter of savings bonds and programs to teach children how to save. Japan and several European countries sent officials to study these programs and implemented similar ones at home.

These institutions were "explicitly designed as a social mission, to encourage people to build up their household assets," Garon says.

Surprisingly, even countries with generous welfare provisions such as France have much higher savings rates than the United States, Garon points out, which contradicts some American economists who believe that welfare benefits discourage people from saving.

"Many countries, particularly the European welfare states, feel society has to protect people from themselves. Americans no longer believe that."

— Sheldon Garon, professor of history and East Asian studies

The American attitude toward credit — which encourages the use of credit cards and home-equity loans — contrasts with many European countries, where there is a social stigma against debt, Garon says. When Citibank tried to introduce an American-style credit card in Germany, it failed. (Most credit cards in Europe require one to pay the bill in full every month.)

"Many countries, particularly the European welfare states, feel society has to protect people from themselves. Americans no longer believe that," Garon says. "They think everything's personal responsibility. If you fall into debt and it ruins your life, that's your choice."

Americans were not always such poor savers. The mid-20th century was our "golden age" of saving. Spurred by World War II, the government promoted savings bonds and implemented policies to bolster savings. There even was a postal savings bank. Americans saved a healthy portion of their incomes and continued to do so in the years after the war, Garon explains. Household saving began to collapse during the 1990s, in part due to the rise of credit.

Nonetheless, Garon believes that Americans could become good savers again if the government created institutions like postal banking or subsidized no-fee, tax-free accounts for small savers at banks, as other countries do. "Not so long ago, our households enjoyed a healthy balance between saving and spending, with the help of government policy," Garon says. "And it could happen again — if it became as easy to open a savings account as it is to get a credit card." *By Eveline Chao '02*

COMPUTER SCIENCE

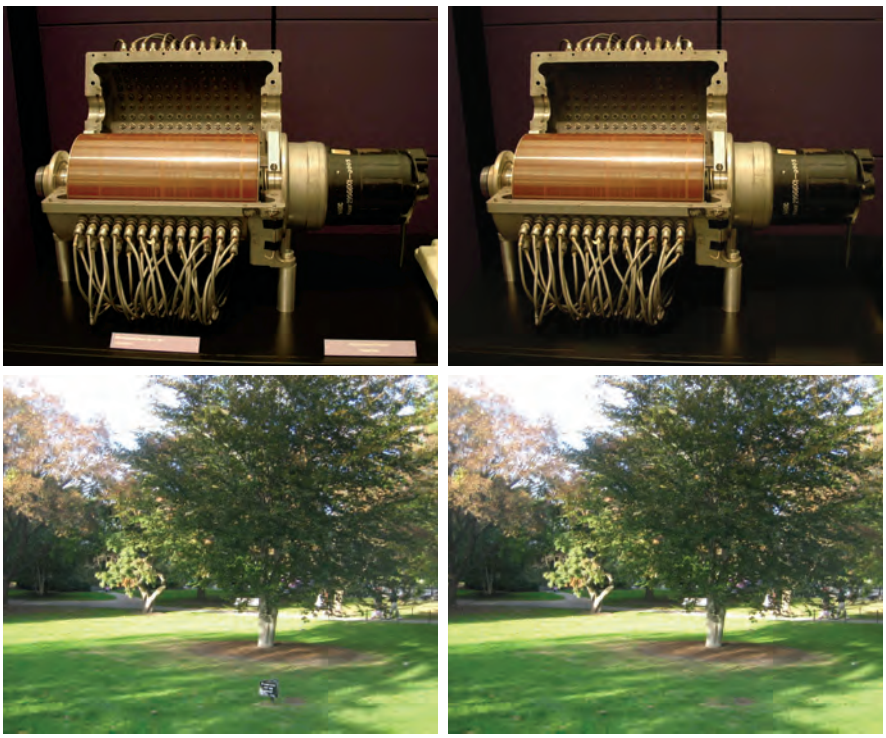
Bombs Away!

An app may automatically eliminate the passing car that ruined your photograph

We all know the feeling of composing the perfect picture and then, just as you push the button, a passing car enters the frame — or your *hilarious* cousin Joe photo-bombs the shot. Ohad Fried, a graduate student in computer science, is developing an app that automatically will remove intrusions from a photo after it is taken.

Ohad Fried GS

Fried, who is working with computer science professor Adam Finkelstein on the project, pooled data in which "distractors" had been removed in order to create an algorithm that identified elements such as cars, signs, trash on the ground, spots on the lens, and, yes, faces coming in from the side of the picture that might represent a photo-bomb. He trained the computer to recognize those patterns and fill in the spaces with a composite of the surrounding area. Results so far haven't been perfect — in some cases, vital elements have been removed, or holes have been filled in with equally distracting blobs. But Fried is working on refining the program, which he is creating with software company Adobe. *By Michael Blanding*



Distracting elements have been automatically removed from these photos using an app developed by graduate student Ohad Fried and professor Adam Finkelstein.

Images courtesy Ohad Fried GS and Adam Finkelstein, Department of Computer Science, Princeton University; and Eli Shechtman and Dan Goldman, Adobe Research

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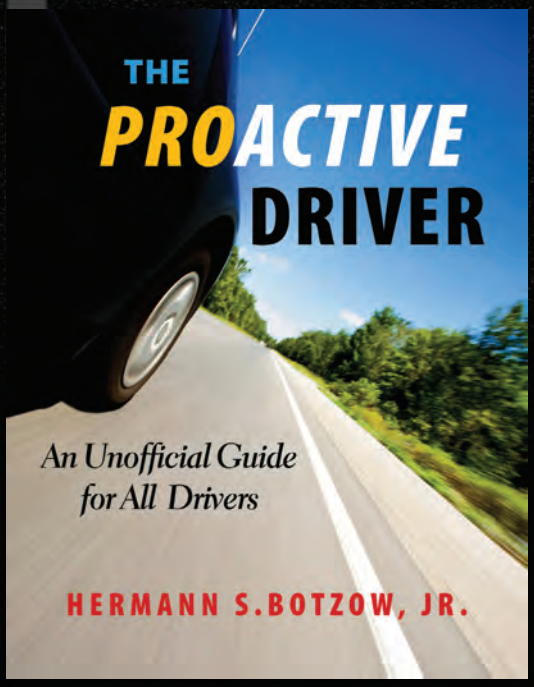

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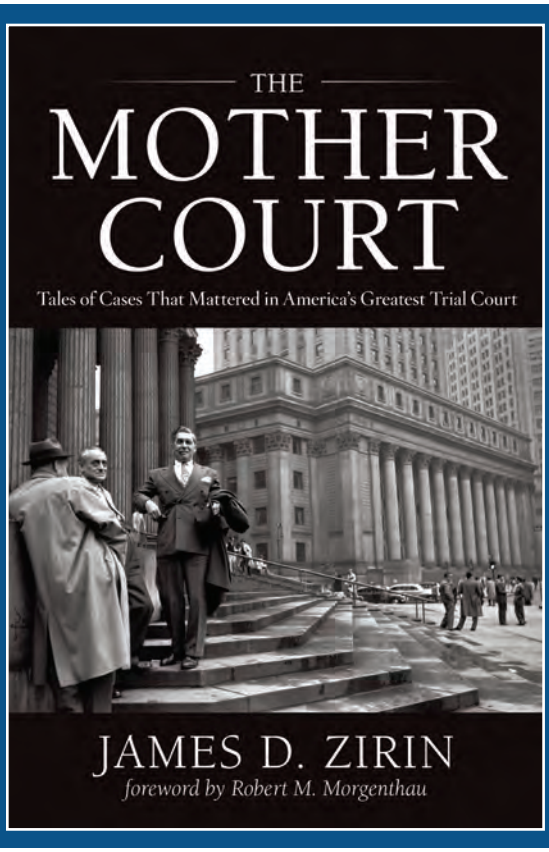

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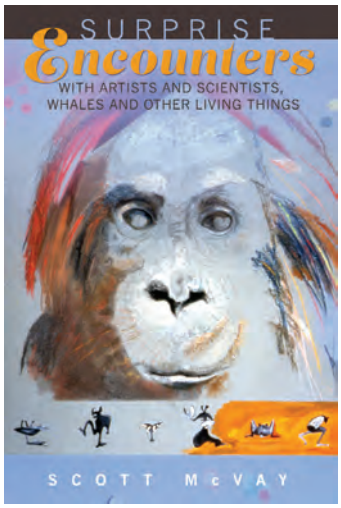

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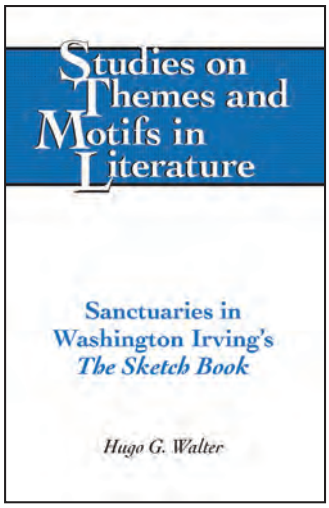

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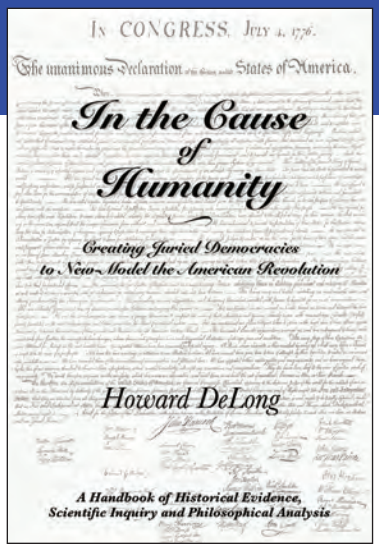
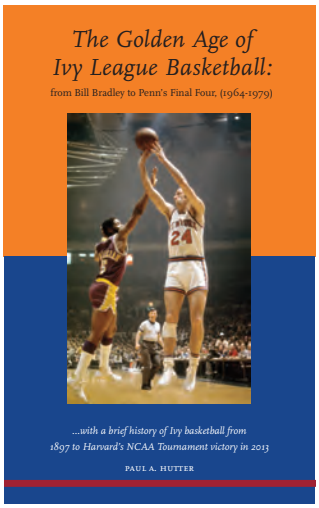


Howard DeLong received a B.A. in Mathematics from Williams College (1957), and a Ph.D. in Philosophy from Princeton University (1960). He taught philosophy at Trinity College (Hartford, CT) from 1960 until his retirement in 1999, and is the author of *A Profile of Mathematical Logic* (Dover).



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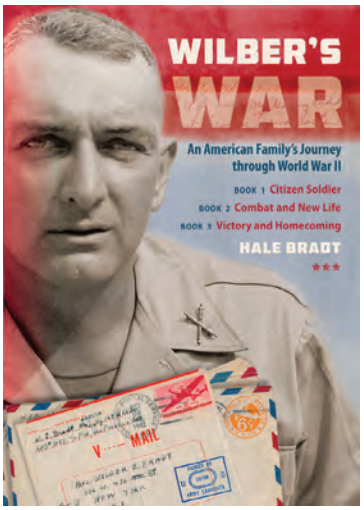

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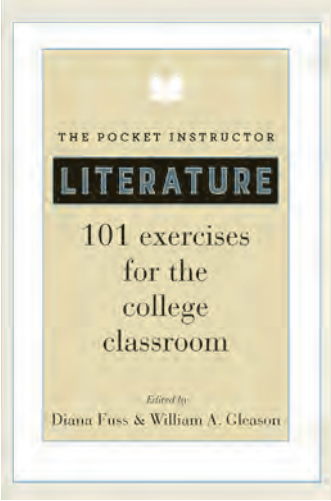

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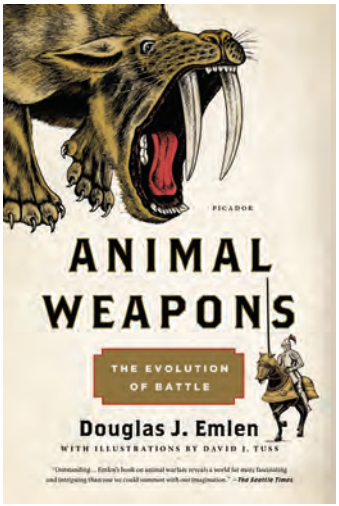

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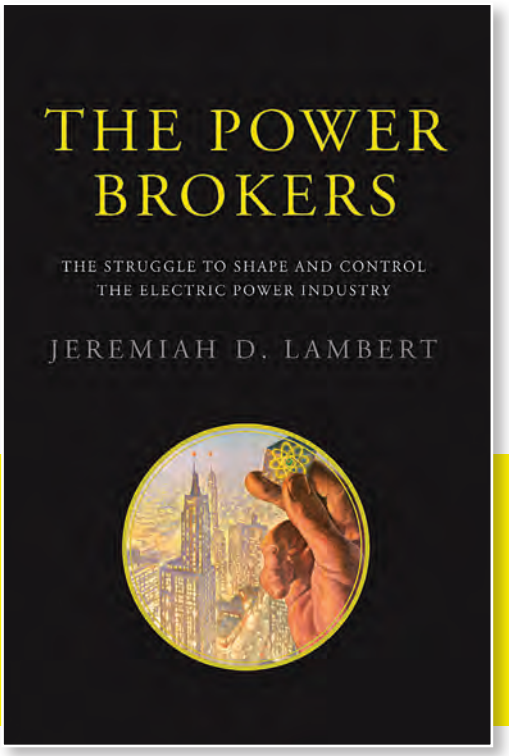

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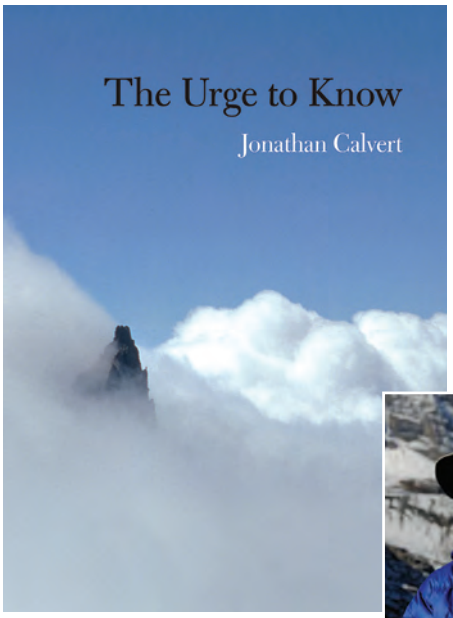

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Jonathan C. Calvert, was born in Boston, and moved to San Antonio, TX, at an early age. He graduated from Princeton in 1953, majoring in history and received the American History Prize. Calvert worked in the investments business in NYC and Chicago and many years in San Antonio.

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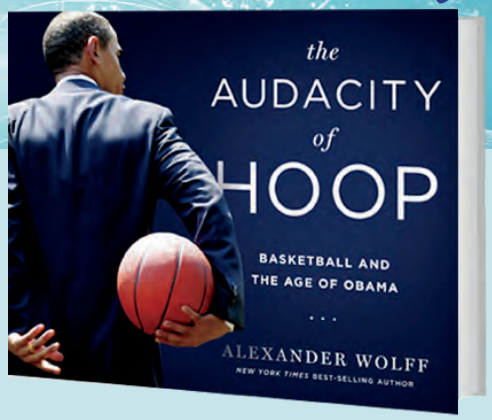

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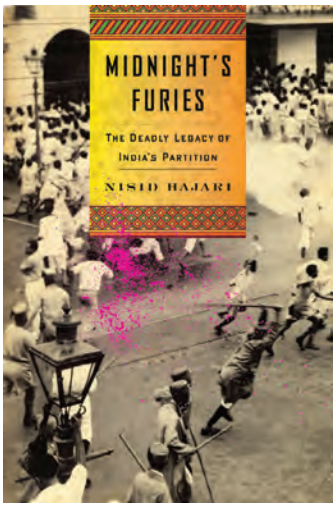

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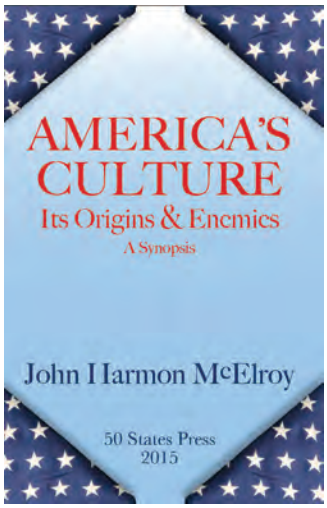

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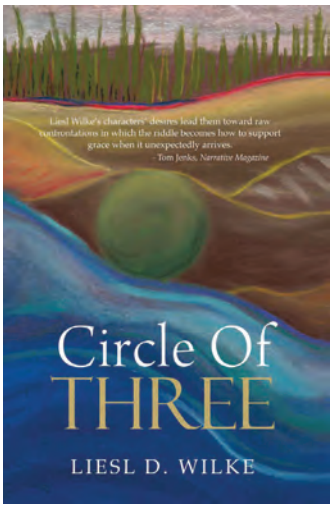

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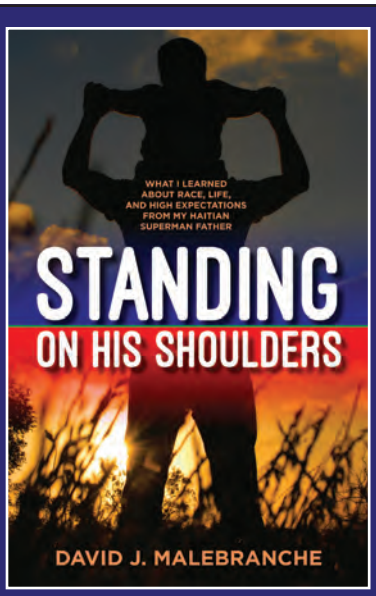

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David J. Malebranche, MD, MPH, is a board certified Internal Medicine physician and researcher with expertise in the areas of sexual health, LGBT health, and racial disparities in HIV prevention & treatment in the United States

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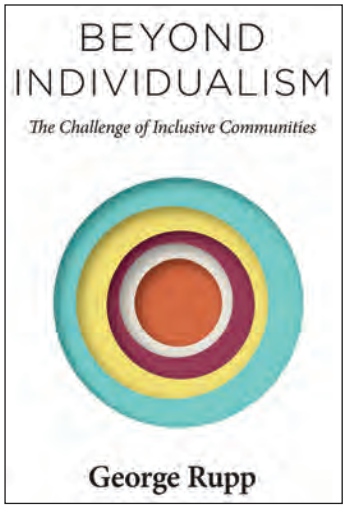

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THE **CREATIVE** LIFE

PASSION? CHECK **FLEXIBILITY?** INDEED **HEALTH INSURANCE?** MAYBE LATER

BY DAVID WALTER '11

FOR ABOUT $5 ($10 for rush delivery), Nikki Muller '05 and her comedy team will write you a funny song. All you need is an account at Fiverr.com ("the world's largest marketplace for buying and selling small services, starting at $5") and a short, simple prompt.

Here, for example, is part of the show tune I asked Muller to write about "getting interviewed by the *Princeton Alumni Weekly*" — a publication that first featured Muller after her 2012 video "The Ivy League Hustle" blew up YouTube:

SCENE: The curtain rises on a press conference where a gaggle of REPORTERS pepper NIKKI with questions. To the tune of a jaunty piano rag:

REPORTERS:
This just in!
Nikki Muller, is it true that you graduated from Princeton so long ago
And now you're doing amazing things in Los Angeles? All over the world?

Aww, gee, *NIKKI* sings. She's not used to so much attention. "Suddenly, I feel spe-cial again!" she belts out. But what does everyone see in her?

I just went back to my 10th reunion
Everyone had jobs and kids
Everyone was wondering just what is it that I did
Well, I said I did jobs and I wrote a play
And they all said gosh, that's oh so BRAVE.
Because I did not become a doctor or bankerrrr ...
And I'm not yet married WOW!

It continues — you can hear it at PAW Online — and ends with Muller hitting an operatic high note: IT'S MEEEEEEEE!

IN 2012, Nikki Muller had a moment. "The Ivy League Hustle" became a viral sensation, racking up hundreds of thousands of views on Muller's YouTube channel and earning her positive notice on websites like Jezebel and The Huffington Post. "I was like, yeah, I'm doing it! That thing I did matters!" Muller recalls now with a laugh.

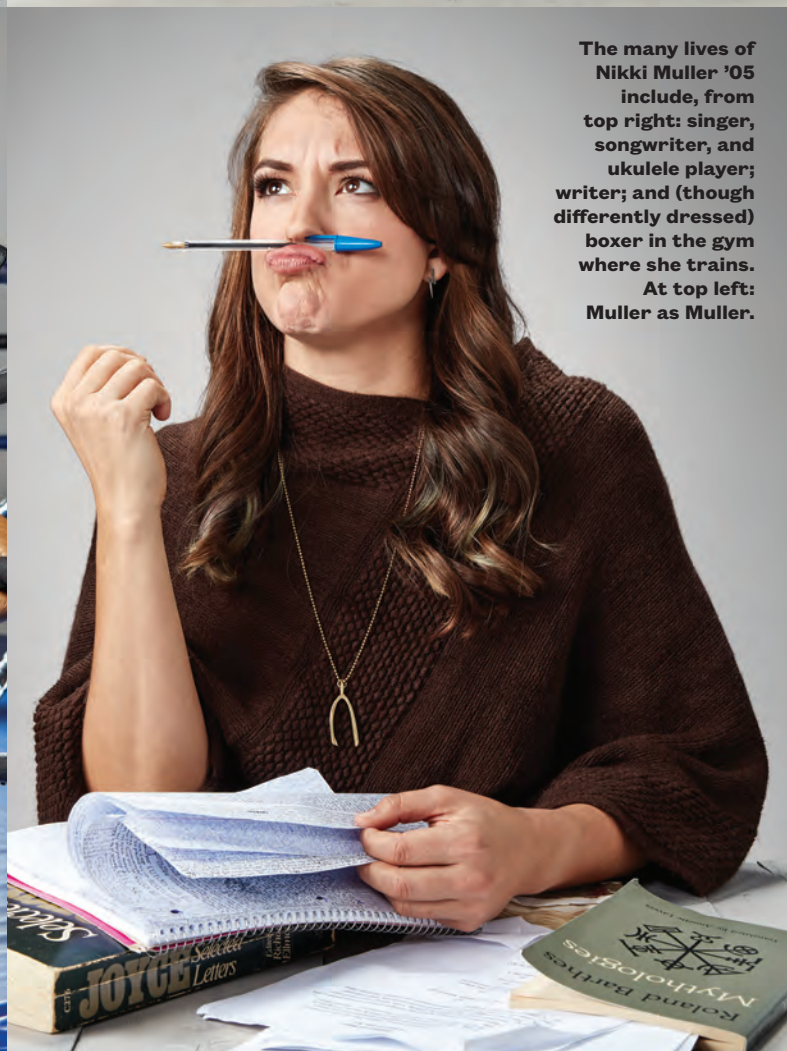
The viral hook of "Ivy League Hustle" was simple: In just a few minutes, it managed to cater to Ivy League fans and haters alike. What begins as a rap diss against men who fear smart women — "I went to Princeton, b***h!" — soon morphs into a lampoon of elite entitlement. "Yeah you know they always told me that knowledge was power / So how come I can't earn more than $14 an hour?"

Muller has posted plenty of other funny videos to her YouTube channel. (Her "World's Worst Bond Girl" character is one highlight; over the course of 12 webisodes, she obnoxiously proclaims her veganism, snoops around medicine cabinets, and invites her mother along on dates, to the chagrin of Her Majesty's deadliest agent.) But "Ivy League Hustle" hit like nothing had before. At the height of Muller's viral notoriety, *CBS This Morning* flew her from Los Angeles to New York to talk about her video. Muller was introduced as part of a new segment called "Busting Out," a series highlighting "emerging artists who are starting to make a difference."

In an accidental way, this mushy news-speak fits the provisional nature of most Internet fame. "Busting out" is easy enough. The real accomplishment is sustaining online buzz long enough to make a living. Muller acknowledged this challenge on air. When the CBS anchor asked about her dream job, Muller replied modestly, "I would like to be doing what I'm doing right now" — making videos, doing comedy — "but ... getting paid?"

THIS IS THE DREAM, not just for Muller, but for a generation of recent grads: the dream of meaningful work — a job that's not just a career, but a calling. Making money still matters, but material gains aren't necessarily the top priority for young workers. What's exciting for many millennials is the prospect of doing both well and good. According to a 2012 Rutgers University study, half of millennials "would take a 15 percent pay cut to work at a

Photos: Joseph Puhy



The many lives of Nikki Muller '05 include, from top right: singer, songwriter, and ukulele player; writer; and (though differently dressed) boxer in the gym where she trains. At top left: Muller as Muller.

company that matches their ideals."

The result is a remixing of the traditional codes of employment. "In many cases, students' definitions of success rely very little on what they earn or where they are in an organizational hierarchy, and instead on where they feel they can have the greatest impact," says Pulin Sanghvi, the head of Career Services at Princeton. "People now think about how they're doing with greater fluidity, and with greater anchoring in what is personally meaningful. Career progression has become unique to every individual."

Still, you have to wonder: Does the millennials' focus on meaningful work represent a genuine ideological change, or is it simply a way for recession-scarred young people to shift the goalposts of success? This is a generation, after all, that likely will fall behind their parents on traditional measures of wealth.

A lot depends on which millennials you're talking about. "Meaningful work" is still something of a privileged pursuit: The same Silicon Valley startups that are offering Ivy League dreamers the chance to make some extra cash — your Ubers, your TaskRabbits, your Airbnbs — also are "disrupting" (if not eroding) middle-class livelihoods. Some young workers have joined the "freelance nation" by necessity; others have joined it by choice, hoping to Kickstart themselves into greener pastures.

For the latter group (which includes Princetonians fortunate enough to graduate without much debt), this may well be the golden age of the "side hustle" — those survival gigs and passion projects that, taken together, add up to a new kind of working life:

Laura Hankin '10 moved to New York after graduation to find work as an actress. That she's done, but she's also worked as a personal assistant, babysitter, flashmob organizer, and children's birthday-party entertainer ("I get paid to sing to babies, basically"). Last year, during an acting dry spell, Hankin wrote a young-adult novel called *The Summertime Girls*. Now she's writing and producing a Web video series.

Oh, and one more thing: "I was just back in Princeton at the Neuroscience Institute, getting my brain scanned to make money. They only pay $20 an hour in the scanner, but they reimburse travel, which is nice," Hankin says. (She also gave a shoutout to Obamacare, which allowed her to stay on her father's health insurance until she was 26 and then sign up for the New York health exchanges.)

Jason Pomerantz '09 enrolled at New York University to study classical music composition after graduation, but eventually realized his greater passion lay in pop and rock vocals. After earning his MFA, Pomerantz picked up side gigs and survival jobs aimed at a career as a singer-songwriter: teaching music at the Harlem Kids Zone after-school program, giving private piano lessons, playing keyboards for and singing with bands, and providing musical accompaniment for children's musical theater.

The fruit of all this labor was an album that came out in November; now, Pomerantz says, the challenge is "getting people who aren't your friends to go and listen in some way." To that end, Pomerantz has begun posting weekly cover songs to his YouTube page. He hopes that strangers will stumble upon his version of Taylor Swift's "Wildest Dreams" and stay for the original compositions.

Morgan Jerkins '14 graduated with the dream of becoming a novelist. "I got into freelancing because I didn't have anything better to do," she says. "I was back at home, getting my MFA [in creative writing], and I thought, why not add my voice to these conversations going on?"

Her frank Twitter missives — on topics such as James Bond, white female feminism, and President Barack Obama's sermon after the Charleston shooting — caught the eye of editors looking to populate the expanding terrain of online media with fresh perspectives. In the past year, Jerkins' writing has appeared in publications including *The Atlantic* and *The Guardian*. In an essay for *Pacific Standard* about her experiences as a black writer, she discussed finding a warmer reception online than in the MFA classroom: "On social media, there is certainty in the fact that writing does not have to be a lonely profession. For a person of color, that solidarity is invaluable."

Jerkins has parlayed her online platform into assistant positions at Fuse, a literary agency; and Catapult, a new publishing house. "If this were 10, 20 years ago, I probably would have been working as a secretary at a publishing house or literary agency for three or four years, and then I'd go assistant. It'd be a lot slower."

IF THESE CAN BE CONSIDERED success stories of young Princetonians #freelancinglife, there are also plenty of headaches. Muller is 10 years into the chase. "There's just been so many brushes with what seems like a career — hah!" she recalls. After "The Ivy League Hustle," she says, "I had a few meetings with people, and I was sending out stuff and doing my best at what I'm terrible at, which is self-marketing. ... And then — SPLAT. "

"People were like, 'Oh, your YouTube is great; you could pay rent just with YouTube!' But you'd have to put up lots of new content every week. I just can't churn them out in that way. It takes me so long to make one of my videos! So a video a week, the thought of that, by myself ... oof, gives me indigestion."

Muller had faced similar setbacks early in her career, having moved to Los Angeles just as a writers strike shut down Hollywood. "Sometimes I was like, 'There's literally no reason to live out here if nobody knows I exist. What am I doing?' "

The solution for Muller was to hustle on her own terms. She figured: "Well, I should be doing *something* every day. And the thing I can do is write my own stuff. Because otherwise you're kind of just like treading water *until you die*. Like, what the hell is the point? I don't want my life to be determined by an off chance. I could sit and wait to be seen with a thousand other brown-haired white girls who look the same, or I could write songs that nobody else could ever write."

Nowadays Muller rarely sits still. She waits tables. She tutors. She Fiverrs with her improv troupe, a group called Robot Teammate & the Accidental Party, and performs comedy throughout LA. She also composes new songs and shoots

"I was sending out stuff and doing my best at what I'm terrible at, which is self-marketing. ... And then —

videos to support her solo standup comedy act. A short film that she wrote, edited, and directed recently was shown at the Harlem International Film Festival. "I don't mind working weird hours just to have my freedom," Muller says.

Once a month, Muller travels from her home in Burbank to TR!P Santa Monica, a music bar with chrome-and-crimson walls and a weekly burlesque revue called TR!PTEASE. Muller serves as TR!PTEASE's semi-regular warmup act. In the early days of the gig, she earned a share of the tips, alongside dancers like Egypt Blaque Knyle and DiDi Perks. Now Muller is paid mostly in free beer. Still, she says, "It's rare enough that someone will give that kind of regular time on stage" — a solid 20 minutes to develop new material.

One summer night, however, Muller is feeling rusty and decides to brush up on her classic material. Before heading up on stage, she greets the regulars in the audience with hugs and high-fives. "Her content is always interesting, educational," says one smirking patron. "You always learn something new."

What he means is that 90 percent of Muller's musical-comedy routine is too blue to be printed in these pages — despite the fact that her sweet, lilting singing voice recalls that of a children's television host. This tension is the point. "It's like Mary Poppins singing about anal sex," Muller says of her act. Her friends, meanwhile, have dubbed her "the Cole Porter of vagina songs."

"People are like, 'Oh, you're clever, you can make clean jokes.' And I'm like, 'This is what's funny to me,'" Muller explains. "I was raised super, super conservative. ... There was so much repression and shame, and most of my 20s was about learning how not to be ashamed anymore."

After her set at TR!P, Muller is summoned for an audience with Lili VonSchtupp, the *grande dame* of Los Angeles burlesque. "The songs were great, and I loved how you combined it with the comedy," VonSchtupp says with regal solemnity. Muller thanks VonSchtupp for the compliment and hands over a business card with her Facebook and Twitter handles.

"You've always got to have your cards on you!" Muller says on her way out of the club. "I've got probably like 1,000 of them. Because you never know! Maybe you get a follow or two off of it. One can hope." This summer Muller ran into an agent she met back in 2007, when they were both starting out in Hollywood. He's established now, and remembered her, and agreed to take her on. Muller's excited. "He's got people on real TV shows. He's really motivated. And he knows exactly what I can do — he knows what languages I can speak, he knows that I can sing. He's really stoked about my writing."

Summer 2015 also marked the debut of *Timeheart,* a *Rocky Horror*-esque musical space odyssey that Muller wrote and mounted with her Robot Teammate teammates at the Hollywood Fringe Festival. The play was a yearlong labor of love. The group built the show's elaborate sets in Muller's garage and workshopped the script in the living room of her Burbank bungalow. The hard work paid off: *Timeheart* was the top-grossing show at Fringe and easily made back the group's $5,000 investment in sets, costumes, and theater time.

"FINDING THIS GROUP is the best thing that happened to me since moving out here," Muller says. "LA is so superficial. It seems like everyone's hedging their bets on each other, so nobody will ever give you a straight no on something, but nobody will go out on a limb to help you, either. Because they're just hoping: 'When she gets famous, then I'll ask her for a favor.' No one's actually going to *do* anything for you. But here you have this group of people that are really committing to each other in a major way, financially and time-wise."

The idea that friendship can serve as an antidote to doubt and despair is hardly new. But friend groups are especially important for millennials, who seem to be marrying later, if at all. (According to Pew Research, in 2014, 28 percent of Americans between 18 and 33 were married in 2014, compared to 49 percent of baby boomers of the same age in 1980.) In place of spouses, young people are anchoring their adulthoods to wider circles of friends, lovers, and creative collaborators.

Muller credits her improv team with helping her weather the uncertainties of life in LA. In the group's shows and practices, she says, "we generally go to a fantastic place, an extremely playful and imaginative and fun place that just sort of celebrates life. You get rejected in Hollywood all the time. Improv is all about saying yes. It's rare to feel like I can do whatever and it will always be right. It can be very healing, even. It's like, gosh, who needs health insurance when you're happy all the time?"

Recently Muller got the idea for another play — "a de-creation myth about the last two people on Earth." It's kind of Brechtian, but also funny, she says. Muller wrote the bulk of the play in two days. Reporting her progress on the phone, she talks in double time. "It's physical, it's gritty, it's funny, it's dealing with epic themes. My old theater professor told me that to create art is arrogance. And I'm like, well, yep, but I don't care. You can't apologize when you're creating something."

Since finishing the play, Muller has hustled to line up collaborators and producers. Along the way, all of her fears about her time in Los Angeles — Has she missed her moment? Will she ever get a break? Is she doomed to a life of bit parts and survival jobs? — have dropped away. Suddenly, she feels special again.

"I haven't felt this jazzed for a singular purpose since graduating. I'm impossible to be around. ... It's just incredible. Because so much of my life feels like an uphill battle — like maybe if I work hard I can make a viral video, but does that feed your soul?"

She follows this with an equally effusive stream of texts:

"Maybe someone will read this article and be into [the play] haha"

"My whole life just turned into sand and fell through my fingers and I don't even care it's so thrilling"

"It's insane"

"I'm so freaking happy"

David Walter '11 is a journalist in New York City.

LISTEN to Nikki Muller '05's song about being interviewed by PAW and **WATCH** videos from her YouTube channel at **paw.princeton.edu**

SPLAT.

WHERE COLLISIONS ARE KEY

At the Andlinger Center for Energy and the Environment, collaboration sparks questions and answers

BY CARMEN DRAHL *07

When Hurricane Sandy pummeled New Jersey in 2012, Princeton escaped with far less damage than many other communities: mainly, 50 felled trees, blocked roads, and a loss of power from the local utility. The University managed to power the campus with its cogeneration plant. But instead of using power from its solar-panel field, Princeton shut it down. That might seem paradoxical, but there was an important reason for the decision: Solar power can come and go with the clouds, varying quickly from no power to full power. The variation had the potential to trip Princeton's generator — and that was not a risk campus energy experts wanted to take. Had there been some way to store solar energy from sunny days for later use — like a giant battery — things might have been different.

A decade ago, these kinds of issues — enormous batteries, judicious use of electricity — were research topics at Princeton, to be sure, but they didn't have a central home on campus. That changed with the 2008 founding of the Andlinger Center for Energy and the Environment, made possible by a $100 million gift from international business executive Gerhard R. Andlinger '52. This fall, center researchers are moving into their home: a new building at the corner of Olden Street and Prospect Avenue. The question of how to build a giant battery is exactly the kind of multidisciplinary problem this center was made to tackle — in fact, a group of young faculty members is on the case. Their goal: to someday construct batteries into a building's very walls.

The idea started like so many great ones do — over beer. Battery researcher Dan Steingart, who has a joint appointment with the Andlinger Center and the department of mechanical and aerospace engineering, was chatting with fellow Andlinger faculty member and civil and environmental engineer Claire White about her expertise — sustainable concrete. When she mentioned the alkaline chemistry (higher than neutral pH) of a sustainable concrete under investigation in her lab, they came up with an idea. Alkaline batteries — the kind most people use every day — share this high-pH chemistry. Could they get White's concrete to behave like a battery?

Their research was driven by economics as well as science. People might not think of fossil fuels as batteries, but petroleum products have been storing energy for eons. When petroleum burns, the process of combustion releases the energy held inside its chemical bonds, Steingart says. Oil and gas are cheap and easy to transport, he adds, so to be competitive as part of an electrical-power storage network without any subsidies, "the per-pound cost of a battery has to approach that of dog food."

Ricardo Barros

Emily Carter, a professor of mechanical and aerospace engineering, is the Andlinger Center's founding director.

Fortunately, concrete is about as cheap a material as they come. White and Steingart's approach was to make a small concrete block with electrodes embedded inside.

White and Steingart experienced what Andlinger Center founding director Emily Carter calls a "collision." Princeton, she says, is second to none at putting brilliant people in proximity and encouraging the random encounters that spark something new. If that sounds like the way chemists might speak about atoms, well, that makes sense. Carter is an eminent quantum chemist. In 2007, she read the report of the Intergovernmental Panel on Climate Change, which convinced her that human beings' energy habits profoundly affect Earth's climate. It was her epiphany: She decided then and there to reorient her research toward energy.

The Andlinger Center is meant to be the place where experts "collide" to address big questions: Where will we get energy to supply a growing and modernizing population? How can we use the energy we already have in the most efficient way? And how can we do it while being good stewards to the planet? These problems are too big for science and engineering alone, and so the center includes research in policy, social sciences, and the humanities. For instance, behavioral scientist Sander van der Linden has looked into the kinds of activities that promote lasting changes in energy-consumption habits, while biochemical engineer José Avalos is collaborating with Eric Larson of the center's Energy Systems Analysis Group to study the economic viability of biofuel production plants. The Andlinger Center's E-ffiliates Partnership, led by chemist Paul Chirik, catalyzes still more collaborations, with companies that work in the energy and environmental sectors. More than 100 Princeton researchers are examining issues related to climate, energy, and environment.

Carter's own work illustrates that collaboration. When she turned her focus toward energy, she knew there was someone at Princeton she could learn from: solar-cell pioneer Sigurd Wagner. Carter took a sabbatical to work in his lab and became a student of all things energy. Before long, she was getting grants to apply her quantum know-how to energy-related projects, such as designing new solar-panel materials, or finding ways to convert the greenhouse-gas carbon dioxide to compounds that could be readily transformed into fuels. She became the Andlinger Center's first director in 2010. And today, she gets around in an electric car — a Volkswagen e-Golf.

Long before batteries, firewood was Princeton's energy-storage system: Burning wood released heat that kept many a Princetonian warm in the winter. The sandstone and brick of Nassau Hall retained fireplace heat and provided a cool interior during spring and summer.

Modern times demand more of buildings, at Princeton and elsewhere. According to the U.S. Energy Information Administration, buildings account for 41 percent of all energy consumption in the nation. Research connected with the Andlinger Center is aimed at lowering that figure, starting right on campus. Consider the Friend Center for Engineering Education, a short walk from the new Andlinger building and one of Princeton's most technologically advanced facilities when it was completed in 2001. But that doesn't mean

continues on page 36

SCIENCE, WITH STYLE

BY INGA SAFFRON

What's a college science building supposed to look like? These days, we expect the architectural equivalent of an iPhone, with acres of smooth glass and silvery steel and maybe some aerodynamic fins to suggest the craft is ready for takeoff on a mission of discovery. Because those elements are now synonymous with technical innovation, they're an easy shorthand to signify the presence of "the sciences." But labs didn't always resort to such literalist branding. It used to be that the building that housed the university science department was indistinguishable on the outside from the one where the English department resided.

Tod Williams '65 *67 and Billie Tsien, who are among the great humanist architects of our day, have gone back to that pre-Jobsian approach with their new Andlinger Center for Energy and the Environment. Located at the far eastern

Photos: Ricardo Barros

Three chunky gray towers rise up from a concentration of lower buildings, much like an Italian hilltown.

end of the Princeton campus, in the engineering quadrangle, the lab building is constructed of the most ancient of materials: rough-hewn bricks, handmade in Denmark. While the tactile surface serves as a retort to our increasingly virtual world, the bricks were chosen to serve a larger mission. The architects' goal, they say, is to help Andlinger become a full participant in University life, and not merely a niche building for a select group of scientists. The less its exterior screams "science," the more the Princeton community is likely to venture into the complex, to socialize and attend events in the 200-seat lecture hall.

Set back from Olden Street, Andlinger sits on a two-acre site threaded with gardens that have been designed by Michael Van Valkenburgh Associates, the University's landscape architect. It's hard to believe this spot once had been a flat grassy field primarily used for baseball games. (The 120-year-old Osborn Clubhouse was demolished to make way for the new center.) Today, three chunky gray towers rise up from a concentration of lower buildings, much like an Italian hilltown. The terrain, scented with boxwood, seems almost Mediterranean. You can wander the grounds, hiking down into sunken courtyards, trekking across the face of Andlinger's research labs or strolling Van Valkenburgh's winding garden paths. Because Andlinger is partially surrounded by a historic red-brick wall, designed by the early 20th-century Beaux-Arts classicists McKim, Mead & White, the complex feels almost like a campus-within-a-campus.

For all that, Andlinger is unmistakably a modern building. Williams, Tsien, and their New York-based firm have mastered the skill of creating contemporary designs that seem ancient and eternal. Their science buildings — like Skirkanich Hall, a bioengineering lab at the University of Pennsylvania — are strongly informed by the work of Louis Kahn, who is best known for his sublime Salk research compound in La Jolla, Calif., overlooking the Pacific Ocean. Nestled inside the timeless rectilinear forms at Andlinger are state-of-the-art nanotechnology laboratories, equipped with electron microscopes,

Billie Tsien and Tod Williams '65 *67

Tom Grimes (Williams/Tsien)

its energy consumption cannot be improved. Sunlight streams in through its glass windows, providing natural light but also a great deal of heat — a disadvantage in the hotter months. "In the summer it's always cool inside, but only because there's air conditioning," says Denisa Buzatu '15. "Maybe we can be more efficient than that."

As a rising junior, Buzatu landed an Andlinger Center internship that got her thinking differently about the Friend Center, and how shade can save energy in buildings like it. The research became the foundation for her senior thesis. Working with Princeton civil and environmental engineer Sigrid Adriaenssens, Buzatu developed a movable, adaptable shade. Think origami that folds not by human hands, but by electrical current. Instead of paper, the surfaces of this "origami" are made of acrylic triangles. Wires connecting the triangles can contract to fold the shade or return to a flat shape. According to Buzatu's computer simulations, installing such a shade could save about 43 percent of the Friend Center's heating and cooling costs.

Buzatu's prototypes are about the size of a catcher's mitt. Scaling them to a practical size requires adjustments in the wiring and design, so she didn't reach the point of testing on a real-life building. No matter — she's been bitten by the energy bug, and hopes to weave sustainable design into her graduate studies at the Yale School of Architecture.

High-tech shades may reduce the need for air conditioning, but what if it were possible to cool a space without it? Forrest Meggers wants to show the world it's possible. Meggers, an assistant professor with joint appointments at the Andlinger Center and the School of Architecture, became interested in engineering because he wanted to build bicycles. True to his teenage passion, he gets around Princeton by bike.

The venue chosen by Meggers and his collaborators for their A/C-free work was Princeton's Architectural Laboratory, formerly the site of stables for polo ponies, near Jadwin Gym. There, they built an unenclosed pavilion that keeps people comfortable in the summer heat without cooling the air. It's called the Thermoheliodome (now disconnected).

Made from 128 robotically fabricated pieces of white foam, the partial dome pumps chilled water from a cooling tower to stick-shaped surfaces that point into the structure's interior. Meggers designed the inside of the space with funky geometric shapes — cone-shaped indentations lined with reflective material. These shapes allow the chilled temperatures from the sticks to reach all over the surface of the structure with minimal cooling of the surrounding air. (Air quickly escapes any outdoor space, so cooling it would be a waste of energy.) The structure's lower surface temperature makes people perceive a cooler temperature when walking inside it. The result? "Even though the air in the pavilion might be 90 degrees, you will think it's less than 80," Meggers says.

Today, the University's energy plant cools, heats, and provides power to many buildings on campus. To fill gaps in demand, Princeton purchases power from local utilities, but it's striving to reduce its carbon footprint by decreasing reliance on fossil fuels. According to the facilities department,

continues on page 38

where scientists will be able to manipulate the tiny particles in stainless-steel-encased clean rooms.

Andlinger's director, Emily Carter, refers to it as a "tools building" because it will be so packed with specialty equipment. But the scientific amenities extend beyond the labs. Since so many research spaces had to be located on bedrock to minimize vibrations, the architects used the submerged courtyards to bring light and greenery into what is effectively the basement. It will surely be a relief for researchers to be able to step out of their soundproof labs and walk into the bright sunshine of a sunken terrace. To prevent scientists from getting lost as they move through the intricate, puzzle-box interior, Williams and Tsien have sprinkled the corridors with visual breadcrumbs: wall murals and colored tiles. The murals are images taken from the sketchbooks of famous scientists, blown up so they appear to be abstract paintings.

The ancient-modern fusion that Williams and Tsien practice is perfect for Princeton, which has had a sometimes-rocky relationship with

Photos: Ricardo Barros

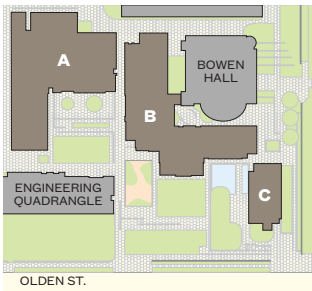
On the outside, the Janus-like facade – half brick, half glass – symbolically roots the building in the modern world.

modern architecture. Andlinger, like so many of their buildings, looks like it was put together by human beings, one piece at a time. The silvery tone of the long, thin, Roman-style bricks is meant to help the new complex connect with Princeton's collegiate-gothic core, where the dominant building material is a grayish, sedimentary stone called argillite. Andlinger's bricks rest on thick beds of mortar, emphasizing the building's artisanal character. With such flat, unadorned walls, there is a danger of dullness. But Williams and Tsien avoid that pitfall with sure-handed details that include subtle changes in textures and materials, strategically placed openings, and shifts in mass. The pathways that weave through the building, moving from inside to out, also act as a form of surface decoration.

Williams and Tsien like to mix things up by throwing in some slickly modern materials. In sharp contrast to the brick used throughout the complex, they've slipped in a vertical half-wall of glass on one of the towers. The glass also serves a functional purpose, allowing light to flood the main staircase. Divided by textured concrete walls, the stairs become a hang-out space within the building, making it more likely that scientists will skip the elevator. Meanwhile, on the outside, the Janus-like facade — half brick, half glass — symbolically roots the building in the modern world.

Many large universities are opening new science buildings for nanotech labs, putting them on the cutting edge of this important field. It's ironic that such large buildings as Andlinger — 130,000 square feet — are needed to do research on smaller and smaller things. As you weave along its pathways, through the lush scented gardens, there is a sense of being connected to the rest of Princeton's campus — and the larger world beyond. The hope is that the seductive architecture and landscape created by the designers will ensure that Andlinger will be well populated, by scientists and civilians alike.

Inga Saffron, the architecture critic at The Philadelphia Inquirer, *won the Pulitzer Prize for criticism in 2014.*



The Andlinger Center laboratories (A and B) and lecture hall (C), connected underground, are located at the corner of Olden Street and Prospect Avenue.

Professor Forrest Meggers in the Thermoheliodome, which kept people comfortable in the heat without air conditioning.

Frank Wojciechowski

the University is on track to decrease campus greenhouse-gas emissions to 1990 levels by 2020, a goal set in the 2008 University-wide Sustainability Plan.

One important step toward that goal took place in 2012: the installation of the solar-panel field that was shut down temporarily during Hurricane Sandy. The 27-acre field south of Lake Carnegie and visible from the Dinky boasts 16,528 solar panels. It provided roughly 5.5 percent of campus electricity last year.

Barry Rand *07 has spent quite a bit of his time at the Andlinger Center thinking about that solar field. Rand, who has a joint appointment in the electrical engineering department, works to develop materials that will be more efficient at converting the sun's rays into electricity (commercial solar panels currently top out at less than 25 percent efficiency). His materials may be years away from reaching the market, but he's using Princeton's solar field to think about how to maximize the energy that can be harvested with materials already available.

Working with Rand, Manali P. Gokhale '16 compared energy production from the two types of solar panels in Princeton's field: one kind that tracks the sun each day and moves to maximize energy capture, and another that's fixed at a tilt of 25 degrees. Gokhale found that sun-tracking panels produced 9 percent more energy over the course of the year. But then she looked at how much energy was being produced for a given area of land. Tracking panels move around, so they need extra space. Per unit of land, the fixed solar panels produced 54 percent more energy than their tracking counterparts. The take-away message, Rand says, is that as solar-cell technology gets cheaper, and the cost of land or roof space becomes more significant — as in urban areas — it may make more sense to install fixed panels.

The sun isn't the only energy source Andlinger Center researchers are considering. Affiliated faculty are studying fuel cells, wind power, and fusion, to name a few alternatives. José Avalos, who holds a joint appointment in chemical and biological engineering, is working to make biofuels more sustainably.

Avalos is among the many researchers who are coaxing microbes to make valuable molecules. This work isn't limited to biofuels; it also applies to making pharmaceuticals and other valuable chemicals in a greener way. He gets the job done by hijacking yeast cells' mitochondria — a compartment considered the "powerhouse" within a cell.

For example, yeast naturally makes tiny amounts of isobutanol, a molecule Avalos would like to see powering vehicles someday. Isobutanol is chemically related to ethanol, the alcohol in beer or wine and one of today's dominant biofuels. Ethanol is made from renewable plant sources, largely corn and sugar cane, but it has disadvantages. It has less energy content than gasoline. It also absorbs water from the air, making it corrosive enough to be incompatible with the country's fuel-transportation infrastructure if used in appreciable quantities. What's more, using land that could grow food crops to make ethanol fuel is controversial in some quarters.

Avalos engineered yeast to boost isobutanol production. His mitochondria hack increases isobutanol production by about 260 percent, compared with a 10 percent increase from a more established technique. Because microbes easily can be programmed to make small tweaks to the chemical structure of a fuel, it may be feasible someday to cheaply synthesize super-efficient fuel molecules that have yet to be discovered, using renewable materials. The possibilities are limited only by researchers' imaginations, Avalos says: "We're only scratching the surface of what can be done."

Back on the concrete-battery project, the researchers decided to charge and deplete the concrete block with the electrodes and see what happened next. Early testing has found that the block retains its integrity when charged and depleted, just as a battery would. Steingart envisions painting solar cells on the outside of the mini battery brick, and Rand — another collaborator — is searching for materials that can do double duty: first converting solar energy to electricity, and then storing the power that's generated. "The challenge is that the outside of this battery brick will have to do very different things from the inside," Steingart says. "But if you can get it to work, it wouldn't even have to be as good as the best battery, or the best solar panel, because it would be way cheaper."

There's some early "proof of concept," but it's hard to know how long it might take to make the blocks a viable solution to outages caused by another Hurricane Sandy. The prototype is about the size of an ice cube. Even if it proves scalable, White says there will be regulatory barriers to placing them in buildings: New concretes can't be used under established building codes. Undeterred, Meggers is on the project as well, using his architectural expertise to think about how to integrate this kind of brick into life-size structures. He quips that he always asks the same question of his collaborators: "When do we get to build a bigger block?"

The likelihood that there will be payoffs from these projects only in the distant future doesn't faze Andlinger Center director Carter. "You can't just think short-term. It's only going to get you so far," she says. "I take the view that this center will exist for centuries. We're going to continue to need it."

*Carmen Drahl *07 is a Washington, D.C.-based writer. She is a regular contributor at Forbes.com.*

PRINCETONIANS

MAKING MUSIC:
Adam Ollendorff '00 plays pedal steel guitar, which is positioned on legs because it requires a steel slide and foot pedals. The most rewarding part of playing music professionally, he says, is "becoming friends with many of my musical heroes." He's seen here performing on tour with country singer Kacey Musgraves at the Apollo Theater in New York City in October.

Michael Falco/Black Star

Megan Heuer *08, left, and Emily Arensman '06 create events that bring visitors to the Whitney Museum, which is exhibiting the work of Frank Stella '58, including, shown at left, his mixed media work "At Sainte Luce!"

PROFILE: EMILY ARENSMAN '06 AND MEGAN HEUER *08

'FROM NOVICES TO EXPERTS'

Alumnae design public programs to draw all audiences to Frank Stella '58's art at the Whitney

When a retrospective on the work of Frank Stella '58 opened this fall at the Whitney Museum's new building in downtown Manhattan, Megan Heuer *08 and Emily Arensman '06 were plotting ways to draw a diverse audience to see it.

Heuer, the director of public programs and engagement for the Whitney, and Arensman, who works with her as the programs' manager, create events that engage visitors and introduce them to Stella's work and the other art on display. The museum wants "to remove barriers to access," Arensman says. The move last spring to the new location is an opportunity to bring in audiences who may never have ventured to the Upper East Side to visit the old Whitney but live near the new building, such as residents of housing projects in nearby Chelsea and members of an LGBT center a few blocks away.

Stella burst onto the abstract art scene a couple of years after graduating from Princeton. The exhibit, which runs through Feb. 7, is the most comprehensive presentation of his work to date. It includes 120 paintings, sculptures, drawings, and other types of work, including both well-known and rarely seen pieces.

To draw in new audiences, the museum holds free events for senior citizens, many of whom are low-income, on a day when the museum is closed. "It's a day to themselves," Arensman says. "Many live nearby and feel now as if the museum belongs to them." There also are special events for families and schoolchildren, hands-on art-making programs, and lectures by contemporary artists. Programs that focus on the artist's process also help bring in those who are less comfortable with art. Says Heuer: "We want all kinds of audiences — from novices to experts — to feel welcome here." *By J.A.*

FOLLOWING: APENNEDPOINT.COM

Blogger:
KAREN SULLIVAN SIBERT '74
On Medicine and Politics

An anesthesiologist at Los Angeles' Cedars-Sinai Medical Center and a mother of three, Sibert writes about the politics of medicine, current controversies in her field, and what they don't tell you in medical school. She translates complex medical issues for general readers.

"I can verify that even the most routine procedure — under sedation, regional block, or general anesthesia — has the potential to evolve into a crisis."

From top: Michael Falco/Black Star, © 2015 Frank Stella/Artists Rights Society (ARS), New York; Nancy Jo Gilchrist Photography

LIFE: 35 YEARS OUT...

Tim Koons-McGee '80 finds himself — and career success — behind the ice cream counter

Tim Koons-McGee '80 tried "a million" careers — he owned a swimming-pool company, trained thoroughbred racehorses, and restored historic homes — but nothing stuck. "All of them were successful, but there was always this burning desire to do something else," says Koons-McGee, who lives in a suburb of Louisville, Ky.

Then, at the age of 40, he came out as gay. He explained this to his 10-year-old daughter (he was divorced from her mother), who soon decided to live with him full-time. Several years later, his romantic partner of 10 years died of a brain aneurysm, and within the next year his father and brother also died. Koons-McGee became, he says, "a high-functioning alcoholic." One night he found himself in a bar in Louisville and asked himself, "What am I doing?" He went to Alcoholics Anonymous the next day and has been sober since.

He met Roy McGee at an AA meeting. The two were married in Montreal in 2007 (they changed their last names to Koons-McGee) and resolved to embark on a career together: running an ice cream shop. "We went to the bank at the height of the Great Recession," Koons-McGee says. "They thought we were insane."

After friends and family offered help — and a different bank offered a loan — the pair opened The Comfy Cow in Louisville in December 2009. "We had lines out the door, even though it was winter," he says. The shop has an eclectic vibe, with recycled church pews and ice cream scoops hanging from the ceiling. There are now eight Comfy Cow shops in three states.

At 57, Koons-McGee has found success, in more ways than one: "I'm very comfortable in my own skin, and that's a good place to be." *By J.A.*

OPEN FOR BUSINESS:

"We asked ourselves, are people going to want to eat gay ice cream? But Louisville is very gay-friendly, so it really wasn't an issue."

Courtesy The Comfy Cow

Tim Koons-McGee '80, left, and his husband, Roy, resolved to embark on a career together: running an ice cream shop.

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ESSAY

THE PHOTOGRAPH NOT TAKEN: THE NIGHT JOHN LENNON DIED

Robert Morgan '65

Principally a landscape painter, Robert Morgan '65 (pictured above in his studio), also paints portraits, still lifes, and figure compositions. View his work at robertmorganvenice.com.

I am an American painter who lives and works in Venice. A few days ago my daughter walked in from school humming "Yellow Submarine." "Daddy, Daddy, do you know the Beatles? Have you ever seen them? Did you go to a concert? "Well, I knew one of them, whose name was John … ." But I couldn't tell her the rest of the story.

In the late 1970s and early '80s, I lived in New York City with my first wife at the Majestic, 115 Central Park West, Apt. 12G. Our apartment was on the 12th floor with windows running along 72nd Street. The view was commanding: a huge slice of Central Park and the entire western facade of the Dakota, immortalized by Roman Polanski's movie *Rosemary's Baby.* The brownstone facings and contrasting yellow brick with chimneys, finials, gables, and balconies, and the medallion of the proud Dakota chief — all framed by the glorious New York sky — were our daily bread.

In those days, it was the neighborhood of choice for many performers. Celebrities were neighbors and friends. Zero Mostel, an earthquake of a man with wild black hair and saucer eyes, lived on our elevator line. There were daily sightings of megastars. Then there were John and Yoko, with whom we had a nodding acquaintance. Our windows looked almost directly across to their apartment, which accentuated the familiarity.

In retrospect, the most remarkable thing was the accessibility of these figures. Paparazzi were not part of the street scene. John was affable and cordial with his fans during his walks in the neighborhood. Bodyguards, if they existed, were not in evidence. I remember seeing Mark David Chapman, Lennon's assassin, sitting on the railing outside the porte-cochère that distinguished the Dakota as a gracious reminder of horse-and-carriage days.

New Yorkers grow used to the incessant rumble and roar of traffic. The sounds blend to a comforting hum. Wailing sirens, honking horns, groaning garbage compressors, screeching brakes, skidding cars, breaking glass, colliding vehicles, yowling people, and the occasional explosion are grace notes in this symphony. What we heard on the night of Dec. 8, 1980, was something else.

As we settled down to watch the 11 o'clock news, a succession of loud detonations brought us to our feet. We ran to my studio window on 72nd and saw a black limousine in the driveway by the Dakota's porte-cochère. Its lights were on, and a figure was lying by the open rear door. We identified John at a glance by his cowboy boots and round glasses, which reflected the bright lights of the entrance. He lay face up, slightly crumpled, with his feet pointing toward the street. The tremendous crashing that startled us had been the sound of the four or five gunshots reverberating within the passage.

I focused on John's face, the face of a dying man. Then I said to myself, "This isn't my work. Whoever is there deserves a final moment of privacy."

As we looked on helplessly, the door of the limo closed; the car backed out and sped westward on 72nd Street. Almost immediately a police car arrived, and officers piled out with their pistols drawn. John was moving slightly.

There was a camera on the desk in my studio, and I instinctively grabbed it. For the record, it was a Nikkormat EL fitted with a telephoto lens, loaded with high-speed black-and-white film that I often used to snap photos out of the window and around town. The night was clear and the scene was lit up. With the camera cocked and my finger on the shutter release, I focused on John's face, the face of a dying man. Then I said to myself, "This isn't my work. Whoever is there deserves a final moment of privacy." As a painter, though, I had the tools at hand to commemorate what was clearly a historic moment. I set to work and quickly sketched the evolving scene. In less time than it has taken me to describe the events, the police had located and neutralized the gunman and rushed to aid the wounded man.

What I saw was five policemen lifting John and cradling him gently in their arms as they carried him to the police car with the doors still flung open. They carefully slid him onto the back seat and slammed the doors shut. The car raced west on 72nd Street toward the hospital while I madly blocked in the sketch with color and made notes of the details. I stood at the window until I got everything in place. The sense of powerlessness in the face of tragedy prevailed, but I felt that I recorded the event in the right way.

When I tell people: "I was there when John was shot," they invariably ask: "Did you have a camera?" "Yes, I did," I respond. "So, where is the photo?" "I didn't take one. I painted a picture."

Images: this page: Vartivar Jaklian; opposite page: painting: Robert Morgan '65/photo: Mark Edward Smith

R. Morgan NY 8/xii/80

CLASS NOTES

Online Class Notes are password protected. To access, alumni must use their TigerNet ID and password. Click here to log in: http://paw.princeton.edu/issues/2015/12/02/sections/class-notes/

MEMORIALS

PAW posts a list of recent alumni deaths at paw.princeton.edu. Go to "Web Exclusives" on PAW's home page and click on the link "Recent Alumni Deaths." The list is updated with each new issue.

THE CLASS OF 1935

Richard B. Mather '35

Known to some of us as "Urchy," Dick died Nov. 28, 2014, having just celebrated his 101st birthday.

Born in Baoding, China, the son of William Mather 1896, a Presbyterian missionary, Dick came to us from Pyongyang Foreigners School in Korea and Mercersburg Academy. At Princeton he majored in art and archaeology, sang in the Glee Club and choir, and belonged to the League of Evangelical Students. His senior-year roommate was Larry Johnson.

After attending Princeton and the Princeton Theological Seminary, he was a pastor before World War II began. Unable to return to China because of the war, he then earned a Ph.D. in Chinese literature at Berkeley and taught Chinese studies at the University of Minnesota until 1984. He was an internationally renowned expert in medieval Chinese literature and religion.

His wife, Virginia, whom he met while at Princeton, predeceased him in 2012. He is survived by his daughter, Elizabeth Klum; sons David and Samuel; and nephew William '57.

THE CLASS OF 1939

A. Adgate Duer '39

Ad died March 7, 2015, at his home on the Eastern Shore of his native Maryland.

He attended Gilman School and Kent School. Ad was in the ROTC program, but he deferred entrance into the Army until receiving his law degree from the University of Virginia. He rose from second lieutenant to major in field artillery, serving in North Africa, Italy, and Bulgaria. It was in Algiers that he met a British nurse, Phyllis Bolton, whom he married in wartime Naples in November 1944.

Ad practiced law his entire career at Niles, Barton & Wilmer. He served on many boards in Baltimore and on the vestry of his church. Ad loved sports, including squash, in which he competed as an undergraduate. He played golf until he was 95.

In 1979, Ad summed up what he had learned since graduation: "Something about the Army, something about the law, something about people, something about life and — never lose your sense of humor."

Ad is survived by his wife of 21 years, Katherine; two daughters; a son; a stepson; and numerous other family members. The class salutes our honors graduate, who wrote in our 50th yearbook that "There is no limit to the areas yet to be looked into."

G. Rolfe Scofield Jr. '39

Scof died June 12, 2015, in his native Rochester, N.Y.

He was born March 3, 1917, to Rolfe and Sylvia Scofield. Scof was an Eagle Scout and a counselor at Camp Cory on Keuka Lake in upstate New York. At Princeton, he wrote his thesis on the Erie Canal and played basketball.

Scof earned a law degree from Harvard in 1942. He then was commissioned as a second lieutenant in the Eighth Air Force and flew 30 combat missions as a navigator in the 351st Bomb Group while stationed at Polebrook, England.

In 1944, he married Whitney Smith of Jordan, N.Y., who predeceased him in 2002. After practicing law in Rochester, he entered the family business, Crescent Puritan Laundry.

A civic leader, Scof was elected to the Rochester City Council in 1953. During his career, he was president of the YMCA, the Convalescent Hospital for Children, AAA of Rochester, and the Monroe County Port Authority. He also served as director of the Rochester Chamber of Commerce and treasurer of the American Farm School. Upon retirement, he and Whitney moved to New Castle, Del.

Scof is survived by his four children, including Giles '75; four grandchildren; and four great-grandchildren. We extend our sympathy to them on the loss of our classmate whose words about Princeton can't be beat: "Best experience yet!"

THE CLASS OF 1941

P. Henry Mueller '41

Henry died April 9, 2015.

He graduated from George Washington High School in New York City in 1934 and took a "temporary" job at Citibank as a page, studying economics at NYU at night. In the fall of 1939, Princeton admitted him as a junior to the Class of 1941 and Citibank paid the bills.

In the spring of 1941, Secretary of State Cordell Hull asked President Dodds *14 to recommend three Princeton students for a new State Department program. Dodds asked Gordon Sikes to pick the students, and Henry was one of those chosen. He traveled the world for the next three years to develop the State Department's courier program.

In 1944, Henry volunteered for the Marines. He was discharged as a captain and returned to the State Department for a brief time before rejoining Citibank. Rising through the ranks over the next 35 years, Henry became a senior officer and chairman of the credit-policy committee, overseeing a $77 billion portfolio. He also was a visiting lecturer at the University of Virginia for 21 years and founding chairman of the Darden School's Center for International Banking Studies.

Henry is survived by Jean, his wife of 65 years; son Donald; grandson Donald Jr.; granddaughters Laura and Julia; and great-granddaughter Charlotte.

THE CLASS OF 1943

Donald J. Harvey '43

Don died Jan. 11, 2015, in Winchester, Mass.

He prepared at Richmond Hill High School, where he was class treasurer and on the staff of the school magazine. At Princeton Don majored in economics, was a member of Whig-Clio, and graduated with honors. He served in the artillery during World War II and retired as a captain.

Don was chair of the history department at Hunter College and later retired to become professor emeritus. He was the author of many scholarly books and articles and wrote a mystery novel set in Paris.

Don is survived by his daughter, Nanette; her husband, Stanley Hochberg; three grandchildren, Chad, Jacob, and Eric; and his sister, Janet Manyak. His wife, Jacqueline, predeceased him.

Jetson E. Lincoln '43

Jet died May 18, 2015, in Miami.

He was born and raised in Montclair, N.J., and graduated from Montclair High School. Jet graduated Phi Beta Kappa under the accelerated program and then served as a lieutenant in the Navy.

He earned an MBA from New York University and went to work for Phillip Morris.

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After a 40-year career, he retired in 1987 as vice president of finance in the consumer products division. Jet also served on the boards of Miller Brewing Co. and the 7-Up Co.

His survivors include a son, Robert J. Lincoln; a daughter, Linda Anne Swayze Butler; seven grandchildren; and five great-grandchildren. Jet's wife, Virginia Foster Lincoln, predeceased him.

THE CLASS OF 1946

Donald Gray Blain '46

In 2003, when he was 79 years old, Don took first place in the 25-meter freestyle swim in the Wyoming Senior Olympics. Whether it was sailing an iceboat, piloting a private aircraft high above Wyoming, or making key decisions as admissions chairman of the American Association of Clinical Urologists, Don always was busy.

An Air Force captain during the Korean War, he served as the 121st Fighter Squadron's medical officer. Resuming civilian life in Michigan, he became president of the Macomb County Medical Society and president of the Michigan branch of the American Urological Association. He founded the Oakland Macomb County Professional Standards Review Organization, which represents all the area's doctors in ensuring quality in medicine. One of only six Michigan urologists who were members of the International Society of Urology in 1985, he lectured in the United States, England, Scotland, Austria, and Argentina.

At the time of his death May 20, 2014, Don was survived by his wife, Grace Carpenter Blain; son Ian Donald Blain; daughters Elizabeth Ann Johnson and Patricia Droneberg Blain; and grandson Eric Alexander Johnson. The class joins them in thankfulness for Don's long life dedicated to leadership of his profession.

Richard Martin Holsten Jr. '46

"I believe that there is really no such thing as retirement," said Dick in our 50th-reunion yearbook. "It is merely a reorientation and reprioritization of energies and interests."

Dick spent 40 years in the marketing and operations side of the coal-mining industry. He entered coal-mining following World War II and Korean War service as a first lieutenant in the Marine Corps. His company was a major producer of bituminous coal from surface and underground mines in southern Appalachian, Midwestern, and Western coalfields for utility consumption. He served as president, chairman, and chief executive officer of the Pittsburgh and Midway Coal Mining Co. in Chicago, Kansas City, and Denver for 12 years before retirement.

An ardent skier, Dick was strongly involved in ski-patrol activities, serving as assistant national director of the National Ski Patrol System. He was also active in Wellness House, helping provide support for cancer victims and their families.

Dick died Sept. 20, 2014. His wife, Jeane, predeceased him. He is survived by his sister, Janet Perry; daughter Jennifer Templeton; son Peter; six grandchildren; and his longtime companion, Anita Holcomb. The class salutes them all with thanks for the steadfast life of our thoughtful classmate.

David Seffers Lane '46

Many a military pilot has been thankful for a helmet-sight system devised by Dave. His work toward this valuable flying tool began with his graduation in 1946 from the U.S. Military Academy at West Point, an event that resulted from a wartime switch after our freshman year.

Next, while earning his electrical engineering master's degree at the University of Pennsylvania, Dave worked on one of the world's first computers. That led to Army service as the first director of training for the Ordnance Guided Missile School, followed by work in Paris, France, for Raytheon Corp. and in Minnesota for Honeywell. There his widely used helmet-sight system won him the firm's highest engineer-scientist award.

Dave's first wife, Jean Ennis Farber, died in 1997. Their children were Sara Lane, David Jr., Jennie Lane, and Mary Lane Roble. When Dave died May 20, 2014, they all survived him, along with his second wife, Barbara Higley Tall Lane; 10 grandchildren; and two great-grandsons. With condolences to all, '46 proudly salutes the memory of our enterprising classmate.

David Sharp Masland '46

Following naval service in Panama as a medical lieutenant junior-grade, Dave became board certified in internal medicine and ultimately a fellow of the American College of Physicians in Internal Medicine.

After 10 years of solo practice in Carlisle, his Pennsylvania hometown, Dave served as chief of the medical department at Carlisle Hospital and as president of the staff. He established the hospital's heart station and its pulmonary center and introduced the techniques of endoscopy. He served as the youngest trustee of his time of the Pennsylvania Medical Society, later becoming president. He helped found its liability-insurance company, and for 13 years served as the company's board chairman and CEO.

Dave had a lifelong interest in conservation. He served as vice chairman of the Pennsylvania chapter of the Nature Conservancy and was an active worker in the preservation of valuable historic homes and natural park areas.

Dave's death April 2, 2014, left his wife, Elizabeth Strayer Masland; children David Jr., Janet Masland Keating, and Barbara "Kim" Masland Bollinger; seven grandchildren; and four great-grandchildren. To them all, '46 extends warmest condolences as we think fondly of this medical leader and good friend.

Samuel Smith Wilson '46

From 1975 to 1983, the prime-time television audience in Cincinnati knew Sam as Judge Paul Trevor on the *Juvenile Court* TV show. During that time, and from 1965 until his retirement in 1993, Sam was an attorney practicing law while also teaching at the University of Cincinnati College of Law.

A Cincinnati native whose father had been that city's mayor for eight years, Sam spent 13 years after Princeton as a reporter and editorial writer for Cincinnati's daily afternoon newspaper. When the paper was sold, he went to law school. Teaching and practicing law at the University of Cincinnati followed, including nine years as the school's dean or acting dean during, as he later put it, "the time of student unrest, which provided more experience than I wanted in crisis management."

When Sam died June 25, 2014, he was survived by his wife of nearly 61 years, Anne N. Wilson; his children, Clare Wilson Richart, Eliza Wilson Kirkpatrick, Russell Wilson '80, and Andrew Wilson; 12 grandchildren; and two great-grandchildren. To them all, '46 sends warmest condolences.

THE CLASS OF 1948

Matthew J. Ayers '48

Though a lifelong New Jerseyan, Matt was born in Niagara Falls, N.Y., in 1925. Before transferring to Princeton from Franklin and Marshall College, he enlisted in the Navy at age 19; after active duty, he was a Navy reservist until 1951.

He graduated in 1948 with a degree in economics. (While in college he changed his name from Ajewski to Ayers.) His first job after school was as an underwriter at INA Insurance. While there he met and married Joan Harvey, and they were together for 65 years. Most of Matt's business career was at AIG, where he became vice president of construction risk. He retired in 1992.

The Ayerses raised three children, Michelle, Sharon Nudd, and Matthew Ayers Jr., who survive Matt. There are also two grandchildren and a great-grandchild who survive him, along with Joan. Matt entered an assisted-living facility in 2007, and died there May 18, 2015, at age 90.

Charles H. Burkman '48

Charlie was born in Elizabeth, N.J., and graduated from the Pingry School. He was in the Navy Hospital Corps from 1944 to 1946 before getting to Princeton, where he was

introduced several times as the oldest living undergraduate member of Terrace Club. He also made a cross-country tour with classmate Norm Tomlinson. An English major, he graduated from Princeton in 1952.

Charlie traveled all around Europe and took courses in contemporary civilization at the University of Paris, where he also worked as a tutor and a guide. Back in the United States, he worked briefly at the Educational Testing Service in Princeton before earning a master's degree in library science at Rutgers. In 1959, Charlie joined the Firestone Library staff, where he was a reference librarian and cataloger, specializing in the humanities collections. He retired in 1994.

Charlie married Sally Wilt in 1960, and nine years later, she also joined the Firestone Library staff. The Burkmans lived in Pennington, N.J., and had many summer visits to Maine. They traveled widely, and especially remember a vacation train trip across Canada, followed by a voyage up the Inside Passage, and two weeks on the Kenai Peninsula.

Charlie died June 21, 2015, at age 89. He is survived by Sally; their daughters, Katherine Mole, Elisabeth Bielski, and Sarah Burkman-Shelborne; and grandsons Matthew, Andrew, and Nathaniel.

W. James Guthrie '48

Jim died at home June 20, 2015, in Douglassville, Pa., after a short illness.

He was born Jan. 7, 1927, in Reading, Pa., and came to Princeton after Army service in Italy. Jim majored in psychology, roomed in Holder with Dick Greene and Charlie Price, and graduated in 1950. He then went to medical school at Northwestern, graduating in 1954. Jim's internship was at Philadelphia General Hospital, which was followed by a residency at St. Luke's Hospital in New York City.

He started an internal-medicine practice with two associates in Pottstown, Pa., where he also established the cardiac and general ICU units and served as chief of staff at Pottstown Hospital. After retirement in 2003, Jim volunteered at Community Volunteers in Medicine in West Chester, Pa. He and Lucy, his wife of 36 years, kept horses and were longtime members of the Limekiln Hunt. They were also opera fans, gardeners, tennis players, and cooks.

Lucy survives Jim, along with his daughters, Carolyn and Julia; and his younger brother, Thomas.

John K. Lilly '48

Jack died July 5, 2015, in his native St. Louis at age 87.

He attended St. Louis Country Day School, and earned a degree in chemical engineering at Princeton. Jack worked in sales, marketing, and international-management at Monsanto, then joined the consulting firm of Arthur D. Little. Next he was assistant to the president of McGean Chemical Co. in Cleveland, and then worked with Exxon Chemical Co. doing contract negotiations and sales. After that, Jack returned to Monsanto to become a widely traveled international sales director. In 1976, he became a financial-planning consultant and investment adviser.

Jack was very active in alumni affairs. He served on the board of the Princeton Club in St. Louis, organized a mini-reunion there for our class, and was on schools committees in St. Louis and Cleveland.

His brother, Douglas '52, and son, John '75, survive him. Jack also is survived by his wife, Sally; daughters Kim Wyllie, Margaret Buck, and Sarah Hoerr; 12 grandchildren; and four great-grandchildren.

J. Kyle Spencer '48

Kyle was born in 1926 and grew up in Columbus, Ga. He died there July 12, 2015, at age 88.

A Navy veteran, Kyle was a principal in a securities firm, then joined and later became chairman of Columbus Bank and Trust Co. He was a very active participant in civic projects and organizations, especially those concerned with historical and environmental preservation. Kyle was the first significant campaigner for efforts to curb wastewater pollution of the Upper Chattahoochee River in Georgia and a co-founder of Trees Columbus. He also established the Spencer Environmental Center, which occupies a historic Spencer family house in downtown Columbus and provides offices for a number of organizations concerned with local environmental preservation and management.

Jim and his late wife of 52 years, Sara Davis Spencer, were ardent supporters of Columbus State University. They started the Spencer Oxford Program, which has provided more than 600 scholarships for Columbus students at Oxford University, and established a residential Spencer House at Oxford.

Sara and their daughter, Louise, predeceased him. Jim is survived by three sons, James Spencer Jr., Tracy, and Richard '88; and nine grandchildren, including Elizabeth '18.

THE CLASS OF 1949

H. Lee Christensen '49

Lee Christensen died April 27, 2014, in St. Germain, Wis., where he had retired after working for many years with Sears, Roebuck & Co. in the Chicago area.

Lee came to Princeton from Oak Park High School. He spent a year on campus, and then left to join the Army. In the fall of 1948, he matriculated at Grinnell College, and graduated from that institution in 1951. He met his wife, Hazel Olson, at Grinnell; they were married June 28, 1952, and had two children.

Lee started as a trainee with Sears and spent his entire career there, ending up in Niles, Mich. Hazel originally taught third and fourth grade, but it is unclear whether or not she continued teaching when their children were born. After Lee's retirement, they moved to St. Germain, where Lee served as a town board member and was active in the Lions Club, the Snowmobile Club, and the St. Germain Golf Club. He enjoyed playing golf and racquet sports, windsurfing, and touring the lakes on his pontoon boat.

We send our deepest condolences to Hazel and their children, Douglas Lee Christensen and Debra Helen Christensen Roberts.

Peter R. Clapper '49

Pete died May 3, 2015, of cancer at his home in Denver.

He served as a Marine Corps lieutenant in the Korean War, commanding an infantry platoon and then an anti-tank company. He led his men bravely and successfully, and received a Purple Heart. But he later suffered for many years from the effects of combat, among them post-traumatic stress disorder.

After the Korean War, Pete worked as a reporter for CBS News in Washington and New York and later as a public-affairs officer for several government agencies. In Denver, he loved the outdoors and became deeply involved in environmental protection. He studied at the University of Southern California, from which he received a master's degree in 1975.

At his funeral, for his service, he received full military honors at the National Cemetery at Fort Logan, Colo.

Pete is survived by his daughter from his first marriage, Gail, and by his second wife, Montine Hansl. He is fondly remembered by his many friends for his wit, his strong convictions, his courage, and his devotion to both the Marines and to Princeton, where he established the Peter R. Clapper scholarship for seniors who need financial aid.

Thomas V. Gillman Jr. '49

Tom died Nov. 7, 2014, in Eugene, Ore., surrounded by his wife and family.

A native of Long Island, N.Y., he came to Princeton from Huntington High School. While on campus, Tom rowed on the 150-pound crew, sang in the Glee Club, and worked as a waiter in Commons. His undergraduate career was interrupted by Army service from September 1946 to January 1948, and after returning to campus, he majored in biology and chemistry. He married Mary Agnes Trani in June 1949, and they lived in the Harrison Street projects for his last two undergraduate years.

Over the years he spent as an education professional, teacher, and consultant, Tom

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earned degrees from four other universities after earning a bachelor's at Princeton. His creative and analytic abilities made him a jack of all trades, and not just within teaching: his diverse skills included boat-building, piloting small aircraft, playing tennis, singing, math tutoring, and developing alternative-energy systems.

As he said in our 50th reunion book, "I like to think that sagacity is the primary outcome of the Princeton education." Tom was truly a versatile man.

The class extends its deepest condolences to his wife and their six children.

Robert F. Hague '49

Bob died Nov. 3, 2014, in Clifton, N.J.

He graduated from East Orange High School at the age of 16, came to Princeton briefly, and enlisted in the Army Air Force when he was 18. Bob was on campus long enough for him to elect his major, engineering, and to become a member of Cloister. After the war, he went to Brown, graduated in 1950, and earned an MBA from Rutgers in 1955.

Bob's Air Force career was remarkable. A bombardier on a B-24 Liberator bomber during World War II, he was shot down over Yugoslavia and badly injured. After his recovery, Bob was assigned to another B-24 flight crew, and this plane also was shot down. The entire crew bailed out and was rescued. Bob received two Purple Hearts and several Air Corps medals for his actions.

Bob then spent nearly 50 years on Wall Street, retiring as a managing director for Drexel Burnham Lambert. He served on many boards in New Jersey, including the Congregational Church in Montclair, and he enjoyed ballroom dancing.

Bob is survived by his wife, Marjory; and his daughter, Allison. He was predeceased by his son, Elliot. We extend our condolences to his entire family.

Chauncey C. Kennedy Jr. '49

Chan died Feb. 22, 2014, in Ponte Vedra Beach, Fla. He was 86.

A native of Buffalo, N.Y., Chan came to Princeton from Phillips Exeter Academy. He left campus after his freshman year and returned home, where he eventually graduated from the University of Buffalo. From 1952 to 1955, he was in the Naval Aviation Corps, after which he joined the training program at Marine Midland Bank in Buffalo. He became an assistant vice president in 1962, a vice president in 1965, manager of the national department of the bank in 1970, and eventually became vice president in charge of purchasing, a position from which he retired in the late 1970s.

After his retirement, Chan moved to Hilton Head, S.C., and then to Ponte Vedra Beach, Fla. He continued to spend time in Buffalo each summer, but we have little knowledge of his retirement years.

At the time of his death, he was survived by his wife, Pam; his children, Michael Kennedy, Lucie Desautels, Kim Cardwell, Sharon Kennedy, and Lissa Workman; 10 grandchildren; and four great-grandchildren. We extend our deepest sympathies to his extended family.

THE CLASS OF 1950

Russell B. Kirby Jr. '50

***54** A Bronze Star recipient in World War II, Russ died May 14, 2015, in Minnesota.

He was born in Allentown, Pa. After high school graduation, Russ served in the Army for three years. He saw action with the 99th Infantry Division during the Battle of the Bulge and the crossing of the Rhine at Remagen, and was later discharged as a second lieutenant.

Russ, who also answered to "Joe," was on the swimming team and a member of Charter. He married Charlotte Kelton after his junior year and graduated with honors in mechanical engineering, staying at Princeton to earn his master's degree. Russ moved to Minnesota, where he began a 30-year career with 3M, and lived the remainder of his life.

He served on the Baytown Township planning commission while his wife, Charlotte, was town clerk. Russ was active in local politics and enjoyed canoeing, bridge, reading, traveling, and, after retirement, winters spent in Hawaii.

Charlotte predeceased him. Our sympathy goes to his children, Katherine, Kelton, Thomas, and Russell III; six grandchildren; one great-granddaughter; and his longtime friend and companion, Marilyn McNamee.

Scott W. Reed '50

Scott, an environmental advocate, died May 2, 2015, at his home in Coeur d'Alene, Idaho. A colleague described him as "the kind of lawyer every lawyer should aspire to be."

Scott graduated from Klamath (Ore.) High School. At Princeton, he was a history major, commissioned in ROTC, and belonged to Campus Club. His father was a member of the Class of 1916.

Scott's law studies at Stanford were interrupted when he was called up by the Army as an artillery lieutenant. Completing his law degree in 1955, Scott moved to Coeur d'Alene with his wife, Mary Lou, whom he had married in 1953. There, for almost 60 years, he was a solo lawyer, primarily handling business, property, and civil matters.

Though he described environmental law as an "avocation," this was where Scott left a lasting mark. He successfully led fights to protect an urban-forested area, to assure public use of a city beach, and to preserve a historic downtown threatened by a proposed interstate.

Along with Mary Lou, a former state senator, he was inducted into the Idaho Hall of Fame and received the Idaho State Bar's Distinguished Lawyer Award. Boards he served on included Idaho Water Resources, the National Audubon Society, and the Idaho Nature Conservancy.

Our condolences go to Mary Lou, his children Tara and Bruce '82, and four grandchildren.

THE CLASS OF 1951

Phillips Hungerford '51

Phil died April 9, 2014, in Greer, S.C.

The son of Earline Gilreath Hungerford White and Leslie P. Hungerford 1923, Phil was born July 3, 1928, in Greenville, S.C., and prepared at Lake Forest Academy. At Princeton, he played varsity football, belonged to Cottage, and majored in economics. Phil roomed with Lew Esler, Tom Mangan, Phil Matter, Bill Mettler, and Ed Tilden.

In September 1951 he married Julie Robinson and served in the Marine Corps for two years. In 1953, Phil went to work for Peoples National Bank and left after 14 years to form First Piedmont Bank and Trust, of which he served as president. First Piedmont was later sold to a North Carolina bank.

In the 1970s, Phil retired from banking, and turned an avocation into a vocation. He earned a master's degree in city and regional planning at Clemson, embarking on a second career in urban development. Phil worked on international-development projects in Turkey, Indonesia, Sri Lanka, and Kazakhstan through USAID.

He is survived by his children, Grace Pearson, Earle, and Margaret; eight grandchildren; five great-grandchildren; and his cousin, Richard Hungerford '50. Phil's wife, Julie; sons James and Leslie; brother Homer '48; sister Earlin; and cousin Clark Hungerford '49 predeceased him.

THE CLASS OF 1952

Archibald H. Ferguson '52

Hugh came to Princeton after preparing at Choate and included the Choate Alumni Club among his extracurricular activities on campus. He joined Quadrangle and majored in English and creative writing while acting and directing in Theatre Intime.

He earned a master's degree in geriatric medicine at The New School and went on to a career at Columbia Presbyterian Hospital, where he retired as vice president of ambulatory care. Hugh married Elizabeth Camarena and they had two daughters, Joan and Michelle.

Hugh died May 28, 2015. We send our best to Elizabeth, Joan, and Michelle.

Albert S. Redway Jr. '52
Al graduated from the Westminster School, where he was class president. At Princeton, he majored in history, joined Tower, was on the business staff of *The Daily Princetonian*, and roomed with Ed Meyer.

After graduation, Al served as a second lieutenant with the 45th Infantry in Korea. He then worked at Scovill Manufacturing Co. until he earned an MBA at the University of Connecticut and switched to banking in 1972. Al retired from the Bank of Boston as senior fiduciary officer in 1995.

After retirement, he and his wife, Nonnie, enjoyed riding Western trails and hiking. Al held a number of leadership positions in voluntary organizations near his home in Woodbury, Conn.

He died June 24, 2015, leaving Nonnie and their sons, Albert S. III and James. The class sends good wishes and appreciation for Al's service to our country to them all.

THE CLASS OF 1953

George S. Weber '53
A doctor, sailor, and world traveler, George died May 3, 2015.

He was born in Reading, Pa., and came to Princeton from Wyomissing (Pa.) High School. At Princeton, George joined Tower, was in the marching band and concert band, and ran track. He earned a medical degree at Harvard and, after completing his internship and residency in Boston, served as an Army captain in Alabama and Germany.

After studying vascular surgery under Dr. Michael DeBakey at Baylor University, George came back to New Jersey to practice vascular and general surgery. He pioneered aneurysm surgery at Underwood Memorial Hospital in Woodbury.

Even in his first years after Princeton, George was exploring the world. He climbed Switzerland's Matterhorn in 1954 and the Grossglockner, the highest peak in Austria, in 1955. Later he trekked the Himalayas and Mount Kilimanjaro, traveled to Machu Picchu, visited Easter Island, and walked the Great Wall of China. Water sports were another major activity, from whitewater rafting on the Colorado River to sailing the Greek Islands and the Caribbean. He and a partner invented and marketed inflatable battens for sails. Church and family were always the center of George's life.

He leaves his wife, Gunnlaug; two daughters; five grandchildren; and one great-grandchild. His daughter Karin predeceased him.

THE CLASS OF 1954

Jorge L. Cordova Jr. '54
Jorge died June 17, 2015, in Altamonte Springs, Fla.

Born in Puerto Rico, he graduated from the

Cranwell School. His Princeton major was modern languages and literature. A member of Colonial Club, the Glee Club, the Spanish Club, and Whig-Clio, Jorge also was head manager of the varsity basketball team.

Jorge graduated from Harvard in 1957 with a law degree. He served as a legal representative for the Peace Corps and as a corporate attorney for various firms. He also worked as a congressional office representative in Washington, D.C., for Puerto Rico. In later years, Jorge taught at Escuela Derecho in Ponce, Puerto Rico.

He is survived by his wife of 58 years, Marisol; children Jorge, Teresa, Isabel, and Jaime; 12 grandchildren; and five great-grandchildren. The class extends its condolences.

Kenneth A. Ford Jr. '54
Ken died on May 4, 2015, in Sarasota, Fla.

Born in Chicago, he graduated from New Trier (Ill.) High School. At Princeton Ken majored in psychology, joined Terrace, and was active in the Wesley Group. He also was on the program committee of the Psychology Club.

After college, Ken began graduate studies and a teaching assistantship at the University of California, Berkeley. He was employed as a research psychologist by the Navy at Point Loma. Ken moved to Los Angeles to complete his Ph.D. at the University of Southern California in 1976. His later career involved testing in industrial psychology.

Ken married several times but lived alone for the past 25 years. He enjoyed line dancing three times a week and actively pursued his interests in science, math, and industry. At the time of his death, he had retired to Sarasota. The class sends condolences to his children, Bailey and Arthur.

James M. Voorhees '54
Jim died May 17, 2015.

Born in Plainfield, N.J., he graduated from Plainfield High School and was proud to become a third-generation Princetonian. Jim majored in psychology, wrote his thesis on music and emotion, and was a member of Charter and the Jazz Club. He and his roommate, Dick Lethen, collaborated on several musical scores. Jim wrote the music and Dick provided the lyrics.

Jim was drafted into the Army after graduating from Princeton. Upon completing training at Fort Douglas in Salt Lake City, he was transported to Fort Lewis in Washington, where he boarded a troop ship destined for Korea. Headquartered in Seoul, he began his tour of duty as a member of the occupation troops. As part of his assignment, he frequently traveled 35 miles to observe activities at the demilitarized zone. While in Korea, he became very interested in Asian culture and subsequently returned to the Far East many times.

Upon his discharge from the Army, he returned to the western United States and retired from an information-technology management position in a large industrial company.

Jim is survived by Judy, his wife of 54 years. The class extends its condolences to her and is honored by his service to our country.

THE CLASS OF 1960

Stephen J. Bednar '60
Steve died April 29, 2015, in Falls Church, Va., after a short illness. He had suffered from myelodysplasia for a number of years.

Born in Shenandoah, Pa., Steve prepared at Shenandoah Catholic High School, Admiral Farragut Academy, and the Peddie School. He was a member of the football, baseball, and track teams, sang in the Glee Club, and was active in the school newspaper and student government. Between secondary school and college, he took a year off to ship out of New Orleans on shrimp boats.

At Princeton, Steve majored in biology, was in the ROTC program, and played 150-pound football. He took his meals at Dial Lodge and worked on the *Bric-a-Brac* and Orange Key. He became a legend, manipulating time constraints also to work regular night shifts as an orderly at Princeton Hospital.

Steve graduated from the University of Pennsylvania Medical School, completed his internship at Walter Reed Hospital, and served three years in the Army. He then joined a pioneering medical group in Northern Virginia, which provided coverage of emergency rooms. Steve became a national leader in establishing certification in emergency medical care. He and his partners performed multiple medical evacuations of travelers from many areas around the globe. Later, he retrained as an intensivist and was regularly taking shifts in intensive-care units until shortly before his death.

Steve is survived by his sister, Theresa Bednar, and several cousins. The class extends sincere condolences to them all.

THE CLASS OF 1961

Donald T. Spangenberg Jr. '61 Don died Feb. 17, 2015, from complications after hip surgery. He is remembered for being passionate about giving his best in any situation.

Don, a Colorado native, graduated second-highest in a class of 1,100 at East High School in Denver, where he received an ROTC scholarship to Princeton. In college, Don was a member of Cap and Gown, battalion

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commander in the NROTC, and vice president of the Orange Key. He served as vice chairman of the undergraduate schools committee and was a member of the Rocky Mountain Empire Club, graduating *cum laude* in chemical engineering.

Don entered the Navy as an officer in the Naval Nuclear Power Program and spent four years managing the nuclear power plant on the USS *Enterprise*. He was a master at arbitration and finding common ground in the most contentious of environments. Don found that this served him well in his career in the energy field, which often required him to testify as an expert witness under intense scrutiny from utility companies and their attorneys.

He was a devoted and fully engaged father, grandfather, and husband. Don is survived by his wife, Kathy; their children, Heather, Trey, Doug, Chad, and Brian; and eight grandchildren.

THE CLASS OF 1962

John S. Loverro '62

John died Feb. 7, 2015, of heart failure. While he had conquered heart conditions for several years, bouts with the flu and pneumonia overcame him.

"Lefty" came to us from Kew-Forest School in Queens, N.Y. A history major, he played four intercollegiate sports (including bowling), was in the Student Christian Association, displayed work at Princeton art shows, and ate at Dial.

He earned a master's degree in history at NYU and spent two years at Chase Bank. He and Eleanor married in 1968. He then joined the CIA while earning a master's degree in economics at NYU. John had a 44-year career at the CIA (including contract work post-retirement), where he rose to branch manager.

John's lifelong hobby was art, and he ran a small art business. His paintings were included in many shows at Glen Echo Park in Maryland, even as recently as June 2015. While art helped ease job stresses, he was a potential candidate for a heart transplant. However, his brother, a doctor, and others thought that his lifestyle would keep him healthy.

The class extends its condolences to John's wife, Eleanor; children Thomas and Laura; four granddaughters; and his siblings, William and Dorothy.

THE CLASS OF 1964

John F. Hopkins '64

Hoppy died June 20, 2015, at his home in East Charleston, Vt., after a long struggle with multiple sclerosis. He was 73.

He grew up in Woodstown, N.J., and attended Woodstown High School, where he was student council president, class vice president, and baseball captain. At Princeton, Hoppy majored in biology, was active in the Undergraduate Student Council and the Campus Fund Drive, played freshman baseball, and joined Cannon Club. He married Bonnie Clapper midway through his junior year.

Hoppy had several very successful careers, working for Procter & Gamble and Michelin Tire, starting his own financial-planning compnay, and working for Sullivan Tire Co.

He and Bonnie had three sons and eight grandchildren, of whom they were enormously proud. At various times, the Hopkinses lived in Pennsylvania, New Hampshire, Illinois, Massachusetts, and Vermont. They enjoyed playing bridge, loved music, and were active supporters of the Boston Symphony Orchestra and the Chicago Symphony. John enjoyed long and active associations with local Rotary clubs and Cannon Club.

Chronic illness is no fun, but Hoppy was a warrior. To his loving and caring wife, Bonnie; and their sons, Scott, Derek, and John; the Class of 1964 extends most sincere condolences on the passing of a true gentleman.

THE CLASS OF 1965

Antal P. de Bekessy '65

Tony died April 16, 2015, in Paris, having been in poor health recently. His home was in the United States, but he also lived in Paris and Vienna.

He came to Princeton from St. Paul's School and majored in romance languages and literature. Tony's varied career was as a private investor, operating out of New York and Paris. He was co-founder of Breguet Construction Corp. in France and an officer and board member of the Carolina Mirror Corp. in the United States.

Among his charitable causes were the Metropolitan Opera and the Metropolitan Museum in New York, the American Hospital in Paris, and the Marjorie Merriweather Post (Tony's grandmother) Hilltop Museum in Washington, D.C. He also served on the advisory council for Princeton's department of romance languages and literature.

For his work in renovating his mother's historic home in Vaux-sur-Seine outside of Paris, he was made a Chevalier des Artes et Lettres in France. His devotion to Princeton and to St. Paul's was strong throughout his life, and he is buried in the Princeton Cemetery.

Tony's only marriage ended in divorce. He had one daughter, Laetitia Vere, who lives in London. The class sends its sympathy to Tony's daughter and his cousins, nieces, and nephews.

THE CLASS OF 1968

Richard E. Palicki '68

Dick died June 22, 2015, in Blue Bell, Pa., after a brief illness; he was 71.

He originally matriculated with the Class of 1966, but left at the end of sophomore year

for two years and returned to graduate with our class. He prepared at Nichols School in Buffalo, where he was captain of the football and track teams and president of his class.

At Princeton he majored in basic engineering, wrote his thesis for Dean Menand, and played varsity football. Dick roomed with Stas Maliszewski '66 sophomore year and was a captain in Commons. He worked for the Trenton Tutorial Project, took his meals at Cannon, and lived in 1941.

After college, Dick worked for Procter & Gamble and Weyerhaeuser as a chemical engineer, finally retiring from Wyeth Pharmaceuticals in 2010. He married Patricia Leah Malcom in 1974, and they had three children. Dick's greatest joy was spending time with his family at the beach and on other outdoor activities. He was a devoted member of the Hope Community Church of King of Prussia, Pa., and led a small men's Bible-study group until his death.

To Patricia and children Kelly, Cheryl, Bryan, Andrea, and Jennifer; the class extends its deepest sympathy.

THE CLASS OF 2013

Emilly Y. Zhu '13

Emilly died June 12, 2015, after a motor vehicle crash. She was 23.

Emilly was born in Japan, where she lived until age 3 before moving to the United States with her parents, Zongjian Zhu and Weiqin Jiang. Throughout childhood, her intelligence and creativity shone through all of the activities she pursued, including drawing, painting, volunteering, music, and Science Olympiad.

At Princeton, she was active in campus groups such as the Princeton Student Events Committee and the Chinese Students Association. She was an enthusiastic residential and engineering peer tutor. Upon graduating with a bachelor's degree in chemical and biological engineering and certificates in computer science and sustainable energy, Emilly worked as a business-intelligence developer at Epic Systems Corp. in Madison, Wis. She contributed to the health-care industry with eagerness and dedication.

In every place that Emilly called home, she learned to love new things, found delight in new places and people, and gave joy in return. Her organ donations have saved lives, and she will continue to make the world better. Emilly is survived by her parents and her friends.

Contributions in Emilly's memory can be made to Colorado American and Chinese Professional Association (CAACPA), designate Emilly Zhu, 4025 Automation Way, Suite F-4, Fort Collins, CO 80525.

GRADUATE ALUMNI

Everett Gorin *34

Everett Gorin, a chemist who spent his entire career in coal research, died peacefully April 7, 2015, at his home in San Anselmo, Calif. He was 104.

Born in New York City in 1910, he moved as a child to San Francisco in 1915 and was a Californian in spirit from then on. Gorin graduated from University of California, Berkeley in 1931 and earned a Ph.D. in chemistry from Princeton in 1934.

He had a successful career in coal research in Pittsburgh, developing 25 patents. He retired from the Pittsburgh Consolidation Coal Co. in 1976 and moved back to Marin County, Calif.

Gorin was a hiker, tennis player, and golfer throughout his life.

He is survived by Margaret, his wife of 63 years; two children; and four grandchildren.

George J. Burt *63

George Burt, retired professor emeritus of music at Rice University, died March 28, 2015, at the age of 85.

Born in 1929, he attended the San Francisco Conservatory and then earned degrees at the University of California, Berkeley and Mills College. George finished graduate studies in 1963 at Princeton with an MFA in music. He studied with Roger Sessions at Princeton and with Gyorgy Ligeti for a year in Vienna while on an Alfred Hertz Memorial Grant.

Burt was an accomplished composer who wrote more than 40 works (orchestral, chamber, and electronic) plus scores for six feature-length films (including two directed by Robert Altman).

His music has been performed by the Houston and Detroit symphony orchestras, the Paris Opera Orchestra, the Cleveland Chamber Symphony Orchestra, and by chamber ensembles in many colleges and universities.

Burt was a professor of music at Smith College, the University of Michigan, and Rice University, from which he retired as professor emeritus. His book, *The Art of Film Music*, has become a standard text in university film departments throughout the United States.

He is survived by his wife, Sharon; sons Eric and Wylie Burt; four stepchildren; and nine grandchildren.

C. Parker Wolf *63

Charlie Wolf, pioneer in the field of social impact assessment, died Feb. 5, 2015, at the age of 81.

Born in 1933, Wolf graduated from the University of North Carolina, and in 1963 earned a Ph.D. in sociology from Princeton. He taught at Brown from 1962 to 1973, and then from 1973 to 1975 was a pioneering social scientist with the Army Corps of Engineers.

In the mid-1970s, Wolf was the AAAS Congressional Science Fellow working with the Office of Technology Assessment. After the Three Mile Island accident occurred, he was one of the social scientists chosen to analyze the disaster and co-authored a book containing the results, *Accident at Three Mile Island: The Human Dimensions*.

By the late 1970s, Wolf had created the Social Impact Assessment Center, which evaluated the potential social impact on states being considered for high-level nuclear waste facilities. In the following decades, he taught at domestic and foreign universities.

Among his honors, he was the Bean Distinguished Visiting Professor of Science, Technology, and Society at Carleton College.

Wolf is survived by his wife, Nancy; and a son, Deo, adopted in 1994. Deo had survived genocide in East Africa and homelessness in New York City, and was the subject of a bestseller by the noted author Tracy Kidder.

Frederick M. Bohen *64

Frederick Bohen, retired executive vice president of Rockefeller University in New York City, died March 15, 2015. He was 77.

Attending Harvard on a Navy ROTC scholarship, Bohen graduated in 1959. After Naval service, he received an MPA degree in 1964 from the Woodrow Wilson School. He was the Wilson School's first assistant dean for administration and admission until 1966, when he joined President Lyndon Johnson's domestic policy staff in the White House.

Bohen then worked in public television at WNET and at the Ford Foundation. In 1972 and 1974, he ran unsuccessfully as a Democratic candidate for Congress in New Jersey, losing to the formidable Republicans Peter H.B. Freylinghuysen '38 and Millicent Fenwick. From 1978 to 1980, he worked at the U.S. Department of Health, Education, and Welfare.

In 1981, Bohen became vice president and treasurer of the University of Minnesota, and in 1983 he joined Brown University as senior vice president. In 1990, Bohen became the executive vice president and COO of Rockefeller University, retiring in 2005.

He served on many corporate and charitable boards. For Princeton, he was the Wilson School's well-regarded class agent for Annual Giving.

Bohen is survived by his daughters, Shawn, Kim, and Courtney; and eight grandchildren. He was formerly married to Halcyone Harger Bohen.

Ira J. Kalet *68

Ira Kalet, professor in the department of radiation oncology at the University of Washington, died Feb. 21, 2015. He was 70.

Kalet graduated from Cornell with a bachelor's degree in 1965. He was awarded a Ph.D. in physics from Princeton in 1968. He then began a teaching career in alternative schools, a Hebrew school, and large urban high schools in Philadelphia before joining the faculty at the University of Washington in 1978.

Embarking on an academic career in medical physics, he developed a 3-D treatment planning system for radiation therapy. He established a research effort in medical informatics, published a book on the principles of biomedical informatics, and mentored many students (receiving several teaching awards).

His family reported that he lived with intensity and tried not to waste a day. An athlete, he survived 13 years with kidney cancer, and bounced back many times from very difficult situations.

Kalet established a student-support fund at the University of Washington with the proceeds from his book.

He is survived by Terry, his wife of 41 years; sons Nathan, Alan, and Brian; and two grandchildren.

Jane C. Borgerhoff *78

Jane Borgerhoff, who had been the executive director of Center City Crime Victim Services in Philadelphia, died April 14, 2015, of central nervous system lymphoma. She was 66.

Born in Princeton, Borgerhoff was the daughter of the late Princeton professor of French, E.B.O. Borgerhoff '30 *34. She graduated from Princeton Day School in 1967, and in 1971 from the University of Michigan with a bachelor's degree in history.

She was politically active even before college, and continued to develop a sense of community and social responsibility with a special interest in education. She began a master's degree in education at the Antioch Graduate School and taught second grade for a year.

Borgerhoff's interest in history brought her back to Princeton and the University's graduate school, where she earned a master's degree in history in 1978, but chose a life outside of academia.

She moved to Philadelphia, worked as a legal assistant, and through her Quaker Meeting started a victim-advocacy group. In 1989, she established Center City Crime Victim Services, which received an award from the mayor of Philadelphia.

She remained a devoted Quaker, and was also a children's teacher at Friends Meeting's First Day School.

Borgerhoff is survived by two children and two sisters.

*This issue has an undergraduate memorial for Russell B. Kirby Jr. '50 *54.*

Graduate memorials are prepared by the APGA.

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Provence: Stunning views from rooftop terraces, french charm throughout apartments in restored medieval house. Sleeps 2-10. Vineyards, boulangerie, restaurants, hiking. $900-$1500/wk, www.chezkubik.com

Italy/Todi: Luxurious 8BR, 7.5BA villa, amazing views, infinity pool, olives, lavender, grapes, vegetable garden, daily cleaner, WiFi. For photos/prices/availability: VRBO.com, #398660. Discount Princeton affiliates. 914-320-2865. MarilynGasparini@aol.com, p'11.

Paris, Tuileries Gardens: Beautifully-appointed, spacious, 1BR queen, 6th floor, elevator, concierge. karin.demorest@gmail.com, w*49.

France, Dordogne-Lot. Dream house, mythic village. Wonderful restaurants, markets, vineyards, bicycling, swimming. (Alumni Discount). maisonsouthernfrance.com, 617-608-1404.

Aix-en-Provence: Cours Mirabeau, heart of town. Well appointed, 2 bedroom apartment, remarkably quiet, steps to shops & restaurants, garage. Perfect for exploring Provence. $1500/week. greatfrenchrentals@comcast.net

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Wellfleet: 4 bedroom beachfront cottage with spectacular views overlooking Cape Cod National Seashore. 609-921-0809 or warrenst@aol.com

Stone Harbor, NJ: On beach, upscale. 570-287-7191. E-mail: radams150@aol. com

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Big Sky Montana: Charming 4 BR log home on 20 acres beautifully furnished, spectacular views, Big Sky sunsets, skiing, hiking, fishing and golfing within 5 minutes. Close to Yellowstone National Park and Bozeman. Enjoyment all 4 seasons. 610-225-3286. jgriffi644@aol.com, s'67.

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Personal Assistant: Highly intelligent, resourceful individual with exceptional communication skills and organizational ability needed to support a busy executive. Primary responsibilities include coordinating a complex schedule, assisting with travel, and providing general office help in a fast-paced, dynamic environment. An active approach to problem-solving is essential. Prior experience assisting a high-level executive is a plus. We offer a casual atmosphere in a beautiful space, working as part of an extraordinary group of gifted, interesting individuals. This is a full-time position in New York with excellent compensation and benefits, as well as significant upside potential and management possibilities. Please e-mail your resume to hlparecruit@gmail.com. Please note that, due to the high number of respondents, we will unfortunately be unable to reply to every inquiry.

Family Medical Coordinator and Project Manager: Highly intelligent, unusually competent individual with a background in science and exceptional communication skills sought by Manhattan family to research and coordinate family medical and healthcare issues. The right applicant will be detail-oriented and possess the ability to track multiple projects and juggle multiple competing priorities. This person will interface with an in-house team of professionals as well as physicians, medical researchers, and consultants (in academia and otherwise) to ensure delivery of highest-quality medical care to family members. Considerable weight will be given to unusual academic distinction and other intellectual achievements. This is a full-time position with a highly attractive compensation package and significant upside potential. Please send resume to pmrrecruit@gmail.com

Personal/Childcare Assistant; Housing Included. New York — Devoted professional couple with two wonderful, busy, school-aged boys seeking a highly intelligent, amiable, responsible individual to serve as personal assistant helping with child-care, educational enrichment, and certain other activities. Assistant will have a private room (in a separate apartment with its own kitchen on a different floor from the family's residence), with private bathroom, in a luxury, doorman apartment building, and will be free to entertain guests in privacy. Excellent compensation including health insurance and three weeks of paid vacation, and no charge will be made for rent. This is a year-round position for which we would ask a minimum two-year commitment. If interested, please submit cover letter and resume to nannypst@gmail.com

Wine

Princeton Alum Winery: Princeton family ('92, '87, '62, '60) makes acclaimed Pinot, Syrah, Sauvignon Blanc & Chardonnay at Kingston Family Vineyards in Casablanca, Chile, www.kingstonvineyards.com

From left, Jimmy Stewart '32, Joshua Logan '31, and Marshall Dana '32 rehearse for their "Drinking Song" number.

Princeton University Archives

A Memorable Show by Triangle Club

John S. Weeren

The Triangle Club's 42nd season, overseen by future stage and film director Joshua L. Logan '31, was among its most memorable. For the first time in its already storied history, the club produced a musical comedy, *The Tiger Smiles,* about student life at Princeton, taking audiences back to the 1890s, when beer flowed freely, and forward to the 1990s, when "progress, system, and efficiency" reign. In this cheerless world, 2 million students see their professors once a year, allowing the faculty to devote themselves to golf.

The Tiger Smiles was warmly received in Princeton when it opened on Dec. 17, 1930, and in the 15 Eastern and Midwestern cities it toured. The critics smiled as well. *Time* declared, "Its excellence easily equals anything the club has done since it was founded," while the *New York Herald Tribune* called it "brilliantly conceived and smartly executed." Although some satiric barbs were lost on non-Princetonians, those in the know found much to relish, not least "The McCosh Walk," a musical lampoon of Bicker:

In Princeton town we have a step
That has both pep and pomp.
It's what the little Soph'mores do
When they become club conscious;
They put their noses in the air
And stick out at the haunches.

Also setting *The Tiger Smiles* apart was its opening venue — the newly constructed McCarter Theatre, a veritable palace compared to Triangle's former home, the Casino. Destroyed by fire in 1924, the Casino provided what the club's director, Professor Donald C. Stuart, called an "inadequate stage, wretched acoustics, and seats that torture like a rack." After making do with even less congenial quarters for six years, Logan was delighted with his company's new home. "We wonder now how we managed before without a theater to work in," he wrote in PAW — a "we" that included one James M. Stewart '32, who made his Triangle debut as a leading man in *The Tiger Smiles.*

John S. Weeren is founding director of Princeton Writes and a former assistant University archivist.

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Paul Cézanne. *Mont Sainte-Victoire* (detail). ca. 1904–6. Oil on canvas. The Henry and Rose Pearlman Foundation, on long-term loan to the Princeton University Art Museum. Photo: Bruce M. White