TOWN-GOWN RELATIONS

COLD WEATHER, HOT BONFIRE

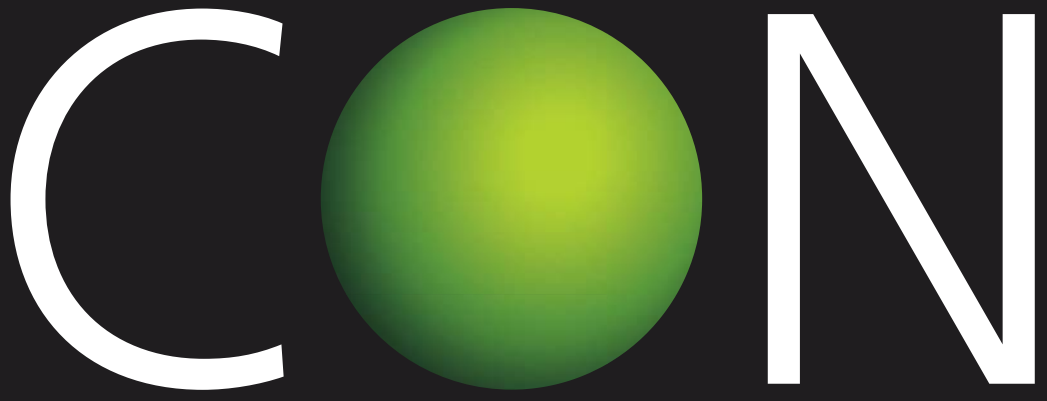
MENINGITIS B VACCINE GIVEN

PRINCETON ALUMNI WEEKLY

SPECIAL ISSUE: PRIVACY

IS ANYTHING SECRET ANYMORE?

JANUARY 8, 2014
PAW.PRINCETON.EDU



NECT

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Honoring the 'Dog Days' and Celebrating Graduate Alumni

At Princeton's recent graduate alumni conference, I heard attendees speak vividly about how grueling and isolating the graduate student experience can be. I also heard profound expressions of warmth and gratitude toward the University — from those same people.

The "Many Minds, Many Stripes" conference in October brought to campus an inspiring group of graduate alumni spanning generations, fields of study, and professional pursuits. Spending time with them and hearing their stories reinforced my view that we must do more to embrace graduate students and graduate alumni as core members of the Princeton family.

Graduate students are, of course, fundamental to Princeton's mission as a liberal arts college and a world-class research institution. They are dedicated teachers and mentors to undergraduates and invaluable partners to faculty in creating new knowledge. They are an important source of fresh intellectual energy, and they are destined to become the next generation of leaders in their disciplines. But, historically, many graduate students and alumni have not felt like valued members of a University community renowned for its distinctive commitment to undergraduate education.

SAMEER A. KHAN

Eli Arthur Schwartz *60 and Patrice Jean *99, adorned in their Association of Princeton Graduate Alumni Reunions jackets, enjoy a conversation during the "Many Minds, Many Stripes" conference.

Take, for example, the singing of our alma mater — a quintessential ritual for undergraduate students and alumni. Anthony Fiori *03 told me he never sang "Old Nassau" until he joined the Association of Princeton Graduate Alumni, of which he now serves as president. Similarly, the columnist and author George Will *68 said during his conference dinner remarks that not only did he never sing "Old Nassau" as a graduate student, he never even heard it sung until he joined the Board of Trustees some 40 years after he completed his Ph.D.

Our new provost, David S. Lee *99, exemplifies the dichotomy of the Princeton graduate student experience. In his conference remarks, David confessed that as a graduate student he felt like "the neglected, middle child of the Princeton family … who laments living in central New Jersey, eating Hoagie Haven dinners on makeshift dining tables made of large cardboard boxes, [and] spending every waking hour in a cage-like carrel in Firestone Library."

Yet, David stressed that he feels "a much stronger connection to Princeton than I do to my undergraduate alma mater, Harvard, which I think of today mostly as the place that gave me the opportunity to have a life-changing experience as a graduate student at Princeton." Pursuing his scholarly passions in close collaboration with distinguished faculty was, despite the hardships, "both exciting and a special privilege."

Such sentiment was shared by many of his fellow graduate alumni. You could even hear it reflected in the soundtrack to the slideshow presented at the conference's closing reception. As each image of smiling attendees faded into the next, tunes such as Florence and the Machine's "Dog Days are Over" and the Beatles' "Here Comes the Sun" paid homage to those who endured the graduate school grind and emerged ready to make a difference in the world.

Thankfully, judging from the enthusiastic turnout at "Many Minds" — some 950 graduate alumni and guests — as well as efforts over the past decade to enhance graduate student life at Princeton, we are seeing positive trends in strengthening graduate student and alumni bonds with the University.

Initiatives to enrich the graduate student experience have included improving the academic curriculum, expanding professional development programming, boosting support for graduate students with families, integrating graduate students into the residential college system, and building the new Lakeside complex to sustain the University's commitment to graduate housing. And graduate alumni engagement with the University community is growing. More than 100 graduate alumni serve in leadership positions in regional alumni associations worldwide, and more than 1,000 graduate alumni have interviewed prospective undergraduates for the Alumni Schools Committee in recent years — playing an important role in shaping Princeton's future.

I hope we will continue to see more graduate alumni coming back to campus for major events such as Reunions and Alumni Day, participating in regional alumni association events, and engaging in volunteer activities. I am also excited about the Alumni Association's collaboration with academic departments to organize more departmental gatherings for graduate alumni on and off campus.

Forging bonds with our graduate alumni — many of whom serve as faculty and administrators at institutions worldwide — is important not only for Princeton, but for our work with the broader higher education community as well. Princeton is committed to leading the charge to support higher education against today's political and financial challenges, and stronger ties to our graduate alumni community will help us cultivate the partnerships and creativity needed to keep up this fight.

The "Many Minds" conference was a great success in showing how much the University cares about graduate alumni, and it was wonderful to see so many attendees embrace the orange and black. I hope all graduate alumni will find some way to share in the spirit that was celebrated at this event — and to recognize that the star after their names is the mark of a true Princetonian.

January 8, 2014 Volume 114, Number 6

PRINCETON ALUMNI WEEKLY

An editorially independent magazine by alumni for alumni since 1900

Edward Felten, director of Princeton's Center for Information Technology Policy, page 30

PRIVACY ISSUE: IS ANYTHING SECRET ANYMORE?

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News Quiz
Test your knowledge of Princeton's top campus and alumni news stories of 2013.

William Scheide '36
Gregg Lange '70 celebrates Scheide's "century's worth of wonderment."

Ranking the World
Explore data on the 50 nations featured in Michael Porter '69's Social Progress Index.

Making the Grade
Read essays on grading by Richard Etlin '69 *72 *78 and Robert Hollander '55.

New Music
Listen to an excerpt from composer Eric Moe '76's album *Meanwhile Back at the Ranch.*

Top right: Peter Murphy; Bottom, from left: Office of Communications (2); Social Progress Index; istockphoto.com; Mara Rago

On the cover: Illustration by Oliver Munday.

PRINCETON
ALUMNI WEEKLY
An editorially independent magazine by alumni for alumni since 1900
January 8, 2014 Volume 114, Number 6

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Inbox

WHY CHEATING IS ON THE RISE

President Eisgruber '83 wonders in his President's Page comments on "cheating, conduct, and character" (Nov. 13) about what has changed to make it seem that cheating is more prevalent in schools. The ideas that he and Professor Michael Hecht raised in their conversation searched out the motivations of those who are inspired or pushed to cheat as resulting from what they stand to gain or lose.

One factor they also might consider is the social or even material sanctions imposed on cheaters. My own impression is that there is indeed a growing gap between people one might call winners and losers (also known as haves and have-nots). Yet there is also a much-diminished price to pay (at least socially) for cheating one's way into the winner's circle. I would venture to suggest that there is even a certain admiration, not only for those with the talent, imagination, and energy to succeed, but also for those who know how to "work the system" even in the gray areas of what is legal or moral, not to mention downright illegal or immoral, including cheating, in order to win.

Being a member of the same "older generation" as Eisgruber and Hecht, I do wonder if we are nostalgic for something that did not exist, but I don't think so.

Amy Singer *89
Professor, Middle Eastern and African History, Tel Aviv University
Tel Aviv, Israel

President Eisgruber is on the right track in opening up the honor code for discussion. I'm afraid a searching inquiry into this subject will be disquieting. Why have cheating incidents increased? Very simply, it's because growing numbers of students realize the game has been rigged and they are the ones being hammered.

Thanks to our economists, business leaders, and academic deep thinkers, our students are expected to look forward to working in a zero-sum game in which people get ahead on the basis of everything other than merit.

Aware that 40 cents of every dollar our government spends is borrowed, the economists tell our students, "Not to worry, debt does not matter; we're never going to pay it, anyway." Aware that 75 percent of all seats in Congress are safe due to gerrymandering, the "experts" tell our students, "Not to worry, ours is the best system of government on Earth, and we need to bomb the rest of the world into adopting it, or else."

I don't approve of cheating on tests, but I can understand the frustrations that bring it about.

Even grades no longer mean anything: A good student can be denied a well-deserved good grade merely because his professor is permitted to award only a limited number of good grades.

I don't approve of cheating on tests, but I can understand the frustrations that bring it about. Our sons and daughters mirror the values of their parents.

Richard C. Kreutzberg '59
Bethesda, Md.

CATCHING UP @ PAW ONLINE

Princeton's Ivy League co-champion football team celebrated another Big Three bonfire on a freezing night in late November, and PAW contributor Nick Ellis '14 was on hand to film the festivities. Watch video highlights of the 2013 bonfire — and other bonfire footage from the archives — at paw.princeton.edu.

President Eisgruber suggested in his latest President's Page that the rise in cheating might have to do with the growing income inequalities in a competitive, winner-take-all society. In my experience as a middle school and elementary school teacher, there is another key factor in cheating's rise: the growing disconnect between students and what they learn in school.

This disconnect is a result of the current trend in middle schools, elementary schools, and even kindergartens to pump students full of abstract, intellectual knowledge at a time when they have not yet formed a living relationship with the subjects they study. Rather than being guided to appreciate oak trees and ferns, third-graders read in textbooks about the inputs and outputs of photosynthesis. Before they have listened to a fairy tale or played in a sandbox, kindergartners are taught math facts and phonemes. And by middle school, testing and computers have completed the divorce of young people from the marvelous real world that lies behind all school subjects.

When school subjects become abstractions and everyone around you is "racing to the top," cheating can seem like a logical choice.

Derek Matthew Thurber '95
Baltimore, Md.

I was greatly disappointed by President Eisgruber's musings on the causes of

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Letters should not exceed 275 words and may be edited for length, accuracy, clarity, and civility. Due to space limitations, we are unable to publish all letters received in the print magazine. Letters, articles, photos, and comments submitted to PAW may be published in print, electronic, or other forms.

cheating on the President's Page. He looked only to external forces (income inequality, technology, academic pressure) for possible causes of increased cheating, never considering the weak moral fiber of the cheating students as the problem to be addressed. He seems to think that if our students can't stand up to the temptations of the world, the world is at fault.

It is a sad day for Princeton when its president worries more about how the world makes it hard for our students to live honorably than he does about how we are failing to instill in them honor and character strong enough to change the world, rather than bending to it. *Dei sub numine viget?* What god would that be?

Sheila Marsh s'70
Chesterfield, Va.

THE MUSEUM IN GUYOT

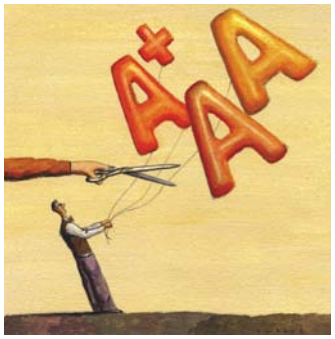
I enjoyed the article "Tigers and Dinosaurs" (feature, Nov. 13), although it brought back painful memories of the shortsighted decision by the administration in 2000 to evacuate the Guyot Hall museum in order to "make way for office space." To an institution like Princeton, history counts for much, and much history was destroyed by that thoughtless action. Temporary office space, surge space if you will, can be readily found at any university while new construction is planned, funded, and completed. I found this out firsthand in my involvement with capital projects here at the University of Washington. It was a total lack of both short- and long-term planning on the part of the administration that led to closure of the museum.

The Natural History Museum in Guyot Hall.

Mark L. Holmes '60
Research professor emeritus, geological engineering
University of Washington
Seattle, Wash.

YOUR COMMENTS ONLINE

Try To Limit Grade Inflation, Or Not?



A report in the Nov. 13 issue that a faculty committee will review the University's grading policies sparked several comments from alumni at PAW Online.

"The central question is if those hiring and judging applications and appointments [of recent graduates] value the higher level of academic judgment," wrote **W. Michael Johnson '81.** "If a peer institution has a higher placement rate over time and across discipline, and does not limit grade inflation, then arguably the present policy could hurt the future applicant pool."

"As a longtime professor of English at Syracuse, I would have considered it an infringement on my academic freedom if my administration had required that I impose a grade distribution either higher or lower than the one I considered justified by the work the students performed," commented **Charles N. Watson Jr. '61.** "At a highly selective institution such as Princeton, in which every student is presumably capable of a high level of academic performance, it makes no sense to pressure the faculty to engage in artificial grade deflation."

Larry Dickson *71 warned, however, that "to succumb completely to grade inflation would be demoralizing to students who believe that one attends college to really learn something, rather than merely to gain advantage in a numbers game."

From top: Office of Communications; Paul Zwolak

When the museum closed its doors in 2000, alumni were told that the museum specimens would be returned to a new and better museum, which would be constructed in the near future. Much of the contents of the museum, carefully packed up for the return, are still in storage.

Lincoln Hollister
Professor emeritus, geosciences
Princeton, N.J.

REMEMBERING HACKNEY

The In Memoriam item about Sheldon Hackney (On the Campus, Oct. 23) reminded me what a wonderful figure he was — first in the history department, then as Princeton provost. His later career as president of two major universities and chairman of the National Endowment for the Humanities attests to his leadership abilities.

Tall, well-spoken, and blessed with a delightful Southern twang that injected a note of homespun humor into his lectures, Hackney was among my best professors. The day he brought in writer William Styron to his classroom to read from and talk about his novel *The Confessions of Nat Turner* is high on my list of favorite Princeton experiences.

Jeffrey Marshall '71
Scottsdale, Ariz.

GRADUATE-SCHOOL SUPPORT

Scott Berg '71's statement that Andrew Fleming West 1874 wanted to keep the Graduate College "from becoming an exclusive enclave for privileged sons" (Princetonians, Sept. 18) brought back a very pleasant memory. When I was admitted to the graduate school in 1968, neither I nor many of my classmates were "privileged sons" (or daughters). We certainly could not have afforded a Princeton education without the very generous and continuous financial support provided by the University. Even during some of our "fifth" years, ways were found for us to stay on campus to finish our theses.

Along with our admission letters were invitations to visit (with travel expenses paid by) the Princeton chemistry department, an experience that strongly influenced my decision to attend Princeton instead of a different graduate school. As we have gone on to industrial-

FROM THE EDITOR

Privacy in an Online World

Minutes after I began editing the article by Mark Bernstein '83 that appears on page 30, advertisements started popping up on my computer screen. There was one for the IBM Cloud, and one for *Wired* magazine. A deal at a men's clothing store appeared. There was an ad from a high-tech firm hoping to recruit young people with software-coding talent — grossly misdirected on both counts. It had taken only a few clicks on my Internet browser — fact-checks on issues related to Internet privacy — to attract attention from companies that had ignored me before.

As the alumni and professors covered in this issue make clear, we are being observed, tracked, and analyzed more than we think. Each time you use a credit card, turn on your GPS, or click on a company's website, a piece of information is gathered. That's true both on and off campus: To help us understand privacy matters, PAW writer Vivienne Chen '14 recorded her comings-and-goings for a week, and was surprised to see what a person could have found out about her — including the amount of time, and the specific hours, she spends in her dorm room and in other buildings; when and where she arrives at her campus job; what books, articles, and websites she reads; and where she spends money. Students can imagine "a scenario with a hyper-vigilant government where, while feeling a bit under the weather and needing to prepare for chemistry class, we order up Sudafed and suddenly ... we're in an episode of *Breaking Bad*," she says.

Sometimes, this kind of monitoring can provide benefits: I can fast-track my shopping when companies connect me with the right products, and GPS systems and prox cards add a measure of security. We gain, but we also lose: the ability to disclose only what we want people to know about us, to speak and gather information anonymously if we desire, to keep secret our network of close friends.

Professor Edward Felten testifies about Big Data before the U.S. Senate Judiciary Committee Oct. 1.

The people who helped us with this issue — particularly Edward Felten, one of the nation's leading researchers on digital security — have broadened the discussion about privacy. We invite you to participate, in print and online — but remember: Your digital trail will remain long after you turn your computer off.

*— Marilyn H. Marks *86*

Eva Russo/Momenta Creative

research positions or professorships, hopefully our gratitude shows in our alumni-fund contributions.

Emil M. Friedman *73
Danbury, Conn.

MEETING WITH GRAD STUDENTS

Norman Cliff *57, in his letter (Inbox, Nov. 13) about life at the graduate school in the mid-1950s, states that there was virtually no contact between graduate and undergraduate students. My own experience, as an undergraduate majoring in Arabic, was somewhat different.

Perhaps because the old Oriental Languages and Literatures Department was fairly small, I had almost daily contact with graduate students also using the OLL research room at Firestone Library. I recall being invited by one grad student to dinner at the G.C. (and yes, I was required to wear a badly stained gown for the occasion). As a senior I attended at least one drinks party at the G.C. Years later, I encountered some of my grad-school acquaintances in Lebanon and at conferences of the Middle East Studies Association of North America. One became my supervisor in 1968 while I was research analyst for Egypt in the Department of State.

In short, I benefited greatly from the opportunities to interact academically and socially with graduate students.

Brooks Wrampelmeier '56
Washington, D.C.

FROM THE ARCHIVES

University Band members flashing "Old Nass" in the Oct. 23 From the Archives photos were identified by Jim Hunziker '98, a drill master in the band who also played trombone and tuba. Below, from left, are Jonathan Mendelson '97, Julie

Shelton '00, and Teresa Miller '00. Above, from left, are Robert Wright '97, Jon Snitow '97, Karin Wetterstrand '97 (now Hunziker's wife), and Sandra Shefelbine '97. The photos were taken at the Oct. 26, 1996, football game against Harvard in Palmer Stadium.

Princeton University Archives

FOR THE RECORD

Michael D. Debevec '73, whose memorial was published in the Nov. 13 issue, was a technical adviser for *CRM Expert*, a trade journal. The company's name was reported incorrectly.

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

Alumni Day

Saturday, February 22, 2014

2014 Woodrow Wilson Award Recipient

The Hon. Sonia Sotomayor '76
Associate Justice
Supreme Court of the United States

2014 Madison Medalist

Dr. Hunter R. Rawlings III *70
President
Association of American Universities

In the morning, hear **lectures** by the two **award winners** and noted faculty:

Michael Gordin, Rosengarten Professor of Modern and Contemporary History and Director, Fung Global Fellows Program

Robert Stengel *65 *68, Professor of Mechanical and Aerospace Engineering and Director, Program in Robotics and Intelligent Systems

At 11:30 AM, gather in Jadwin Gymnasium for a **Reception**, followed by the **Alumni Association Luncheon and Awards Ceremony**.

After the luncheon, join fellow Princetonians for the moving **Service of Remembrance** at 3:00 PM in the University Chapel.

Campus is abuzz with other activities, including workshops on social media for novices and navigating the college admissions process, exhibits at the Art Museum and Firestone Library, performances in the lively arts, student projects... and much more.

For the full Alumni Day schedule and registration information, go to **alumni.princeton.edu/alumniday**

News *from the* Alumni Association

The Alumni Association of Princeton University: over 80,000 served

Aluminaries

Mary Sweeney Koger '86 S85 P13 P16
Regional Schools Committee Chair
Princeton Association of New England (PANE)

c. 1985

To learn the many ways to stay connected to Princeton, contact the Office of the Alumni Association at 609-258-1900 or www.alumni.princeton.edu

On hiatus from teaching after majoring in Slavic Languages & Literature at Princeton and getting her M.A. at the Harvard Graduate School of Education, Mary Koger started attending PANE events in the early 1990's. In a new city, with a baby, she felt at home in the PANE community. She loved to see the orange and black umbrellas bloom in Harvard Square on rainy days!

And PANE recognized a kindred spirit in Mary, quickly sweeping her onto its board and into service to Princeton that is still going strong more than 20 years later. Now vice president of PANE's board, she cites her involvement with PANE's community service project in Boston Public Schools, begun in 1995, as "the real life-changer in alumni involvement." She discovered a new vocation and a passion for urban schools while also embarking on her journey as an engaged Princetonian.

Yet that is just one example of her engagement. She has also "loved the opportunity to learn about, promote and highlight alumni service projects" through the Alumni Council Committee on Community Service. As chair of that committee from 2009 to 2011, Koger oversaw the publication of the most complete compendium of Princeton alumni service projects throughout the world.

Thirteen years of working with the Alumni Schools Committee of Eastern Massachusetts have provided Koger with more opportunity to work with schools and young people—both the applicants and the recent graduates who form the bulk of the Boston ASC. On the Alumni Council's Princeton Schools Committee since 2007, Koger has connected with other chairs all over the world, often sharing Boston's abundance of eager interviewers with less-populated regions. Recent efforts to create a Central Pool of cyber-savvy interviewers, who use telephone and Skype to connect with applicants who would otherwise not be reached, have brought out a new generation of devoted volunteers. In recognition of the success of PANE's ASC work, the club was one of the recipients of the Princeton Schools Committee S. Barksdale Penick, Jr. '25 Award in 2011.

Koger notes that she loves "the alumni experience of multi-generational groups sharing activities and how the Princeton network becomes a hub for almost any event or project." She goes on to add, "My work for Princeton is almost irresistible, given the best possible fellow volunteers!"

Graduate Alumni

Celebrate with the APGA at Alumni Day

Join us in celebrating Hunter R. Rawlings III *70 (Classics), President of the Association of American Universities, at the Madison Medal Reception, hosted at Princeton University's Art Museum, on Alumni Day, **February 22**.
Register for Alumni Day: http://alumni.princeton.edu/goinback/alumniday/.

Recapture the excitement of Princeton's conference for graduate alumni

Nearly 1,000 Princeton graduate alumni and their guests gathered on campus for a weekend of engaging lectures, social activities and inspiring discussions during the "Many Minds, Many Stripes" conference. Relive the experience through video recordings of conference presentations, a fun slideshow and vibrant photo galleries.
Conference recap: http://alumni.princeton.edu/goinback/conferences/graduate/
Get involved: http://alumni.princeton.edu/communities/graduate/apga/support/

APGA Reunions 2014: Creating Tomorrow Today

Graduate alumni are invited to campus for Reunions **May 29 – June 1**, where the Association of Princeton Graduate Alumni (APGA) will celebrate innovation and invention with the theme, *Creating Tomorrow Today*. Experience a new Headquarters in Cuyler Courtyard, live music on both Friday and Saturday nights and additional meals at the APGA Tent. Hope to see you there!

Princeton Global Networking Night 2014:

One night. One focus. On February 25, 2014, Princeton regional associations around the world will host in-person networking events for alumni who are interested in connecting with fellow Tigers to further their career development and strengthen their network.

GNN 2014 will take place in cities around the country and around the world, including:

Baltimore	**Hong Kong**	**Paris**	**Rochester, NY**	**The Hague, Netherlands**
Boston	**London**	**Philadelphia**	**San Diego**	**Tokyo**
Chicago	**Los Angeles**	**Portland**	**San Francisco**	**Toronto**
Delaware	**Minneapolis**	**Princeton**	**São Paulo**	**Washington DC**
Delhi	**Mumbai**	**Quebec City**	**Seattle**	
Honolulu	**New York City**	**Raleigh/Durham**	**Singapore**	

For information on how to participate and an updated list of cities, please visit **http://alumni.princeton.edu/calendar/gnn/**.

Sponsored by the Alumni Council Committee on Careers and the Committee on Regional Associations.

February 25, 2014 – Save the Date

On the Campus

Frosty temperatures didn't stop hundreds from attending the Big Three bonfire Nov. 24 on Cannon Green. The bonfire featured the traditional outhouse but no mascot effigies after students protested that their inclusion would be insensitive.
Photograph by Ricardo Barros

Students line up in Frist Campus Center to receive the meningitis B vaccine.

Targeting Meningitis B

With eight cases reported in eight months, thousands of students receive vaccine

The University announced that 5,268 people were vaccinated in December as part of an attempt to stop the spread of meningitis B, a strain that has infected seven Princeton undergraduates and one visiting high school student since March. The total was 91 percent of those eligible for the vaccine.

The vaccine, known as Bexsero, is used in Europe and Australia but has not been licensed in the United States. Upon a recommendation from the Centers for Disease Control and Prevention, however, and with approval from the U.S. Food and Drug Administration, the University has made it available to three groups: all undergraduates; graduate students living in undergraduate dormitories, the Graduate College, or its annexes; and others in the University community who are at special risk, such as those with weakened immune systems.

The first doses of the vaccine were administered Dec. 9–12, and a booster dose will be given in February. Bexsero, which is manufactured by the Swiss pharmaceutical company Novartis, is being offered free of charge and was paid for from the University's contingency fund, President Eisgruber '83 said at a Dec. 9 meeting of the Council of the Princeton University Community. Princeton has imported 12,000 doses.

Although New Jersey requires all college students living in dormitories to be vaccinated against meningitis, the vaccines available in this country do not protect against meningitis B. Because the meningitis B vaccine does not contain live virus, there is no risk that anyone will contract the disease from receiving the vaccine, said Robin Izzo, the University's director of environmental health and safety.

"Get the vaccine" was the video message from four students who contracted meningitis: from left, Michael Moorin '16, Adam Millar '15, Peter Carruth '14, and Lillie Telljohann '14.

"It's just stupidity not to get it."

— Frances Steere '16, after receiving the meningitis B vaccine.

Four of the eight students who have contracted meningitis B appeared in a short video, produced by the Student Health Advisory Board and posted on the University's website, urging their classmates to get the vaccine.

"It's just stupidity not to get it," Frances Steere '16 said at Frist Campus Center shortly after receiving her shot.

The University also has urged all students to take precautions against contracting or spreading the disease, such as washing hands regularly, covering their mouths when coughing, and not sharing drinking cups or eating utensils.

The first local case was reported on March 25 and the most recent on Nov. 21. Seven of the eight students have recovered fully; the eighth was still receiving treatment in mid-December. Four cases of meningitis B also were reported at the University of California, Santa Barbara; CDC officials said they were not related to the outbreak at Princeton.

Meningitis, an inflammation of the membranes surrounding the brain or spinal cord, can be spread only by close physical contact or an exchange of bodily fluids such as saliva. Symptoms of meningitis B include a stiff neck, high fever, vomiting, rashes, and sensitivity to light. Untreated, it can cause brain damage, paralysis, hearing loss, or severe tissue damage in hands and feet. Meningitis B accounted for one-third of the 480 reported cases of meningitis in the United States in 2012, according to the CDC.

In a conference call with reporters, CDC officials said they did not believe Princeton students posed a risk of spreading the disease to others, such as friends or family, when they left campus over break. *By M.F.B.*

From top: Amaris Hardy/Office of Communications; "Princeton Against Meningitis" video

CERTIFICATES FOR MOOCS?

Faculty Panel Suggests Nonprofit Option But No Big Investment in Online Classes

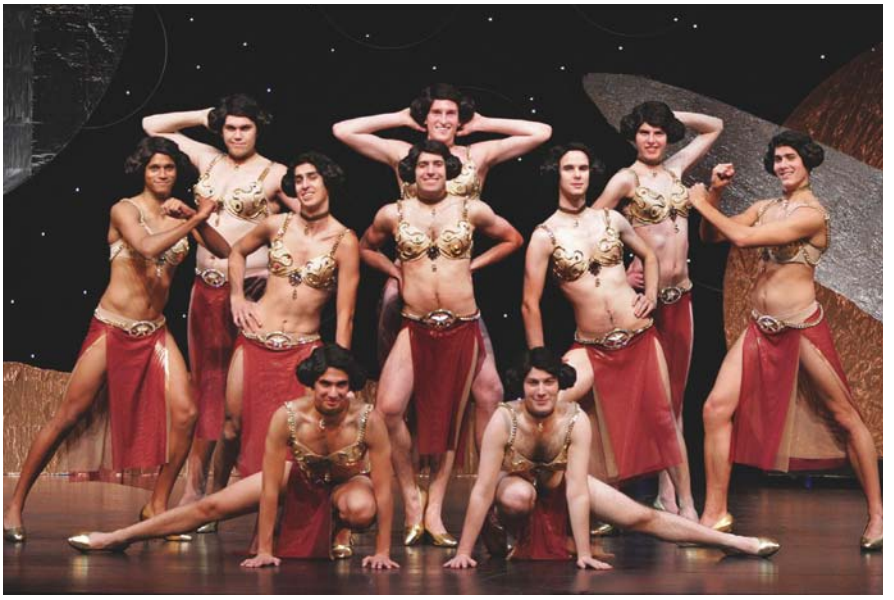
Less than two years after Princeton joined Coursera, a for-profit consortium that offers free online classes, a faculty committee is recommending that the University consider partnering with a not-for-profit alternative.

"Some members of the faculty have expressed to us that they were uneasy about having as their only option a for-profit company" whose commercial concerns may be inimical to Princeton's mission, said philosophy professor Gideon Rosen, who served as chair of the committee. The partnership with Coursera is not exclusive, he pointed out.

President Eisgruber '83 has said Princeton is not seeking to make money from its involvement with Coursera, but to improve teaching and reach people worldwide. The committee also raised the idea of Princeton creating its own platform for hosting online courses. "I must say that developing our own proprietary platform gives me nightmares along the lines of healthcare.gov," said Eisgruber, who left Coursera's advisory board Jan. 1 to focus on his presidency. The University offered nine Coursera courses in the first year and a similar number this year, on subjects ranging from computer science to world history.

In a report, the committee said it is hard to know what role online courses will play in higher education in the future, and "it would be premature to devote substantial additional resources to this effort." The committee also suggested a pilot program to offer certificates of accomplishment for completion of courses, though these would be letters signed by the instructor that do not bear Princeton's name or logo. Unlike students taking online courses offered by most other universities, students in Princeton's courses receive no certificate.

The committee's recommendations may lead to action by the faculty or the trustees down the road, according to Eisgruber. *By J.A.*



Frank Wojciechowski (Triangle); Denise Applewhite/Office of Communications (2)

TRIANGLE CLUB

Out of This World

Zero Gravitas, this year's Triangle Club show, will be heading south during intersession. Described as "one small step away, one giant leap for our long kickline," the show will be performed Jan. 26 in Atlanta; Jan. 28 in Miami; Jan. 29 in Naples, Fla.; Jan. 30 in Tampa; and Feb. 1 in Washington, D.C.

IN SHORT

Two celebrated professors are taking new positions:

DAVID BOTSTEIN, who served as director of the Lewis-Sigler Institute for Integrative Genomics for 10 years, will become the chief scientific officer for Calico, a Google company that will focus on aging and illness. Arthur D. Levinson *77 is Calico's chief executive officer.

KWAME ANTHONY APPIAH, a member of the philosophy department since 2002 who is perhaps best known for his writings on global ethics and cosmopolitanism, is moving this month to New York University. He plans to teach both on the main campus and abroad.

IN MEMORIAM PETER B. LEWIS '55, the chairman of Progressive Corp. whose gifts to the University totaled more than $220 million, died of a heart attack Nov. 23 in Coconut Grove, Fla. He was 80. Lewis, who turned his father's firm into one of the nation's largest auto-insurance companies, supported progressive and often-controversial causes, including the legalization of marijuana. His legacy at Princeton includes the Lewis Library, Lewis-Sigler Institute for Integrative Genomics, and Lewis Center for the Arts. At the center's public launch in 2007, President Shirley Tilghman described Lewis as Princeton's "modern-day version of Lorenzo de' Medici."

Students listen to Peruvian author Mario Vargas Llosa, left, during a seminar on his writings.

A Nobelist, On His Books

Vargas Llosa, a master of storytelling, helps teach a course about his works

A common refrain of literature students is: "What was the author thinking?" For students in a fall seminar titled "The Literary Works of Mario Vargas Llosa," the students have the chance to ask the Nobel Prize-winning author exactly that.

Taught by Vargas Llosa and visiting professor Efrain Kristal, the chair of UCLA's comp lit department, the seminar spans the breadth of the author's career from his early works to his most recent novel, *El Héroe Discreto.* Class sessions and readings are in Spanish, and students are expected to read a book a week.

On a Tuesday in early October, the author walked into the room in a crisp blue suit, a cup of Small World coffee in hand. After the students introduced themselves one by one, it was Vargas Llosa's turn. "I suppose I will present myself," he said, chuckling. "I'm from Arequipa, Peru, and I am a novelist and a screenwriter."

With that, the class dove into the discussion of the day: *Conversations in the Cathedral,* a novel that examines Peru under the dictatorship of Manuel Odría.

"This novel was hard for me to write — I had wanted to tell many stories, but was unsure on how to unite them in a single structure," Vargas Llosa explained in Spanish. "Then I had the idea of parallel conversations."

Helena Hengelbrok '16, who spent a year in Urubamba, Peru, as part of the bridge-year program, had signed up for the class as soon as she learned of it. The discussions with Vargas Llosa gave her bridge-year experiences "a historical context," she said.

Vargas Llosa has taught several courses at Princeton, most recently a course on the Argentinian author Jorge Luis Borges. He said he is drawn to Princeton by the beauty of the campus, the "very excellent library," and the quality of the students. "The average student at Princeton is very hard-working and committed to learning," he said. "It's always interesting to have them in class."

The seminar draws on student research as well. In each class, students present a piece from Vargas Llosa's literary archive, which is housed in Firestone Library. One session focused on poetry that Vargas Llosa wrote when he was 12 years old. "He was like, 'Oh, I wrote those?'" said Johannes Hallermeier '16. "He certainly didn't come back to that poetry at any point in his life."

Jorge Silva '17 felt a special connection to the author: The two share the same hometown in Peru. "I grew up reading his books, and I admire him," Silva said. "Having the possibility of talking to him directly, asking him questions — it's really amazing."

The way that Vargas Llosa responds to questions "gives us insight into something that he is a master of, which is storytelling," said Kristal. "You really see how he structures a narrative."

By Lauren Wyman '14

Denise Applewhite/Office of Communications

STUDENT DISPATCH

Going Back: When Undergraduate Alums Choose a Second Round at Princeton

Carolyn Edelstein '10 GS

In the spring of 1771, a young James Madison was about to graduate from Princeton when he made a choice that many seniors today might understand — he asked President John Witherspoon to let him stay one more year, becoming the college's first grad student.

Regardless of how many graduates may wish for more time on campus as they exit FitzRandolph Gate, few will re-enter as graduate students. Though there is no explicit policy against admitting Princeton undergraduates to the graduate program, there is "a prevailing sense among faculty in many departments that students are better served by experiencing the culture and approach of the field at a different, but comparably distinguished, university for their Ph.D. studies," said William Russel, dean of the graduate school.

Shira Billet '08 GS weighed that advice when she was choosing a doctoral program, but decided Princeton was the best fit: "The work that was being done in my subfield in the religion department was the kind of work that I wanted to participate in."

Last year the graduate school enrolled a total of 64 undergraduate alumni. In the economics department, students are encouraged to go elsewhere for their doctoral degrees, said Professor Bo Honoré, director of graduate admissions. "As a very general statement, wanting to work with one's undergraduate adviser sounds quite narrow-minded," he said. No undergraduate alumni have returned for graduate work in English in at least a decade, said department chair William Gleason.

The sense that undergraduates should leave their alma maters to pursue doctoral work is common across many peer institutions, said chemistry professor Michael Hecht, although remaining for a master's degree is more common. MIT, for instance, welcomes back many of its students to its master of engineering program.

The Woodrow Wilson School offers Princeton's largest master's program. John Templeton, associate dean for graduate admissions, said it's a myth that Princeton undergraduates cannot return for policy school, but only about five apply each year.

The numbers at Princeton may be changing. In September a trustee committee on diversity recommended that the University encourage talented undergraduates to pursue graduate degrees at Princeton. Given efforts to diversify graduate enrollment, said Russel, "a thoughtful process for encouraging more Princeton A.B. and B.S.E. graduates [to apply] may be appropriate."

Counterclockwise, from top: Frank Wojciechowski; Paul Zwolak; Courtesy Timothy McGinnis '13; Office of Communications

FIVE WIN RHODES, MARSHALL, SACHS AWARDS

Four seniors and one alumnus have won scholarships to pursue graduate study abroad in the coming academic year.

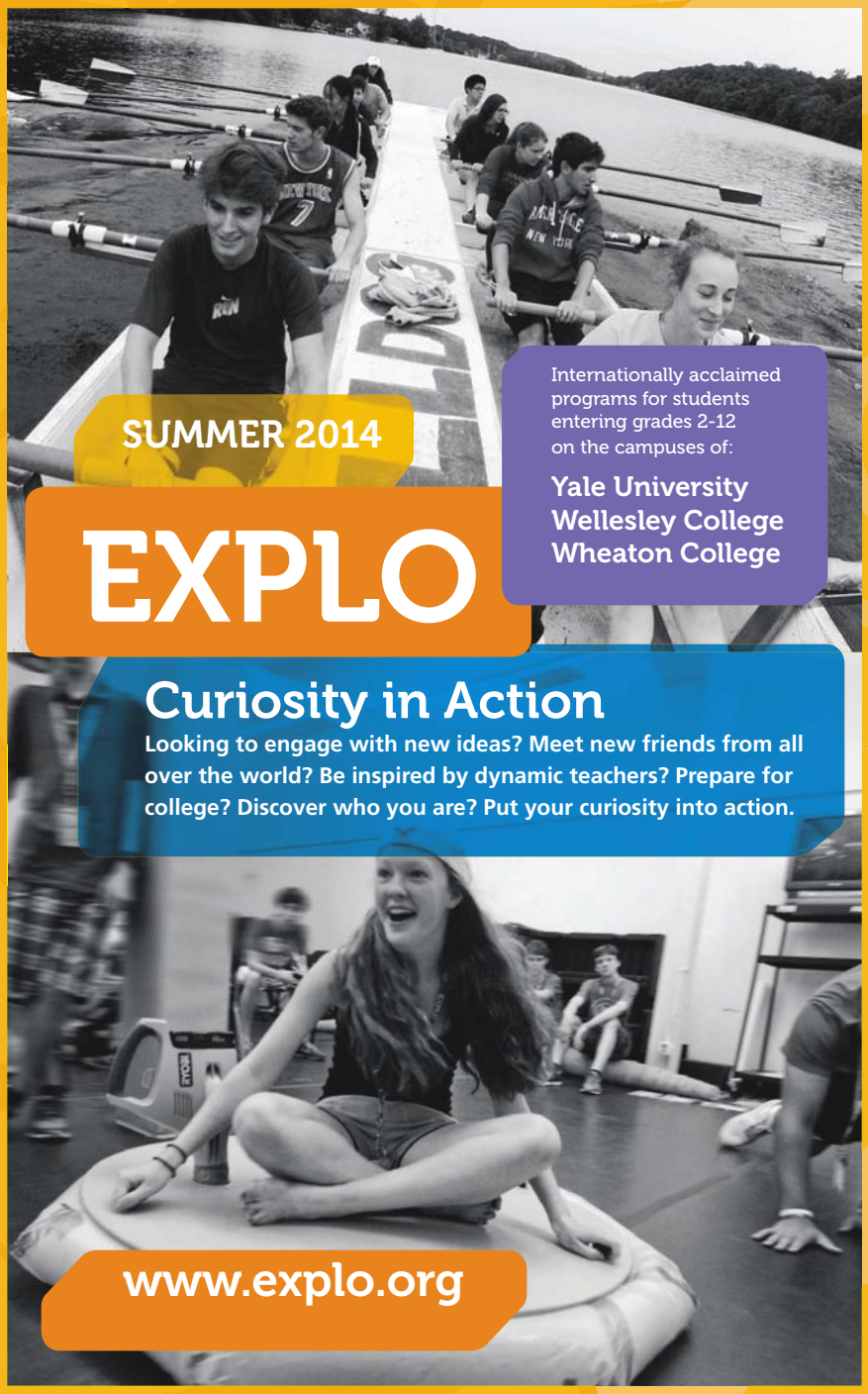
Rhodes Scholarship winners are **Adam Mastroianni '14,** from Monroeville, Ohio, a psychology major who plans to pursue a master's degree at Oxford University in evidence-based social intervention; and **Timothy McGinnis '13,** of Charlotte, N.C., who majored in anthropology. At Oxford, he plans to complete master's degrees in the history of science, medicine, and technology and in global-health sciences.

Marshall scholar **Dixon Li '14,** an English major from Sandy, Utah, also plans to complete two master's degrees. He will study writing in the modern age at Queen Mary University of London and English at Cambridge University.

Katie Dubbs '14 and **Anastasya Lloyd-Damnjanovic '14** are recipients of the Sachs Scholarship, a Princeton honor named for Daniel Sachs '60. Dubbs, an art and archaeology major from New York City, will study at the Vienna Conservatory and be mentored by artists at the Vienna National Opera. Lloyd-Damnjanovic, a politics major from Los Angeles, will pursue a master's degree in international relations at Worcester College at Oxford.

Summer Programs 2014

A Guide to Summer Programs, Camps and Preparatory Schools



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Director John Doyle and Christopher Beard '14 watch student actor-musicians perform.

Taking to the Stage

Lewis Center attracts noted figures to lead fall courses in performance

The Lewis Center for the Arts brought several prominent artists to campus this semester to engage students with unconventional approaches to performance. Here are four examples:

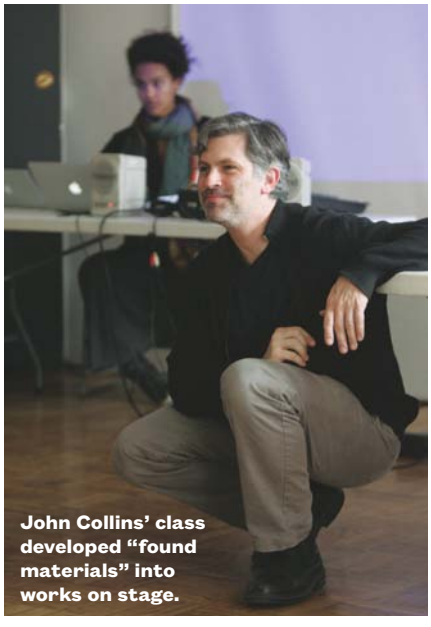
Scottish director John Doyle is known for his "stripped-down" revivals of Stephen Sondheim musicals, as one critic put it. Said Doyle, "I'm a minimalist at heart. ... I tend to get asked to do big stories in a small way." His most celebrated technique is having actors serve dual roles as musicians.

This fall Doyle taught two Lewis Center courses: one on how to approach staging a revival, the other on the technique of having actors make their own music "so that the instrument isn't just something you play, but is part of your character and who you are," he said. Students in the latter class watched a DVD of Doyle's Tony-Award-winning Broadway revival of the Sondheim musical *Company* to see how the technique worked, and met with an actor-musician who had been in several of Doyle's productions.

During one session, the class divided into two groups to orchestrate and perform the song "Sunrise, Sunset" from *Fiddler on the Roof* — acting, singing, and playing the violin, cello, guitar, flute, harmonica, and piano. The experience showed "how quickly you have to move from the music on the page to getting your head out of the music and actually being on stage and performing," said Mark Watter '14. The goal is not to play a "perfect guitar riff," Watter said, but to use the instrument to express what his character is feeling.

Having actors make their own music "makes for a roughness of texture that I think is useful for these kids to learn about — it doesn't have to be perfect," Doyle said.

One lesson of the course "Making Theater Without a Script" is "throwing the plans out the window," said instructor John Collins. As founder



John Collins' class developed "found materials" into works on stage.

Photos: Frank Wojciechowski

and artistic director of the New York-based theater group Elevator Repair Service, Collins is known for his unorthodox approach — his acclaimed *Gatz* was a six-hour, verbatim performance of F. Scott Fitzgerald '17's *The Great Gatsby*.

At Princeton, where Fitzgerald once penned scripts for the Triangle Club, Collins is leading a group of 10 students in a process that is "more discovery than instruction," he said. Students present YouTube videos, or Japanese anime, "anything that has struck them," said Collins — and, with help from him and members of his company, transform them into performance pieces.

"We just enter a room and start creating," said Oge Ude '16, who signed up to explore her interest in theater. Philip Rosen '14, who hopes to found an experimental student-theater group, said the class provides a forum "to let mistakes happen and see what can be learned from them."

"I love creative writing, theater, dance, and music, and this class was all of them on steroids."
— Emily Fockler '16

Sean Drohan '14 recited a poem about the journey from childhood to manhood one fall afternoon in the rehearsal room at McCarter's Berlind Theatre. With each phrase, he sent a soccer ball flying across the room to a fellow student, who swiftly tossed it back to him.

"Use the physical activity with the words," urged instructor Suzzy Roche, a member of the singing group The Roches, who taught the class with novelist Meg Wolitzer. The ball toss, Roche explained later, allowed Drohan to "discover unexpected possibilities in the text."

The class, "Stories to Stage, Words, and Song: A Study in Adaptation," explores how works of art in various genres can be brought to the stage. Students use their own creative writing and musical compositions as well as published works as the basis for theatrical material.

Drohan said the class has helped

Suzzy Roche, left, and Meg Wolitzer explored adapting works for the stage.

him understand how a work of art not intended for the stage "can be activated in a dramatic way." Said Emily Fockler '16: "I love creative writing, theater, dance, and music, and this class was all of them on steroids."

In Shakespeare's *Much Ado About Nothing,* two sets of lovers banter, fight, and talk of love before heading for a double wedding. It bothered director Lileana Blain-Cruz '06 that productions tend to emphasize "the lightness" of the play without fully exploring the darkness in the characters. So when she became a lecturer at the Lewis Center this fall, she set out to direct a student production of *Much Ado About Nothing* that would "wrestle with the darker side."

Blain-Cruz and students in her fall course examined threads in the text for undercurrents and themes of female sexuality, honor, cuckoldry, identity, and marriage. The Berlind Theatre production of the play, in November, brought to the fore a schism that occurred after Claudio, one of the male leads, explodes in anger on his wedding day as he wrongly accuses his intended bride of infidelity. In the final scene, the two couples dance, but the women look scared and sad, and the men eventually wander off.

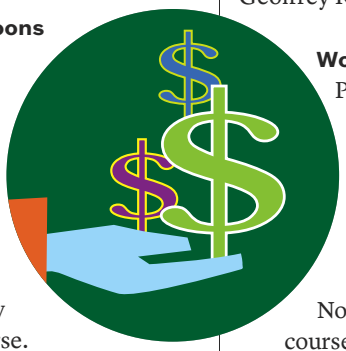
Evelyn Giovine '16, who played the accused bride, Hero, had been troubled by her character's decision to marry Claudio after he had humiliated her. "It just seemed wrong to me," Giovine said. "Doing this production with Lileana, I'm more peaceful with the dysfunction of it." *By J.A. and K.F.G.*

Director Lileana Blain-Cruz '06, left, and Evelyn Giovine '16 during a rehearsal of *Much Ado About Nothing*.

Give Away $30,000?

Yes, in this seminar; other classes debate work issues, review films online

Each year the University refreshes its course offerings. Here are three recent additions:



On Monday afternoons at Mathey College, students have been learning about debate, teamwork, and philanthropy in a freshman seminar with a twist: The students have $30,000 to give away at the end of the course.

The course is titled "Philanthropy," and students work their way through a long list of potential charities, researching and then advocating on behalf of their favorite groups as they narrow the list down to a final selection.

"The duty to donate real money puts a special responsibility on the students to give thoughtfully," said Stanley Katz, professor of public and international affairs. "The seminar's dynamics would be quite different with Monopoly money."

A class session offers three hours of controlled chaos, as students lead and structure discussions themselves. "I don't want to sound confrontational!" said one student. "Voting against a charity isn't personal," another said during a strongly felt debate.

"I think we should put our money where our mouth is," said Nathaniel Cope '17, who said he took the course out of a desire to respond in a tangible way to tragedies such as the Boston Marathon bombing and Hurricane Sandy. "This is something I need to learn about so I can give back to society."

The course offered an important lesson beyond its subject, Cope said: "We've learned a lot about philanthropy, but maybe an even bigger takeaway is how to work in a team."

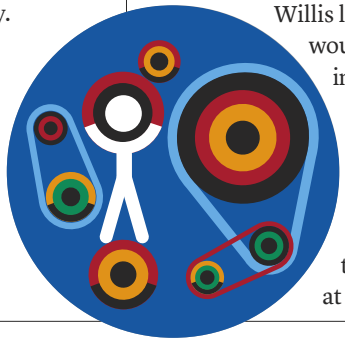
The course was made possible by a donation from investment banker Geoffrey Raynor '89.

Work is a concept that most Princeton students are more than familiar with, but in one freshman seminar this fall they were challenged to think about its meaning beyond papers and problem sets.

On a Thursday in November, the students in a course titled "Work" energetically debated whether or not machines will change paid work as we know it. Some students argued that technology improves our quality of life; others said that innovation is dangerous if it has no limits.

The seminar, taught by sociology professor Paul Willis, aims to give students a grounding in "the best that has been thought and said about the question of work," from the texts of Marx and Weber to modern views of sexuality in the workplace.

The debate over technology was one example of how class participants were expected to understand and take sides on work-related issues: Will automation and globalization transform our concept of work? Are large companies "branding" their workers as well as their products? And why do Princeton students work so hard? "From the first day, Professor Willis let us know that there would be no solutions in his class," said Ross Barron '17.

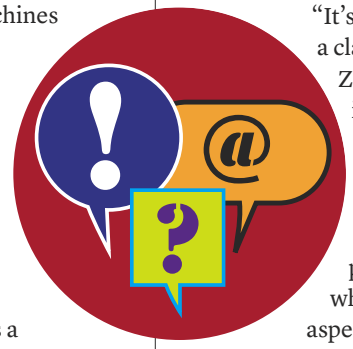


Willis said he was interested in the students' experience of work beyond the classroom — at a summer camp, amusement park, or in the dining hall — that helped them relate to the course material.

Princeton students usually enter the workforce with a strong "social consciousness and sense of responsibility," Willis said. His hope is to give freshmen a historical understanding that could help them contextualize "the grounds of their whole experience of the next 50 years."

Some students dream of producing work that will outlast their time at Princeton. Those in an English course during the fall semester called "Princeton Film Review" have been doing just that.

Students in the course planned to launch a blog before the winter recess that would provide in-depth reviews of film and television — "a review run by students for students," as the course syllabus states.



"It's refreshing to have a class like this," said Zachary Salk '14. "This is an opportunity to create something entirely our own."

Students have examined the finer points of reviewing while taking on every aspect of the blog's development, from content to layout and design to promotion on campus and beyond.

English professor Diana Fuss said she developed the course to give a younger generation a critical voice, adding that the class is "not just talking about media; we're actually making it."

The blog is named the Princeton Buffer — a play on the way websites "buffer" and a reference to those taking the course being "film buffs."

While other campus publications include movie and TV reviews, the blog will focus on them, said Will Pinke '14. The difference, he said, will be found "in the motivations behind the writing, the high film IQ we expect the writing to be founded on, and the audience we hope to reach."

Course participants said they will continue to play a large role in managing the blog after the course ends. *By Nellie Peyton '14 and Jasper Ryckman '15*

Illustrations: Steven Veach

'A GREAT BEGINNING'

Seeking to Heal Town-Gown Rift

Hoping to mend town-gown relations that have frayed in recent years, President Eisgruber '83 met with Princeton town council members Dec. 2, with both sides calling the session an opportunity to build trust and communication.

Relations between the University and the town became contentious during the approval process for the University's $330 million arts-and-transit project south of McCarter Theatre. The meeting was intended to put relations back on track and to discuss areas of mutual interest.

Mayor Liz Lempert said the session was "a great beginning," and Eisgruber said he hoped it would lead to "a more constructive relationship between town and University. I know that in the course of that relationship we are going to disagree sometimes, but I hope it will be within a context of respect and mutual interest."

Both council members and Eisgruber sought to draw attention to previous collaborations. Councilwoman Heather Howard, a lecturer at the Woodrow Wilson School, said that the mutual effort to contain the meningitis B outbreak and coordination between the town's police force and the University's Department of Public Safety could be frameworks for future cooperation.

"We have found ways to work together on projects, including some that have proven very difficult in the past. I hope that we can continue to do that," Eisgruber said. "There is a real and rare opportunity here, and we need to seize that."

He said he looks forward to completing existing building initiatives while also examining a possible expansion of the undergraduate student body and further diversity initiatives.

Several residents urged Eisgruber to halt the move of the Dinky station farther from downtown as part of the arts-and-transit project.

"The arts project is a very good project, and I'm proud of it," he said. "But I am regretful of the ruptures and scars that have been created." *By Andrew Sondern '15*

Jon Gudmundsson GS

The package of scientific instruments for Princeton's Antarctic balloon-flight project.

GOVERNMENT-SHUTDOWN VICTIM

Antarctica balloon flight scrubbed

Assistant physics professor William Jones and his research team had hoped to be in Antarctica in mid-December, ready to launch a high-altitude balloon for a 20-day flight that would probe the origins of the universe.

Instead, Jones was in Washington, D.C., working to secure a new launch date for the experiment after three balloon flights were scrubbed, victims of the 16-day government shutdown last October. The next opportunity would be in December 2014, he said.

Weather conditions in the Antarctic permit only a monthlong window for such flights, and the halting of non-essential government functions came at a time when the balloon-launch facilities would have been established. The 5,400-pound payload for the Princeton flight had arrived in Christchurch, New Zealand, and was scheduled to ship to Antarctica five days later.

Jones said the project, called Spider, is designed to use cosmic microwave background radiation to test theories of the early stages of the universe.

The postponement stemmed from "a terrible confluence of politics, our artificial fiscal calendar, and the very real reality of the Antarctic climate," Jones said. Four Princeton grad students are affected directly, he said, including two who will graduate without the data from the experiment they had helped to design and build. *By W.R.O.*

IN SHORT

The University offered EARLY-ACTION ADMISSION to 714 students Dec. 16, or 18.5 percent of the 3,854 candidates who applied. Applications for early action were up by 1 percent from last year, when the acceptance rate was 18.3 percent. Of the admitted students, 15 percent are legacies, 48 percent are women, and 41 percent identified as members of U.S. minority groups.

The accountant for the TRIANGLE CLUB, Thomas J. Muza, was charged in November with embezzling more than $100,000 since 2010. Muza was dismissed by the club and suspended as general manager of McCarter Theatre.

All-American fencers Gracie Stone '16, left, and Susie Scanlan '14.

MEN'S AND WOMEN'S FENCING

Aiming for a Repeat

Women extend dual-meet win streak as fencers seek another national title

Susie Scanlan '14 took two years off to train for and compete in the 2012 London Olympics, where she won a bronze medal with the U.S. women's epee team. When she returned to school last year, she helped Princeton win its first-ever national title. This year, she feels there's still more to do.

"Repeat," she said, when asked about her goals for the season. "To prove last year wasn't a fluke."

While Scanlan was away, Princeton's men and women — the championship is determined by combining men's and women's scores — came in second at the NCAA tournament. As powerhouses like Penn State and Notre Dame usually dominate the tournament, some attributed Princeton's strong finish to the fact that many teams had lost multiple athletes to Olympic training.

But last year was a different story. "I'm really glad we won last year because all the teams were full force," Scanlan said.

Other standouts on Princeton's team are Kat Holmes '15, a two-time All-American who finished fifth in the nation last year; Eve Levin '14, a three-time All-American who placed 10th at the NCAAs; and Gracie Stone '16, who placed third at the NCAAs and was 15–0 at the Ivy League Championships.

The Princeton women are off to a good start, having swept the Penn and Sacred Heart duals and edged out Columbia, the team's stiffest Ivy competition. The women extended their dual-match winning streak to 26.

Last year, Stone fenced alongside her sister Eliza '13, who won the individual national title, and brother Robert '14, who came in seventh. Gracie admits that she and her siblings are very competitive — they're all sabrists and politics majors — but denies that the three are exactly alike.

"I'm studying politics because I want to go into foreign service," she said, "whereas my brother's studying politics and wants to be a history professor, and my sister studied politics and wants to be an orthopedic surgeon."

Robert Stone and the men's team tied for second in the Ivy League last year and are off to a 6–2 start after sweeping Ohio State and Penn at the Penn Duals Nov. 23. Michael Dudey '16, who finished fifth at the NCAAs as a freshman last season, went a perfect 6–0 at Penn.

The Tigers head to Illinois for the Northwestern Duals Feb. 1–2, where they will face tough national competition as they prepare for the Ivy League Championships the following weekend.

By Stephen Wood '15

EXTRA POINT

Hitting the Big Time: Tigers Make Their Mark in Pro Sports

Brett Tomlinson

Like many of his classmates, Mike Catapano '13 is trying to prove himself in an entry-level job. He spends about 10 hours a day at the office, uses evenings to brush up on some of the new things he has learned, and travels about twice a month. Working on weekends is a must.

It's a rough gig, but the rewards are sweet: a starting salary of about $400,000 and a chance to realize a dream that he's had since he was 8 years old.

Catapano, a rookie defensive end for the Kansas City Chiefs, is Princeton's lone NFL player. In college, he grew into the physical build of a pro lineman (6 foot 4 inches, 270 pounds) and developed the speed and strength to chase down NFL quarterbacks. He credits his undergraduate experience — not just the football part — with preparing him for the challenges of his new job. "Princeton really tests you," he said. "You learn to be a professional in everything you do."

It's a rough gig, but the rewards are sweet: a starting salary of about $400,000 and a chance to realize a dream.

For a small but growing number of alumni, "everything" includes playing in a major pro sports league. Five alumni have seen time on the ice in the National Hockey League this season (newcomer Taylor Fedun '11 and veterans Jeff Halpern '99, George Parros '03, Darroll Powe '07, and Kevin Westgarth '07), and three played in Major League Baseball last year (David Hale '11, Will Venable '05, and Ross Ohlendorf '05). When Hale threw his first pitch for the Atlanta Braves in September, Venable, an outfielder for the San Diego Padres, was waiting in the batter's box.

Princeton could add to its list of pros in 2014: Caraun Reid '14, Catapano's former linemate, has been identified as an NFL prospect; a handful of hockey and baseball alumni are playing in the top minor leagues; and All-Star pitcher Chris Young '02, hampered by shoulder injuries in the last four seasons, is aiming for a comeback this spring.

Young was on campus Dec. 10, joining Venable, Ohlendorf, and Hale for a Princeton Varsity Club-sponsored panel discussion of life in pro sports. He told PAW that Princeton's success in producing major leaguers reflects a culture put in place by coaches and administrators. "You can get the best education possible *and* realize your dreams athletically," he said. "It's not one or the other."

Young, a veteran of nine major-league seasons, embodies both sides. He went pro after his sophomore year but remained a full-time student, negotiating with his team to arrange a schedule that kept him at Princeton as often as possible. When his minor-league teammates were lounging on the couch watching TV, Young was sitting at a kitchen table, books spread out before him, completing take-home exams. And when the Class of 2002 graduated, so did he.

READ MORE: A Q&A with Chris Young '02 at **paw.princeton.edu**

Below, from left: Mike Catapano '13, Chris Young '02, David Hale '11, and Taylor Fedun '11.

Beverly Schaefer (fencers); AP Images (Catapano); USA Today Sports Images

SPORTS SHORTS

A season-ending 28–24 loss in the snow to Dartmouth kept Princeton from sole possession of the IVY FOOTBALL CHAMPIONSHIP, but an 8–2 season still gave the Tigers plenty to cheer about as they shared the league title with Harvard.

The supercharged, no-huddle offense averaged more than 500 yards a game, the fourth-best performance in the NCAA Football Championship Subdivision. Quarterback Quinn Epperly '15 was awarded the Bushnell Cup as the Ivy League's offensive player of the year after setting a host of school, league, and national records.

Wide receiver Roman Wilson '14, whose 11 touchdown receptions tied the University's season record, earned the Poe-Kazmaier trophy, Princeton football's highest honor. Defensive tackle Caraun Reid '14 was named a finalist for Ivy defensive player of the year and became the first Tiger since 1951 to be invited to play in the Senior Bowl, set for Jan. 25 in Mobile, Ala.

BY THE NUMBERS: TEAM STATS

437 Total points, a single-season scoring record for an Ivy team

5,116 Total offensive yards, a single-season record for an Ivy team

QUINN EPPERLY '15

29 Consecutive pass completions, an NCAA record, against Cornell

26.6 Points responsible for, per game, leading the NCAA this year

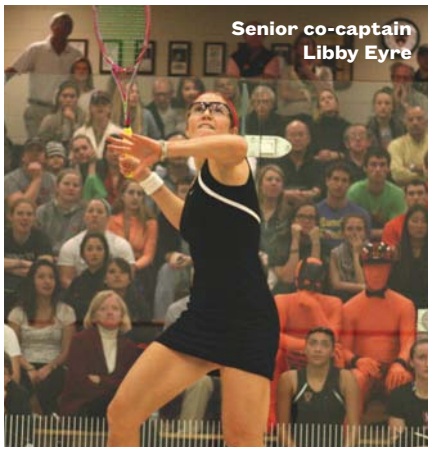
43 Touchdowns accounted for, an Ivy single-season record

37 Pass completions against Harvard, a Princeton single-game record

6 Passing touchdowns against Harvard, a Princeton single-game record

25 Passing touchdowns for the season, tying Doug Butler '86's Princeton record

Maintaining a perfect record to open the season, WOMEN'S SQUASH dominated George Washington 9–0 Dec. 7. The Tigers face defending national champion Harvard Jan. 11.



Senior co-captain Libby Eyre

MEN'S CROSS COUNTRY placed 22nd at the NCAA championships Nov. 23, the best of any Ivy team. Co-captains Tyler Udland '14 and Alejandro Arroyo Yamin '14 finished in the top 75. WOMEN'S CROSS COUNTRY placed 30th at the NCAAs, led by Megan Curham '17, who took 34th.

MEN'S and WOMEN'S SWIMMING each were victors at the Big Al Open Dec. 6–8 in DeNunzio Pool. Lisa Boyce '14 won four individual events, while Teo D'Alessandro '16 broke the Princeton records for the 200- and 400-yard individual medleys and Michael Strand '15 broke his own record in the 100-yard backstroke.

After dramatic wins over Harvard and Navy, MEN'S WATER POLO fell 11–9 to St. Francis in the CWPA championship finals Nov. 24. Jovan Jeremic '17 was Southern Division Rookie of the Year, and Drew Hoffenberg '15 was named to the All-Southern First Team for the second consecutive season.

Against Penn State Dec. 14, MEN'S BASKETBALL erased an 18-point deficit in the last 6:34 to force overtime, and then pulled ahead in the extra period, winning 81–79. Will Barrett '14 scored 24 points for the Tigers, who won eight of their first nine games for the first time since 1997-98. WOMEN'S BASKETBALL also won a key nonconference game in overtime, beating Delaware 84–80 Dec. 15 to improve to 6–4 this season.

By Dorian Rolston '10 and B.T.

Photos: Beverly Schaefer

Life of the Mind

SOCIOLOGY

Secret Societies

Matthew Salganik tracks hidden populations to improve public health

In an age when many of our friends are only one click away, some people remain stubbornly out of reach. To public-health researchers, hidden populations such as drug users and sex workers are a longstanding Achilles' heel: Their isolation conceals precious data, the lifeblood of epidemiology. In recent years, sociology professor Matthew Salganik has helped develop statistical methods that have unearthed vital information about these groups.

Valuable data can be gained from social networks that, unlike Facebook and Twitter, have been around for thousands of years.

Those most at risk for HIV — a disease that afflicts more than 34 million people worldwide, according to the Centers for Disease Control and Prevention — are drug users who share needles, women who work in the sex industry, and men who have sex with men. Fearing social stigma or legal repercussion, members of these groups may decline to take part in surveys, or may be beyond the reach of researchers altogether. Consequently, efforts to prevent the spread of HIV have been hampered by lack of information on the size, composition, and behavior of populations most at risk. "This problem has existed for a long time," Salganik says.

To conduct surveys, researchers used to canvass an area of known heroin users, for example, to identify those who had shared a needle. Tiny samples often were used to make rough generalizations, which some in the field considered inaccurate. Salganik, who has an undergraduate degree in mathematics and a doctorate in sociology, proposed viewing these vulnerable people "not as individual units, but as people embedded in social networks." He championed the adoption of a study method that draws on the power of relationships. The method, known as respondent-driven sampling (RDS), asks a small number of survey subjects to recruit friends by handing out coupons that request their participation in the survey. When a new participant arrives with a coupon, the friend who gave it out receives a modest cash reward, as does the new participant, who leaves with more coupons to distribute.

Salganik analyzes the data from these surveys, which now are used throughout the United States and the developing world. Recently, he analyzed data from an RDS study of drug users in Curitiba, Brazil, where 303 people answered questions about their drug use and HIV-related behavior — starting from an initial sample of five. "Matt has been part of a very small group of people who advanced the math," says Keith Sabin, a senior adviser on epidemiology at UNAIDS, an HIV/AIDS organization run by the United Nations. RDS "brings us into contact with people who have assiduously avoided any contact with government agencies."

Salganik has received two grants from the National Institutes of Health for nearly $1 million over seven years to further develop RDS and refine his statistical methods. "When people think about social networks, they think about Facebook and Twitter," he says. But valuable data can be gained from social networks that, he points out, "have been around for thousands of years." *By Dorian Rolston '10*

Sameer A. Khan

Professor Matthew Salganik has helped develop statistical methods that unearth vital information about people such as drug users who elude public-health researchers.

COMPUTER SCIENCE

Improving the Internet's Busy Roadways

Beyond the bits In a single day, you may chat with a friend by video on your cellphone, download a novel, and check the news — all using the Internet. Each activity uses software applications that deliver data to your computer or device through a network. Think of the networks as systems of roads that transport information to and from the massive data centers set up by companies such as Google, Facebook, and Microsoft.

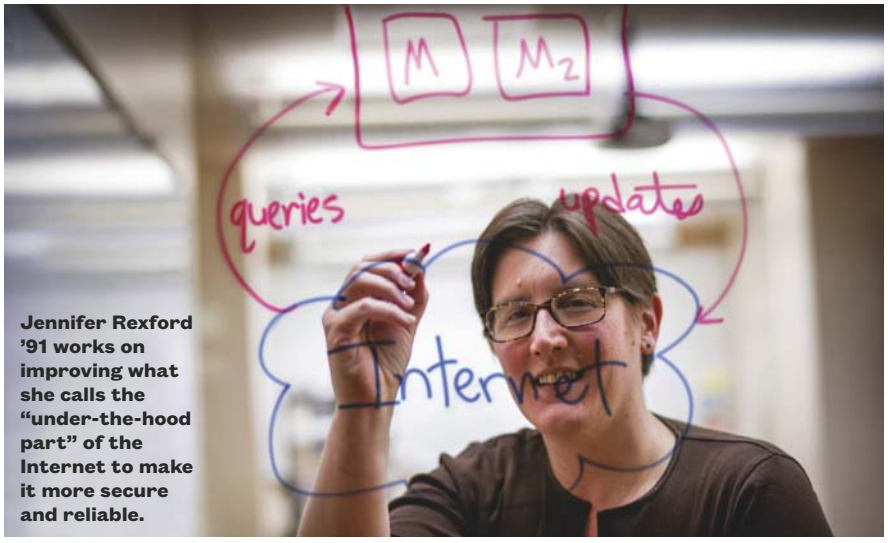
Adding applications (or apps) to the Internet is pretty easy. But access to the system of network roads is relatively closed. Only a small number of companies provide the hardware and software that manage the networks' infrastructure. This software decides what path Internet traffic takes to its destination.

Back in the 1970s, computer hardware and software were difficult to modify. Today, computers and devices easily can be customized, but the infrastructure and hardware of the networks haven't changed much. "Networks have been stuck in this older era," says computer science professor Jennifer Rexford '91. "Many companies, including Google and Microsoft, can program their servers, change how they store data, yet they have a network they cannot modify." For example, Facebook controls its content, but not how it's delivered to your device.

Rexford is working to change this approach by giving companies easy-to-use tools to modify the way their networks operate, which should decrease download times for end users.

A new language Rexford, with professor David Walker and colleagues at Cornell University, has developed a family of programming languages called Frenetic that makes it easier to modify the network infrastructure. The goal is for modifications to be accessible by programmers while making network communications more energy-efficient, secure, and reliable. There are even ways to make network changes when data are in flight. A particularly dense data package could be re-routed from a one-lane road to a highway to prevent a traffic jam. Researchers already are using the Frenetic software, and companies are interested in the technology because it enables "a richer ecosystem" of networking modifications, says Rexford.

Inventing the Internet Rexford says many of the major network-equipment vendors, such as Hewlett-Packard, also support the changes, providing a rare alignment of academia and industry. "This is what I like about the Internet — a lack of a barrier to innovate. It's a perfect storm for fundamental change in the way the Internet works, and a chance for the research community to have influence on what actually happens," she says. "We are never done inventing the Internet." *By Anna Azvolinsky '09*



Jennifer Rexford '91 works on improving what she calls the "under-the-hood part" of the Internet to make it more secure and reliable.

Sameer A. Khan

Judith Weisenfeld *92 discovered World War II-era draft cards on which men identified themselves as "Black Hebrew" or "Moorish," indicating how religious groups altered a sense of racial identity.

Sameer A. Khan

RELIGION

Spiritual Awakenings

Little-known religious movements gave a fresh identity to African-Americans

In the early 20th century, life for many African-Americans was undergoing significant changes. Millions migrated to the North to find jobs and struggled to adjust to life in places that were more ethnically and religiously diverse than their places of birth. Some of them found comfort in new religious movements that were emerging in cities such as Detroit and Chicago. Religion professor Judith Weisenfeld *92 is studying these little-known religious movements, which she believes had an outsized impact on racial identity at a time when many African-Americans were questioning their longstanding commitment to Protestant religious traditions.

The movements that sprang up embraced an alternative vision of identity — both religious and racial — that many African-Americans found appealing, Weisenfeld says. The Peace Mission movement, for example, which was led by a charismatic figure named Father Divine, preached against the use of racial categories, which he saw as divisive. While Father Divine attracted as many as 10,000 followers by the 1930s, other groups — such as the Moorish Science Temple of America and the Ethiopian Hebrews — numbered in the hundreds or low thousands.

"The power of these movements was to undermine the sense of inevitability of black Protestantism."

By drawing those who once had been members of the Protestant faith, the groups forced black Christian churches "to refine an argument" about why African-Americans should share the same faith as "the people who oppressed them," Weisenfeld says. "The power of these movements was to undermine the sense of inevitability of black Protestantism." Weisenfeld's research will be gathered in a book titled *Apostles of Race: Religion and Black Racial Identity in the Urban North, 1920–1950.*

The movements borrowed from many religions, including Buddhism, Judaism, and Islam. They had frequent contact with mainstream black churches, which regarded them as sects or cults. One group — the Nation of Islam — grew in size and influence in the 1950s and 1960s. Black newspapers were a critical way for the groups to spread their message, Weisenfeld says: "Wherever you were, if you subscribed to one of these newspapers, even in the rural South, you learned about these new religious movements."

Weisenfeld's breakthrough discovery came at ancestry.com, where she found images of World War II-era draft cards on which men identified their race as "Black Hebrew" or "Moorish," indicating how affiliations with these religious groups altered some individuals' sense of racial identity. The men used such identifiers because it connected them with historical traditions and gave them a sense of importance that the word "Negro" — which was associated with years of slavery — did not, Weisenfeld points out. Researching census and military records, among other sources, she found additional examples of individuals who sought to assert an alternate identifier even when government representatives pushed back and argued that they were in fact "Negro."

Some of these religious groups still are around today. Their legacy lives on, Weisenfeld says, because they "opened up the possibility for African-Americans to consider non-Protestant traditions."

By Maurice Timothy Reidy '97

PRIVACY ISSUE

BIG DATA? BIG BROTHER? Big Questions

The privacy discussion we should be having

By Mark F. Bernstein '83

Scott Howe '90 thinks he knows a lot about me, although we have never met. Better to say that he thinks the Internet knows a lot about me — and that I ought to know what it knows. Howe, the CEO of Acxiom, the Little Rock, Ark.-based marketing company, has created a Web portal, AboutTheData.com, where users can go, create an account with identifying information, and discover what is out there about them on the World Wide Web. I decided to take him up on it.

AboutTheData does retrieve a lot of personal information about me, culled from public records and customer databases that companies I do business with have sold to other marketers. It got the size of my house right but was way off on the date I bought it, told me that my car-insurance policy renews in April (true) but also that I don't have children living at home (false). It said someone in my household buys pet products and enjoys sports, but such things are hardly unusual for people of my age, marital status, and income level. This didn't seem like Big Brother. More like Mildly Curious Uncle.

Crossing the wrong line in cyberspace, however, will bring you under the gaze of a different uncle — Uncle Sam — and he doesn't miss much. Thanks to a cache of classified documents leaked by computer technician Edward Snowden to a select group of journalists, including Barton Gellman '82 (see page 46), we are learning a lot about government snooping on American citizens. The National Security Agency has acknowledged that it subpoenaed phone records from the nation's three largest telecommunications companies, which it now stores in its massive database. Gellman recently disclosed that the NSA has been scooping up contact lists and address books from Google, Yahoo, and others.

What the government knows about me and what some marketing company knows are very different issues, though related. The databases on which both rely fall within the broad category called "Big Data," and it is no exaggeration to say that Big Data has the power to transform the world, yielding insights into how highly complex systems work. Applied to my video downloads, Big Data enables Netflix to recommend movies I might enjoy. Applied to epidemiological records, it enables researchers to trace and possibly stop the spread of disease. Applied to phone records, it can help the NSA uncover a terrorist cell. Or learn if I am cheating on my spouse.

How secure is the information — bank records, prescription records, personal photos — that I place willingly on my computer's hard drive or in the cloud? How much of my life is the government watching without my knowledge? What does privacy mean in an age when seemingly everything about me is known or knowable? Disclosure of the NSA's surveillance program has put these questions squarely in the news, and although the constitutionality of those programs has been called into question, the NSA may be a good place to begin.

AP Images/Google/Connie Zhou

Routers and switches in Google's data center in Council Bluffs, Iowa. The NSA was able to intercept data at Google and Yahoo; both companies say they now encrypt data.

The NSA says its programs are critical to national security. Furthermore, it says, the agency is not eavesdropping on private conversations but collecting information about those conversations — known as metadata — that can help detect suspicious patterns and expose terrorist networks. "You can't have 100 percent security and also then have 100 percent privacy and zero inconvenience," President Barack Obama said last June. "We're going to have to make some choices as a society."

Professor Edward Felten points out that the only reason we are having a national debate about NSA surveillance is because of documents leaked by a man — Snowden — whom the United States considers to be a traitor and a fugitive. How, Felten asks, can we make choices about programs the government would not even admit existed until a few months ago?

Felten, the Robert E. Kahn Professor of Computer Science and Public Affairs, is the director of Princeton's Center for Information Technology Policy (CITP). CITP, which draws faculty and students from several departments, including computer science, economics, politics, sociology, and the Woodrow Wilson School, occupies the third floor of Sherrerd Hall, the glass jewel box on Shapiro Walk. In addition to teaching, Felten blogs (freedom-to-tinker.com), advises several technology companies, and served from 2011 to 2012 as chief technologist for the Federal Trade Commission, where he helped prepare a report on protecting consumer privacy. (More on that later.)

He contends that we have only just begun to consider how much of our privacy we ought to be willing to surrender in the name of security — and how much we already have surrendered without knowing it. Certainly, the Snowden documents have provided a steady stream of revelations. Chief among them was that the Foreign Intelligence Surveillance Court — established under the 1978 Foreign Intelligence Surveillance Act (FISA) to review applications for warrants related to national-security investigations — had ordered Verizon, AT&T, and Sprint to turn over records of all calls within the United States and overseas to the NSA on "an ongoing daily basis." Those orders were issued under Section 215 of the Patriot Act, which allows U.S. intelligence agencies to collect information needed "to protect against international terrorism or clandestine intelligence activities." Unlike a traditional search warrant, the government can obtain information under Section 215 without establishing probable cause, as long as it has a "reasonably articulable suspicion" that the information is relevant to a national-security investigation. It is very difficult to challenge such an assertion because anyone served with a Section 215 request is legally prohibited from revealing that the government has demanded the information.

The FISA court's order allowed the NSA to gather "call detail records" or "telephony metadata." This includes the originating and destination numbers of each call; the time, date, and duration; and other pieces of identifying information that are unique to each cellphone. How much of this data does the NSA have? We don't know. That information is secret, but Felten has made some back-of-the-envelope calculations. Assuming there are approximately 3 billion phone calls made every day in the United States and that each call record takes 50 bytes to store, he estimates that the NSA is collecting about 140 gigabytes of data each day, or 50 terabytes a year. That translates into 25 billion Web pages of information every year, and it is growing daily. The NSA is building a huge data center outside Salt Lake City to hold all of it.

Phone records are not all. Under a program known as PRISM, the NSA also has collected email and instant-messaging contact lists from at least nine Internet service providers, including Facebook, Google, and Yahoo. There have been reports of other surveillance tools, including something called XKeyscore, which enables the agency to see "nearly everything a typical user does on the Internet," according to a leaked NSA training manual.

Eric Schmidt '76, Google's executive chairman, said that his company did not know that the government was snooping on its servers and strongly criticized what he termed the NSA's overreach. "There clearly are cases where evil people exist," he told *The Wall Street Journal* in November, "but you don't have to violate the privacy of every single citizen of America to find them." (On the other hand, when asked by a CNBC interviewer in 2009 whether Internet users should feel comfortable sharing personal information with Google, he famously replied, "If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place," continuing to explain that Google retained information and that "it is possible that the information could be made available to the authorities.")

The NSA's defenders deny that it is becoming Big Brother. "Nobody's listening to the content of people's phone calls," President Obama assured the public in June about the collection of phone metadata. Leave aside for a moment that the NSA itself has acknowledged instances in which it has misused the telephone records it has collected. The president's claim rests on a distinction between data — what was said during the calls — and metadata, which might be thought of as data about the data, specifically all that descriptive information covered in the FISA court's order.

In Felten's view, this distinction no longer makes much of a difference. As he testified in October before the Senate Judiciary Committee, "It is no longer safe to assume that this 'summary' or 'non-content' information is less revealing or less sensitive than the content it describes." Metadata, in other words, often can tell investigators more than the underlying data itself. That is why they want it.

Conversations, Felten explains, are unstructured data. They might be conducted in a foreign language. The speakers might mumble. There might be a lot of background noise. Even if the conversations can be understood, they can be hard to decipher. If a suspect says, "The package is being delivered," does he mean a birthday present or a bomb? Transcribing and interpreting conversations takes a lot of work, which generally still needs to be done by humans.

Metadata, in contrast, is structured data, which makes it easier to work with, and the NSA has very

FELTEN SUGGESTS THAT WE IMAGINE THE POLITICIAN WE MOST DISTRUST BECOMING PRESIDENT AND ASK IF WE WOULD WANT A GOVERNMENT RUN BY THAT PERSON TO HAVE SUCH PERSONAL INFORMATION ABOUT US.

Peter Murphy

Professor Edward Felten believes the NSA should be required to issue regular reports about its surveillance activities.

sophisticated tools that it says can detect subtle patterns of behavior and networks of associations, even without knowing what is said. Those tools have led Peter Swire '80, a professor at Georgia Tech, to describe this as a Golden Age for Surveillance. "For many investigators," Swire wrote in a 2011 article for the Center for Democracy and Technology, "who is called is at least as important as what is said in the call." In August, Obama named Swire to a five-member group assigned to review the nation's intelligence policies.

The patterns revealed in metadata yield remarkable insights: when people sleep, how many friends they have, even clues about their religious affiliation. The metadata can help investigators construct a model of an organization, such as who is in it, who reports to whom, who is gaining influence, and who is losing it. Only by having all the raw data can analysts apply their algorithms to search for patterns and connections. As NSA director Gen. Keith Alexander put it: "You need the haystack to find the needle."

IF TARGET MISIDENTIFIES ME AS AN EXPECTANT MOTHER, I RECEIVE SOME USELESS COUPONS. IF THE NSA MISIDENTIFIES ME AS A NATIONAL-SECURITY THREAT, I FIND MYSELF IN A KAFKA NOVEL.

But turning every haystack over to the government presents troubling questions. These social graphs, as they are called, are sometimes inaccurate and can expose innocent people to suspicion. In a talk to last year's freshman class, Felten gave an example by showing how easy it would be for investigators to place him at the center of a social network connected to Julian Assange, the founder of WikiLeaks, whom he has never met. There is also what might be called a bootstrapping problem. The NSA is permitted to share intelligence information it gets under a FISA warrant with the FBI or local prosecutors, enabling them to obtain information they could not have gotten if required to show probable cause, the standard for obtaining a traditional search warrant.

Nevertheless, some might say, if I have done nothing wrong, I have nothing to hide. But that, in Felten's view, misses the point. Even if I have broken no laws, I almost certainly have engaged in behavior that I would prefer to keep private.

To illustrate, he posits the following scenario: Phone records reveal that a young woman receives a telephone call from her gynecologist's office. Over the next hour, she makes three more calls: one to her mother, one to a man she dated several months earlier, and one to an abortion clinic. We do not need transcripts of those conversations to guess that the woman learned she is pregnant. Such inferences are made easier because many phone numbers, such as domestic-violence or suicide-prevention hotlines, are used for a single purpose.

Anthony Romero '87, executive director of the American Civil Liberties Union, frames the issue in personal terms. "Every single one of us," he says, "has had a private conversation that we would be chagrined, embarrassed, aghast if the details were exposed. Privacy is a fundamental part of a dignified life." The ACLU has filed a lawsuit challenging the constitutionality of the NSA's surveillance program; Felten has filed a declaration in support of that suit. In December, a judge in a different case found that the metadata-collection program probably is unconstitutional. An appeal was expected.

Data collection on such a massive scale threatens to change the relationship between citizens and government in fundamental ways. Beyond the erosion of personal dignity, Romero says, the knowledge that records of every call people make are being saved will prompt them to think twice before saying or doing something that might make them look bad or before they advocate an unpopular cause. And while you or I may not care if the government has our information, there are many other people — including public officials, judges, journalists, and whistleblowers — whom we should insulate from even the threat of governmental coercion.

Felten suggests that we imagine the politician we most distrust becoming president and ask if we would want a government run by that person to have such personal information about us. For that reason, Romero describes the NSA's metadata collection as "a loaded gun on a table. It's just a matter of time before someone picks it up and uses it."

However, Michael O'Hanlon '82 *91, a senior fellow in the Center for 21st Century Security and Intelligence at the Brookings Institution, suggests that everyone take a deep breath. "We're all very quick to indulge our fantasies that Big Brother is watching us," O'Hanlon says, but the NSA operates under restrictions in federal law and rigorously polices itself. More than a decade removed from 9/11, we may have grown complacent about dangers we face, and if the threats from government surveillance remain hypothetical, the benefits may be real. The NSA asserts that these programs already have thwarted dozens of possible terrorist attacks.

Many other people, from medical researchers to Internet marketers, also are in the business of collecting data haystacks these days, and like the NSA they have a lot to work with. Every day, nearly every hour, we willingly create a digital trail. The cellphone in your pocket and the E-ZPass transponder on your windshield track your movements. Your debit card records your purchases. Your browsing history records your interests — as well as your peccadilloes.

That tension is inherent in the digital age, says Ruby Lee, the Forrest G. Hamrick Professor in Engineering and director of the Princeton Architecture Lab for Multimedia and Security. The social and personal benefits of sharing must be weighed against the risks. Lee defines privacy as the right to determine who gets to see your personal data.

Certain types of records — financial, medical, educational — are legally protected, but access to most personal information on the Internet is negotiated on a website-by-website basis. Some sites require users to accept their privacy policy, which often is set forth in dense legalese that hardly anyone bothers to read. Most sites can do whatever they want with the information they collect, including sell it to data brokers such as Acxiom. Internet-data brokers have at least crude demographic and purchasing data on more than 75 percent of the U.S. population, writes Kaiser Fung '95, a statistician and adjunct professor at New York University, in his book, *Numbersense: How to Use Big Data to Your Advantage* (McGraw-Hill 2013).

Merchants try to connect this data with what they know

Scott Howe '90's company collects information about consumers' financial means, leisure pursuits, and shopping habits — and lets consumers know what information it has.

Jacob Slaton/The New York Times/Redux

about me as an individual to sell me things. Netflix, for example, uses my rental information, as well as information about people like me, to recommend other movies I might enjoy. Scott Howe urges me to embrace this rather than fear it — in fact, to improve it. He encourages people who visit AboutTheData.com to update or correct inaccurate information about themselves. "Consumers want ads for brands they love," he insists, and companies can provide them only if they have current data.

Target went so far as to develop a program designed to predict whether a customer was pregnant. In fact, the program's developers boasted that they could even predict her due date based only on when she shopped and what she bought — not just diapers, but whether she bought certain vitamins or switched from scented to unscented soap — and could use that information to send her targeted ads. According to a story about the program in *The New York Times Magazine,* Target "knew" that a female customer was pregnant before her parents did.

For all the hype, Fung says that Target's pregnancy-prediction program was accurate only about 30 percent of the time, which is still very good by industry standards. In any such system, he explains, there are bound to be a lot of false positives — people the model predicts are having a baby but aren't — but companies don't mind because the costs of getting it wrong are small. Here, though, is where the difference between corporate data mining and governmental data mining becomes most apparent. If Target misidentifies me as an expectant mother, I receive some useless coupons. If the NSA misidentifies me as a national-security threat, I find myself in a Kafka novel.

Big Data also can lead to big breakthroughs in scientific research. Data from public-health departments, hospitals, or insurance companies can reveal risks from long-term exposure to certain chemicals, drug reactions in small groups of patients, or trends in birth weight or teen pregnancy. Medical records are protected by the Health Insurance Portability and Accountability Act (HIPAA), which places strict limits on how those records can be used and by whom. However, states and the federal government do compile detailed information on such things as births, deaths, the incidence of sexually transmitted diseases, and adverse events in hospitals.

Janet Currie *88, the Henry Putnam Professor of Economics and Public Affairs at the Woodrow Wilson School, frequently uses governmental health records in her research on issues such as the effects of pollution on infant health. Researchers, she explains, cannot always rely on state data summaries. If they want to learn, for example, whether infants in a particular area were exposed to pollution, it is necessary to know where their mothers lived when they were pregnant. Starting from birth records and trying to obtain each individual's consent to use such address information would be impossible, and relying on those who could be located would skew the results.

To use this sort of data, a researcher must submit a protocol to the state's Institutional Review Board as well as to the university's or organization's review board, describing the research and setting limits on how the data would be used. Princeton's board is governed by federal regulations as well as its own guidelines, which include a requirement that, for research involving humans, researchers ensure "adequate provisions to

Professor Janet Currie *88 says access to medical data, with privacy safeguards, would improve public-health research.

protect the privacy of the subjects and confidentiality of data."

Even so, only a few states allow academic researchers access to administrative health records (New Jersey is one), severely limiting the types of public-health research that can be done. Currie says much remains unknown about the health of premature babies in later life, for example, because it is impossible to link their birth records with later hospital and emergency-room records in most states. "Making it hard to collect health-care data really does have costs in terms of limiting what we can learn," she says. "I think people are kind of schizophrenic about what they want. On one hand, they want us to be able to use medical data to address important public-health problems. On the other hand, they hate the idea that anyone has access to their data." She believes that statistical methods that "anonymize" data offer a possible way forward.

With the privacy genie out of the bottle, we can only hope to control it. As a practical matter, Felten says, it is difficult to skirt government surveillance. However, in mid-December, the presidential-advisory group on which Peter Swire sits suggested dozens of changes to the NSA's spying program, many of which Felten and others have advocated. It recommended that phone metadata be stored by the phone companies or an independent body rather than by the NSA, that the agency obtain a court order each time it wants to search the database for information about U.S. citizens, and that control of the NSA be transferred from the military to civilians. It also suggested that privacy advocates be appointed to ensure that civil-liberties concerns are raised in hearings before the FISA court. While President Obama was reported to be "open to many" of the panel's recommendations, he had not made a decision about them at the time this issue of PAW went to press.

A group called Digital Due Process wants to update the Electronic Communications Privacy Act, which was enacted in 1986 — before email, cellphones, cloud computing, the

PROTECT YOURSELF
TIPS FOR GUARDING YOUR DIGITAL PRIVACY

It is impossible to be completely safe in a public sphere such as the Internet, but there are steps people can take to increase their security. Many require little more than the exercise of common sense: Keep your computer in a secure place and don't allow strangers to use it; don't input sensitive information on any computer but your own; install antivirus software and keep all your software up-to-date; never open attachments from people you don't know. More sophisticated techniques also may be useful, but they can be cumbersome to use and can slow your browsing experience.

SOME IDEAS FROM THE EXPERTS:

Don't allow your browser to accept cookies, the text files downloaded onto your computer when you visit a site for the first time, which allow sites to track your browsing.

Choose your passwords carefully: They should be at least 10 characters, including letters, numbers, and symbols. Do not use: a word in the dictionary of any language, a simple sequence such as "abc123," or a piece of public information about you (including your alma mater and class year). Change your passwords frequently, and do not store them in the computer in a file called "Passwords."

Internet, or social networking. The group also wants the government to obtain a search warrant based on probable cause before it tracks cellphone locations or compels Internet service providers to turn over customer information.

Felten thinks the NSA should be required to issue regular reports about its surveillance activities and provide details on such things as how many searches it has conducted, how many records it has collected, and how long it is keeping them. "The history has been that broad surveillance capabilities coupled with lack of oversight leads to bad results," he says.

As for protecting Internet users from private data harvesting, one promising solution, which is being investigated by David Blei, an associate professor of computer science, and Rebecca Pottenger '12, now a Ph.D. student at the University of California, Berkeley, is a mathematical technique called differential privacy, an algorithm that might be imagined as a computational black box. Personal information goes in and statistical data comes out, but in such a way that identifying information about individuals is scrubbed off or rendered unreadable. "Differential privacy is the most promising method we have for trying to reconcile inferences about a population with the protection of information about individuals," Felten says.

In 2012, before he returned to Princeton, Felten advised the FTC on a report, "Protecting Consumer Privacy in an Era of Rapid Change," which set forth a series of best practices that Internet sites could adopt to promote and protect privacy. Those recommendations fell into three broad categories: First, companies should consider privacy protections at each step in developing their products; second, that they give consumers the option to decide what information the companies will share and with whom; and third, that they be more transparent in disclosing what information they collect and allow consumers to view information about themselves, including information sold to data brokers.

"MAKING IT HARD TO COLLECT HEALTH-CARE DATA REALLY DOES HAVE COSTS IN TERMS OF LIMITING WHAT WE CAN LEARN," SAYS JANET CURRIE *88, A PROFESSOR IN THE WOODROW WILSON SCHOOL

"I prefer to think about it as something that ought to be at the option of you as a consumer," Felten elaborates today. "If you choose to reveal information for convenience, you can do that. But when you have a situation where info about you is being collected without your knowledge and without your consent and being shared and used, I think that is often harmful and unfair."

Rebecca MacKinnon, a former visiting fellow at CITP, thinks that the concerns about protecting privacy in different arenas are related. In her 2012 book *Consent of the Networked: The Worldwide Struggle for Internet Freedom* (Basic Books), she paid most attention to governmental attempts to restrict Web access, but also devotes a chapter to the dangers of corporate surveillance. The keys, she argues, are clarity and accountability over how information is collected and who has power over it. "If you don't even know who has it," she says, "it is very difficult to visit consequences on those who abuse it. And we will not have a free society."

People often say it may be necessary to surrender a little privacy to gain more security or convenience, but absolute safety and the smoothest browsing experience are not the only public goods at issue. Rarely is the question ever reversed. Would we accept a slower Internet in order to protect our privacy? Would we be willing to risk another 9/11 attack?

"There is a tradeoff, there is a balance here, and it's important to get the balance right," Felten insists. "But we need to have that conversation instead of pretending that there is not an interest on the privacy side of that scale."

Mark F. Bernstein '83 is PAW's senior writer.

Encrypt your email and files you store on the cloud (that's a network of servers). Encryption tools are available online. Secure the key — which you will need to unscramble the files — on another computer, or on paper.

Use a browsing encryptor such as HTTPS Everywhere (https://www.eff.org/https-everywhere) or Tor (www.torproject.org), which help send data securely.

Turn off applications you are not using, particularly those that track your location.

Some search engines, such as Startpage or DuckDuckGo, do not log personally identifiable information, helping you browse without being tracked.

Avoid sending sensitive information such as your PIN, password, Social Security number, or credit-card number by email or text.

Enable your browser's "Do not track" function.

Foil computer spies by blocking spyware (some experts suggest using the program PeerBlock) and covering your computer's webcam with masking tape when you are not using it.

For more information on digital privacy and security, visit sites such as the Electronic Frontier Foundation (www.eff.org) and www.consumer.ftc.gov/articles/0009-computer-security.

Photo: Sameer A. Khan; Illustrations: Peter Arkle

PRIVACY ISSUE

Privacy Protectors

Princeton has become a leader in issues relating to online privacy. Among those in the spotlight are the alum and the professor profiled on the following pages.

WHO'S AFRAID OF JONATHAN MAYER?

How a young alum has taken on some of the biggest names in digital advertising — and won

By Nicole Perlroth '04

Photos: Peter Stember

Jonathan Mayer '09 is only 26, still in graduate school, and already the bane of the $40 billion digital-advertising industry.

In the last five years, Mayer helped spearhead the Internet's "do-not-track" initiative, pushed an online-tracking company out of business, embarrassed Microsoft and Google, and in the latter's case helped trigger an unprecedented fine by the Federal Trade Commission. Lawmakers and the front page of *The Wall Street Journal* have quoted his work.

All this from a Woodrow Wilson School major who arrived at Princeton from Chicago with no coding experience.

An introductory computer science course piqued his interest freshman year. The class, taught by Professor Jennifer Rexford '91, challenged students to build computer programs that were fast and resilient. Mayer responded with a program that exploited a software vulnerability to change a course grade from a "C" to an "A." He earned an A — sans hacking — and resolved to make data security and privacy the cornerstone of his studies. As a sophomore, he took an advanced computer-security class with Edward Felten, who in 2011 took a break from Princeton to become the first chief technologist at the Federal Trade Commission (FTC). "He was in a class of seniors and he was one of the best-performing students in the class," Felten recalls. "Then I found out later he wasn't even a computer-science student."

With Felten as his adviser, Mayer's senior thesis took a prescient look at tracking on the Web. He looked for "quirks," or unique characteristics in a user's Web browser — a user's time zone, screen resolution, language settings, and browser plug-ins — to see if they could be combined into a unique profile that would allow the user's online activities to be tracked. Little did Mayer know he had stumbled upon a lucrative business model. A secretive industry already had begun profiling browser configurations and selling that data to tracking companies and financial firms. "Now there's a whole crop of companies that do this," Mayer says. "It's routine — and a little unsavory."

Privacy activists might call that a euphemism. At the time Mayer was finalizing his thesis, the Electronic Frontier Foundation (EFF), a nonprofit set up to press for consumers' rights in the digital world, was putting together a project called Panoptoclick, a nod to Jeremy Bentham's panopticon, a conceptual prison where prisoners could be observed at all times without their knowledge. The project called on volunteers to visit an EFF website that would test their browser settings to see if they were unique and traceable.

The site went viral. (It no longer is up.) Within two weeks, a million people had tested their browsers. "We managed to demonstrate to people who thought they had figured out how to be safe from tracking that, actually, they weren't safe at all," says Peter Eckersley, the technology project director at the EFF. "There was an almost instantaneous change in the tone of debates about online privacy."

Digital fingerprinting, once a niche industry, had entered the public discourse and debates on Capitol Hill. Emails to the EFF flooded in. "One stood out," Eckersley remembers. "It was from Jonathan Mayer. He said, 'I actually did a study on this for my senior thesis at Princeton.' "

"Sometimes academia feels like you are writing into a great abyss," Mayer says. "That was my realization that you can have a big impact."

To do that, Mayer reasoned, he would have to get his hands as dirty in code as in legal minutiae. And so Mayer applied and was accepted to both Stanford's law school and its Graduate School of Engineering. He spent his first year full time at the law school and nights and weekends roaming the school of engineering. That summer he interned at the EFF, collaborating with Arvind Narayanan, then a Stanford doctoral student and now a Princeton professor (see page 42), on a project combining a technical solution and a policy standard that would help users signal to companies that they did not want to be tracked on the Web. Until that point, privacy activists and researchers had proposed a number of technical antidotes to tracking, but the advertising industry argued that most were too complex to implement.

Mayer discovered that many sites use so-called super cookies that store information in at least 10 places on a computer and do not disappear when users clear their cookies. In fact, some sites used super cookies to rebuild cookies users had deleted.

Mayer used his legal studies to help draft a straightforward standard for how Web services should comply with users' privacy preferences. The technical prototype and standard caught the eye of Mozilla, which integrated it into its Firefox browser, allowing users to state that they didn't want their online activities monitored by marketers. Other browser vendors followed suit, including Microsoft, Apple, and Google. The work caught the eye of Jackie Speier, a Democratic congresswoman from California, who introduced the first do-not-track bill. Her bill would have forced online marketers to respect the wishes of users who did not want to be tracked. But that bill, and others introduced since, failed to pass.

"There's a free-for-all arms race between tracking companies and defensive technologies like do-not-track, and we have reason to believe the tracking companies are going to win," says Eckersley. Indeed, do-not-track efforts met fierce resistance from the advertising lobby. Nine lawmakers fired off a letter to the FTC, citing concerns that do-not-track would constrict "the flow of data at the heart of the Internet's success."

"There is no appetite in Washington to hamper job creation," says Mike Zaneis, the general counsel for the Interactive Advertising Bureau, an industry lobbying group. He dismisses much of the work on data privacy by Mayer and others as purely ideological. "The idea that blocking third-party cookies" — small files placed on your computer's hard drive by the server of a website you visit — "will simply solve consumer-privacy issues is really an academic viewpoint that was clearly made in a laboratory setting," he says. "The reality is that the Internet depends on data flows — whether you're an e-commerce, news, or social-media site — they all depend on customer-data flows. That's the way the Internet works, period."

Nothing has infuriated advertisers more than a tool Mayer developed in 2011, called FourthParty, which crawls the Web measuring the information grabbed by various sites and services. He found that, in many cases, even when users opted out of tracking, trackers did not actually stop tracking them — they simply stopped showing them the evidence in the form of targeted ads. Advertisers refer to that practice as "opt out from targeting," but Eckersley, of the EFF, says privacy activists have dubbed it "pretend not to track."

Mayer also discovered that many sites use so-called super cookies that store information in at least 10 places on a computer and do not disappear when users clear their cookies. In fact, some sites used super cookies to rebuild cookies users had deleted. Among them: Microsoft.

Microsoft worked with Mayer to stop the use of super cookies. But the company was hardly the worst offender. Mayer found that a company called Epic Media Group was tracking users' activity on websites like that of the Mayo Clinic and National Institutes of Health, to determine if the user was pregnant or going into menopause, for example, or tracking visitors to the Internal Revenue Service or FTC sites to deduce whether they were under water on a mortgage, then selling that data to marketers who serve up highly targeted ads.

Mayer's work provoked an angry blog post from Epic Media Group's CEO, who denied the company purposely was tracking users and said it had stopped the practice. Nevertheless, Mayer's findings provoked a ruling from the FTC that forbade the company from conducting so-called "history sniffing," a practice that allows companies to query a user's browser history even if the user has indicated that he or she does not want to be tracked. Epic Media is now out of business.

Six months later, Mayer turned his attention to companies that circumvented an Apple policy that forbade cookies on its Safari Web browser. He found that Google and other advertising companies used tracking code that allowed them to bypass Safari settings to monitor users. He tipped off *The Wall Street Journal,* which ran the story on its front page, and the work added momentum to an FTC investigation into Google's privacy practices, which ultimately led to an unprecedented $22.5 million fine. (Google officials have said the use of cookies for tracking was unintentional and caused by technical glitches.)

He found that Google and other advertising companies used tracking code that allowed them to bypass Safari settings to monitor users. He tipped off The Wall Street Journal, which ran the story on its front page.

More recently, Mayer has been advising Mozilla, working with the company to implement a patch that, similar to Apple's Safari browser, would block third-party cookies from the latest version of Firefox by default. Zaneis, of the advertising group, called Mozilla's initial decision to block third-party cookies a "nuclear first strike" against the ad industry. In May, Mozilla said it would delay rollout of the cookie-blocking feature, though it denied lobbying had played a part.

Mayer graduated from law school last spring. He still has two years left in Stanford's Ph.D. program. Eventually, he says, he hopes to start a nongovernmental organization in Washington that helps lawmakers make better technology policy.

The thought that Mayer soon may make a career out of his research makes some advertisers shudder. Yet not all have been unwelcoming. "Out of the blue, I've gotten some pretty good job offers to work for a tracking company and help them legitimize the practice," Mayer says. "I tell them, 'No, thank you, but tell me more about what you're doing.'"

Nicole Perlroth '04, a technology reporter for The New York Times, *covers cybersecurity and privacy.*

THOSE PRYING EYES

Professor Arvind Narayanan has shown that your 'anonymous' doings online aren't so hidden after all

By Dan Grech '99

One of the liberating things about the Web is the freedom it seems to offer. You can be anyone and do anything online, out of the glare of prying eyes. You can write a scalding anonymous comment, rate a movie under a pseudonym, or buy an embarrassing book, and no one's the wiser, right?

With his path-breaking work into "de-anonymization," Princeton computer scientist Arvind Narayanan is showing how wrong we are. You might think your anonymous blog posts can't be traced back to you, for example, but there's a fair chance that Narayanan — and governments and companies — could do just that.

"There has been a realignment of privacy as we shift from an analog to a digital world," says Narayanan, an assistant professor. Take reading sensitive articles online, or buying an item at Amazon.com. In the past, you might have requested

the article from a librarian or checked out with a cashier. "Now you have more privacy from the people around you," he says. "But the companies or the government might be doing the snooping."

Narayanan's research on such things as the "anonymity" of rating movies and commenting online shows how quickly the digital fingerprints we leave behind lead directly back to us. "You have these intuitions about what makes you anonymous, and Arvind has gotten out there and said that your intuitions are mistaken," says Seth Schoen, of the nonprofit Electronic Frontier Foundation. "People are much more unique and much more different than we would think."

In 2006, Netflix released movie reviews from half a million customers as part of a contest to develop a better algorithm for recommending movies. The company scrubbed the data of people's names to protect their privacy. Narayanan and a colleague showed later that year that you still could reveal the identities of some users by comparing the Netflix data with consumers' movie ratings from another website, Internet Movie Database. The research led to a privacy lawsuit that was settled in 2010.

Narayanan and colleagues have made similar findings in other contexts, from hospital records to anonymous Twitter users to genealogy websites. Last year, he and colleagues at Stanford and Berkeley showed they could unmask anonymous blog commenters by comparing their writing style and word choice to work the authors had published under a byline. They started with a database of 100,000 blogs drawn from the Web service Spinn3r. Using a sample of just three "anonymized" posts from each blog, they were able to correctly identify the author purely by analyzing the writing in more than 20 percent of the cases. And about a third of the time, the author was one of the top 20 guesses. While the technique didn't unmask everyone, the results may unsettle the writers of anonymous blogs, particularly in countries with repressive regimes.

"The strength of the de-anonymization attack we have presented is only likely to improve over time as better techniques are developed," the researchers wrote. "Even if the adversary is unable to identify the author using our methods in a fully automated fashion, he might be able to identify a few tens of candidates for manual inspection. ... Outed anonymous bloggers have faced consequences ranging from firing to arrest and political persecution."

It takes only 33 independent bits of information about someone to identify that person among the more than 7 billion people in the world. That has led Narayanan to call his influential blog "33 Bits of Entropy."

How might de-anonymization work on the Web? "In the course of a typical day, you might comment on a news article about your hometown, tweet a recipe from your favorite cooking site, and have a conversation on a friend's blog," Narayanan wrote. "You have established a public record of having visited these three specific URLs. How many other people do you expect will have visited all three, and at roughly the same times that you did? With a very high probability, no one else." Even information as innocuous as the version of your operating system, the timing of your software updates, or what plug-ins you've installed can identify you.

Narayanan currently is investigating hidden trackers on websites that collect a record of your digital movements, amassing a data profile that can then be sold. He also is looking into "behavioral advertising," where companies use information they've collected about you to deliver ads they believe will be most relevant to you. In a new study led by Narayanan, Princeton researchers have released "bots" — software programs that mimic human behavior — with fake user profiles, and will compare the bots' search results and the ads, deals, and prices the bots are offered. The researchers then will look for patterns to measure discrimination across different sites.

The risk, Narayanan says is that "people of different races and ethnicities could experience the Web differently. They might see a different price online, or even a different list of goods and services." Some experts say such targeted advertising could be used to limit access by certain groups of people to credit, insurance, and other services.

Narayanan is an advocate for training software developers to think about ethical issues related to their work. "Everywhere we look today, we see lots of examples of the kind of power that technologists have today, especially software engineers," he said in a talk at Princeton in November. "In terms of data collection and privacy — do software engineers have an obligation to think about these questions, or should they just be thinking about their bottom line?"

Not surprisingly, he is reluctant to reveal much about himself. He prefers to expose his data to as few trusted companies as possible. He installs encryption and blocking tools on his Web browsers and cloud services. He adjusts his digital behavior as new vulnerabilities emerge.

In the end, he says, Internet privacy is about how we negotiate our public selves in the world, and those rules are changing. "There are things we only share with our immediate family," he says. "Once something is on the Internet, you lose the ability to make that aspect of your personality useful to you. That can be devastating."

Narayanan and colleagues at Stanford and Berkeley showed they could unmask anonymous blog commenters by comparing their writing style and word choice to work the authors had published under a byline.

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PRIVACY ISSUE

Reporting on Government Surveillance

Q&A: Barton Gellman '82

Scott Frosch

Barton Gellman '82 was among a small handful of journalists who earlier this year published bombshell revelations about the U.S. government's electronic-surveillance practices, based on documents leaked by former National Security Agency contractor Edward Snowden. The stories prompted a national debate over how far the government should go in tracking telephone and electronic communications under the banner of protecting national security — and what should be reported about the actions. Gellman published the stories in The Washington Post, *where he had spent years covering national-security issues. A two-time Pulitzer Prize winner, Gellman wrote* Angler: The Cheney Vice Presidency, *and is now working on a book about the evolution of U.S. surveillance since the 9/11 attacks. He is a senior fellow at the Century Foundation as well as a freelance contributor to the* Post *and* Time *magazine. Gellman spoke with PAW in October.*

Did you realize when Snowden first contacted you that the story was the real deal?

My first instinct was that this was probably the real thing. It looked good, and it kept looking better with each interaction. But I did have significant doubts for a substantial period of time. There's an old expression that extraordinary claims require extraordinary evidence. I had to distinguish what I was seeing from a couple possible ways it could have gone wrong. Was it put together by a very close student of the public record who just added on top of that in a plausible way? Was it someone with ill intent offering a false story? I'd seen any number of scenarios over the years. In our early interactions, he [Snowden] demonstrated his knowledge — he didn't give up much, but enough to continue the conversation.

Did you have concerns or qualms about pursuing this story?

There was no doubt I was interested in it and that I was going to pursue it if it proved to be authentic. I have been acutely aware from the beginning that this is a very sensitive matter, and that some of it, if exposed, really would do damage to operations that almost anyone would support. There was stuff in what he gave me that, if I published it, people would say, "That's really cool — we didn't know they could do that, and we're glad they're doing that."

Were you concerned about your own legal situation?

This story raised all kinds of legal issues, so I have been talking to lawyers at every stage of it. There is a much more aggressive anti-leaks campaign in this administration, so I wanted to consider the risk of being subpoenaed. And there are all kinds of other hypothetical concerns. I wanted to go down the line and say we're sticking to the letter and the spirit of the law while also doing our jobs as journalists.

Do you believe that your own communications are monitored? How do you deal with that?
I assumed that if my anonymous source was who he purported to be, his communications could certainly be monitored. So we took every precaution one can take. He was trying to blow the whistle on a surveillance state without being surveilled himself, which is tricky. On the other hand, he knew about surveillance from the inside, and he let me know how to communicate securely. I already knew how to use many of these tools and had been worrying about protecting my confidential sources and notes for 10 years now.

Did you change how you operated as a result of what he revealed?
I've learned more about what works and what doesn't. Everyone who understands security knows it all depends on what the threat model is. You have all this jargon — "reduce your attack surface," "layers of security," "raise the cost of surveillance for the other side." But no one can say that if you did all this, you'd guarantee you wouldn't be surveilled. People who promise that are quacks.

What I reconfirmed for myself by looking through the Snowden material is that if an entity with the capability of the U.S. government is willing to devote resources to you as a target, they will get what they want. There is no complete technological answer. You can raise the bar — legally, technically, by using defensive resources — but at the end of the day, they can still do it. I've always taken considerable precautions, but I'm taking even more now.

What percentage of the material Snowden provided did you decide not to reveal?
I can't go there.

With 20-20 hindsight, would you have handled the story any differently?
There are a few things on the margins that I can't talk about. But on the whole, I'm quite happy with the way things have gone. I wish I could have moved faster in some ways, but this was not a story for speed. I've spent most of the last 20 years covering national security, but this was by far the most complicated and difficult set of journalistic and national-security and legal decisions I've ever been faced with. I've taught about national-security secrets at Princeton and made public lectures, so I was reasonably well prepared. But this was a 100-year storm. It was *sui generis*. WikiLeaks had more documents — quite a bit more than we did — but none of them were classified as higher than "Secret." I've seen U.S. Navy laundry manuals classified as secret. It's not a stamp you put on stuff when you really care about it. But the Snowden stuff is all "Top Secret" and above.

You come out of a background as a mainstream journalist, whereas Glenn Greenwald, another journalist who worked with Snowden, is more from the activist mold. How did that shape your approach to covering the story?
I approached it the same way I always have as a journalist, with verification and thinking through what the public interest is. Generally speaking, I have been writing the facts as I see them without saying what I think the policy should be. The book I'm writing will have more of a point of view, and that's more appropriate for a book.

Have you personally decided where the proper line is for government surveillance, or do you go back and forth?
Everyone should be grateful I'm not in charge. As a citizen, there are times when I am bothered by what I'm seeing, and am surprised and disturbed by the degree of intrusiveness. And also as a citizen, I'm bothered by the dishonesty of the U.S. government about what's going on, both at the professional and the political level. There has been a succession of statements that turned out to be false under any normal definition of the term. Officials have used specifics in extraordinarily deceptive ways, and I think it's not OK to do something like that on behalf of the public.

Transparency serves the public good in deciding how we should draw the line. Transparency is what allows political debate about regulation and legislation. Surveillance depends to a certain extent on what the private sector does, and previously, the private sector had no reason to object. There was almost no functioning market for privacy before, because there wasn't enough information to drive demand. We didn't know what the threats were, and so the companies had no big reason to address them. Now the big Internet companies are beginning to compete on privacy. In specific response to one of my stories, Yahoo announced that it would begin encrypting all its Web Mail connections in January. Google, which had done that long ago, now says it will also encrypt the links that connect its data centers around the world. The list goes on.

Do you think Snowden's concern for privacy is genuine?
I think it's very clear, whether you agree with him or not, that he is acting out of idealistic motives and that he believes what he's saying. He's taken enormous risks and paid an enormous price for it. One of the things I do with any source is pay close attention to their motives. I'm alert to exaggeration, self-aggrandizement, self-promotion, and hidden agendas. This guy believed he was witnessing an out-of-control surveillance state. And as we've seen, it hasn't been beyond the pale of American public opinion, because when it became public, people welcomed the debate. The director of national intelligence and the president and the NSA have felt obliged to say that having this debate is a good thing, even if it shouldn't have come about this way. *Interview conducted and condensed by Louis Jacobson '92*

"If an entity with the capability of the U.S. government is willing to devote resources to you as a target, they will get what they want."

PRIVACY ISSUE

Will Your Thoughts Always Be Private?

Q&A: Joshua Greene *02

*Joshua Greene *02, the director of the Moral Cognition Lab at Harvard University, uses fMRI — functional magnetic resonance imaging — to study how our brains make decisions. The technology "detects the concentration of oxygenated versus de-oxygenated blood, so you can see where oxygen is being used in the brain," a proxy for the activity of neurons, he explains. That gives scientists a way to see what is taking place in the brain when someone is making decisions — assuming that person happens to be inside an fMRI machine at the time. Greene, who received his Ph.D. in philosophy at Princeton, uses fMRI to explore the process of making moral judgments, and his new book,* Moral Tribes: Emotion, Reason, and the Gap Between Us and Them, *was published in November. PAW spoke with him about the technology's potential and shortcomings: Are we approaching a time when we cannot guard even our thoughts?*

Brian Smith

Using fMRI technology, can we read people's thoughts?

The short answer at this point is: no. It does not mean that you can read someone's brain. It just means that instead of being wrong 50 percent of the time by guessing, you would be wrong 40 percent of the time. Here's an example: Am I thinking of a truck or a chicken? You can have a computer program register the brain patterns that happen when I am thinking truck, truck, truck and then chicken, chicken, chicken. This trains the computer to make a better-than-chance guess during the next brain scan if I am thinking of a truck or a chicken. And that is with someone who is being cooperative. If I don't want to cooperate with you and think about what I am supposed to think about, then forget it!

What about something more complicated than truck versus chicken?

Anything you can name, there is likely to be a statistical difference. Think of it this way: Men and women are different heights on average. Suppose an average man is 5-foot-9, and the average woman is 5-foot-4. That is a statistically significant difference. If I tell you that a person is 6 feet tall, you would be wise to guess this is a man, but you wouldn't be guaranteed to be right. It's the same idea here. You can make a better-than-chance guess about what someone is thinking

by looking at that person's brain data, but you are still just trying to beat the odds — nothing like "reading" a mind as we ordinarily think of it.

Are we close to a time when we can read minds with fMRI?
If close is five years, then I would say we are not close. I don't think we speak the brain's language yet.

Can fMRI be used to detect emotions?
It turns out that tracking different emotional categories — like happiness, disgust, or pride — has been surprisingly hard. These emotions don't have very specific neural signatures. Fear is more reliably associated with a part of the brain called the amygdala. But there are a lot of things besides fear that will increase activity in the amygdala. So there are statistical correlations between certain kinds of emotional experiences and increased activity in parts of the brain that you can detect with fMRI, but at least when it comes to emotions, things are still fuzzy.

What *can* scientists detect well using brain-activity patterns?
There is a part of the brain — the fusiform face area, called the FFA — that seems to respond rather specifically to faces. So if you're looking at any face, even a smiley face or a dog's face, you see increased activity in this region. From studies with monkeys, we know there are cells that respond only to faces. A colleague of mine has shown that specific patterns of activity in the brain happen when we see people of different races. But even the specificity of the FFA is hotly disputed.

Here's another example, involving memory: Is a person remembering a two-digit number or an eight-digit number? Within a part of the brain called the dorsolateral prefrontal cortex, we can see pretty clearly a difference between the easier memory problem [two digits] and the harder memory problem [eight digits] — at least if we're comparing within a given person. More generally, any mental difference you can specify in common-sense terms, you can see a difference in the brain. But that doesn't mean you can "read" the mental state off of the brain. Many mental processes result in similar patterns.

How do you use fMRI as a tool for your research?
I primarily study the neuroscience of moral decision-making. So I try to use brain imaging and other tools to figure out how people make moral judgments and decisions. I am interested in understanding how the brain works on a psychological level as well as a more neuroscience level.

Some of your work relies on fMRI to monitor the brain activity associated with honesty and dishonesty.
What is it that makes someone lie or not? This might be an emotional response. There might be a big fear of getting caught that keeps you in line, or maybe you get a warm glow of goodness when you decide to do the honest thing. Or it could be that the automatic tendency is to lie, and then it takes a major brain effort to be honest. We didn't know. So we did a study in which we gave people repeated opportunities to gain money dishonestly, by lying. What we found is that when people are honest, they don't show any signs of doing anything special. They just seem to walk right by the temptation. The people who behave dishonestly seem to be doing a lot of extra effort when they are being both dishonest and honest. Thinking "I could cheat now, but I won't," involves a lot of brain activity — at least for people who end up cheating sometimes.

So honesty is a default state for some people, but it takes effort to lie?
For people who are consistently honest under a time-pressure test, yes. That's what these results suggest. But other studies have shown that you can put people in distracting situations in which their ability to control themselves is disrupted, and this makes them, on average, less honest. So this is evidence that honesty can also be a result of active self-control, depending on the situation.

The fMRI brain scans have been used in a few criminal court cases in lieu of a lie detector. What do you think about that?
There have been a couple of cases, but the courts have generally rejected these as unreliable evidence, which is a good decision in my opinion. I don't think the technology is there, and it certainly does not have the diagnostic value you would need in a criminal case. Having a scientifically meaningful, statistically significant result doesn't mean you can just look at someone's brain activity and read it with the kind of accuracy you would need to rely on the information in a legal case — at least one in which we want to be sure beyond a reasonable doubt.

Let's say someone doesn't want to cooperate in an fMRI test — is that similar to trying to cheat on a lie-detector test?
Right. The couple of studies that have looked at people trying to fool the fMRI test — they use what are called countermeasures, and the countermeasures work very well. My advice: If you want to know someone's secrets, don't scan their brains — go through their garbage! You can learn so much more about people by doing boring, low-tech things like following them around or reading their Facebook page. There is just so much more information about people's inner lives out there in the world compared to what you get by brain scanning. *Interview conducted and condensed by Anna Azvolinsky *09*

"Having a scientifically meaningful, statistically significant result doesn't mean you can just look at someone's brain activity and read it with the kind of accuracy you would need to rely on the information in a legal case."

PRIVACY ISSUE

Is it Any of My Business … or Yours?

A journalist considers whether public figures still have a right to privacy, and what should be off-limits

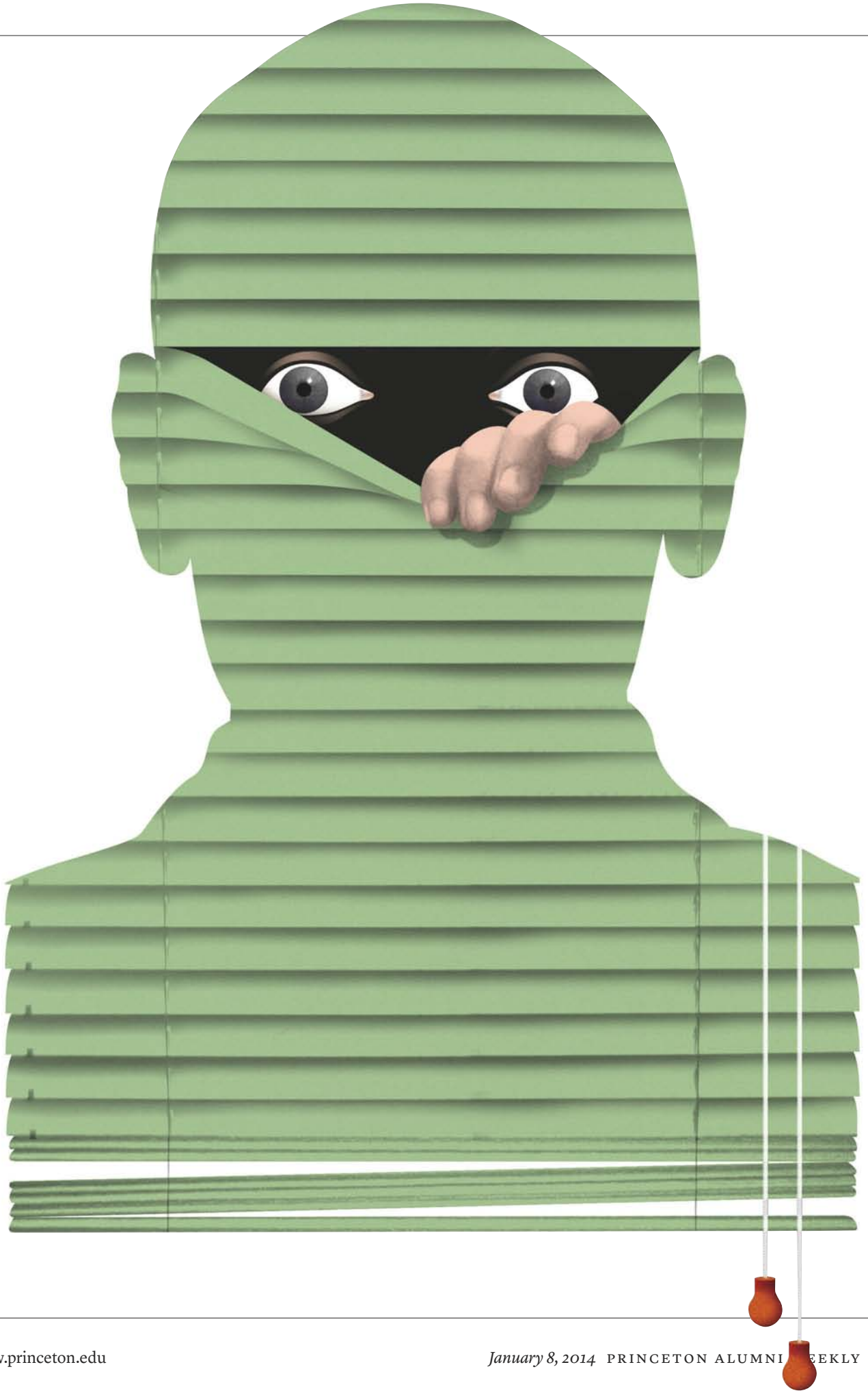
By Sandra Sobieraj Westfall '89

"You're not going to like this," the editor said, "but you have to go back to her and ask if they'll sleep together." It was June 2010, and I had just run through the highlights of my interview for *People* magazine with Elizabeth Edwards, estranged wife of disgraced presidential candidate John Edwards: She enumerated the places her terminal cancer had spread; she showed me the chemo port above her right breast; she explained why she was buying Christmas gifts for her husband's ex-mistress. And, finally, she told me she had asked John to travel with her as she showed her two youngest children, Jack and Emma, her childhood playgrounds in Japan. Whatever I felt about the editor's follow-up question didn't matter much. Elizabeth being Elizabeth, she already had told me, unsolicited, in the interview: "Of course the sleeping arrangements will be different — Jack with John, me with Emma."

How is it, though, that such a private detail — which we published — could land on both the "must-ask" and "already-answered" sides of the journalistic ledger? Do journalists in the hunt for headlines stop to weigh questions of privacy? At *People,* we do — scrutinizing paparazzi photos for evidence they were taken surreptitiously, and, in cases of breakups and breakdowns and stints in rehab, routinely asking: Is it our news to break? Maybe the more provocative question is whether public figures even expect privacy anymore. For Elizabeth Edwards, adamant about owning her story and anxious not to be misunderstood, the intrusive question was illustrative. In her compromised health, she needed her husband's help navigating international travel with two kids and an excess of luggage (she was a prolific souvenir shopper). Fooled once — and at a humiliating price that already had stripped her and her marriage of privacy — she wanted to be clear that she was not taking her husband back into her embrace.

Given what shows up on Instagram, Facebook, and Twitter these days, Edwards' pre-emptive explanation of sleeping arrangements just 3½ years ago feels downright quaint now. The lines between news media, entertainment media, and social media are so blurred and overlapping that it sometimes feels like one big "The Media" chasing the same stories and losing little sleep over questions of privacy. If Movie Star X is tweeting private details of his or her hookup/rehab/breakup/weight-loss, isn't it fair game for the rest of us to report? And isn't at least some of the erosion of privacy by strategic design? Likability and "relatability" — the ability of consumers and voters to feel a personal connection to public figures — so drive votes (and box office and book sales and TV ratings) that politicians and celebrities increasingly seek to showcase their "just-like-you" private travails and personal foibles. None of that makes it any easier to ask the personal questions.

I am in the business of painting the personal portrait behind the splashy headline. I've navigated the privacy line for most of my career, starting with six years as White House correspondent for the Associated Press back when many of us still prefaced tricky questions to the White House press secretary — about Monica Lewinsky's blue dress, for instance — with an apologetic "I hate to ask this … ." Since then, I've been up close and personal with some of the biggest names from the loudest headlines: Elin Nordegren on the eve of her divorce from Tiger Woods; Anthony Weiner and Huma Abedin



Brett Ryder

in the wake of his first sexting scandal; New Jersey Gov. Chris Christie after his lap-band surgery. I want to understand the *why* and the *how* — and, in some cases, the *how could you?* — behind the facts of whatever story is exploding.

When you're sitting with someone at the kitchen counter, it can be uncomfortable to ask the sensitive personal questions. Imagine the press-weary, press-wary Todd Palin staring at you hard as you ask his 18-year-old daughter, Bristol, about breast-feeding her baby before she leaves for high school in the mornings. But how else to get at the raw reality of "celebrity" teen motherhood?

I have a simple litmus test for whether a question is in bounds: Does it enlighten the reader on something germane, illuminate something meaningful about the public figure, or inform about some matter of compelling public interest? I take care to ask respectfully, and I count on those I'm questioning to exercise their right — always their right — to pass.

Imagine the press-weary, press-wary Todd Palin staring at you hard as you ask his 18-year-old daughter, Bristol, about breast-feeding her baby before she leaves for high school in the mornings. But how else to get at the raw reality of 'celebrity' teen motherhood?

Before his family's Sunday supper one afternoon during the 2012 presidential campaign, Gov. Mitt Romney and I sat in his son's family room and talked at length about his personal fortune, his first beer, and the time he tried rolling a cigarette with newspaper. Then I prefaced a question about the garments — the so-called Mormon underwear — worn by members of the LDS church, by suggesting that if non-Mormons understood such traditions better, they might not seem so alien. (You know: "relatability.") "And that may well be true," Romney replied, "and if that's to occur, it will be done by the church."

It was, frankly, a rare demurral. The only other outright refusals I can recall are Weiner's declining to detail the "therapy" he received after resigning from Congress and Christie's turning away the question of how much, exactly, he weighs, even as he was expansive on the details of his workouts, his cravings, and how he can feel the port implanted in his side. Often, I'm surprised by where my subjects are willing to take me. When I tiptoed up to asking Supreme Court Justice Sonia Sotomayor '76 about her rumored poker games, she dove right into telling me how she avoids reporting her winnings by hosting the games and paying for food and drinks. (I looked around for the court's public-information officer, expecting her to call the whole thing off.) And more than one first lady has, unbidden, offered me a (figurative) peek inside her bedroom — Laura Bush, showing me the green fabric she'd chosen for the headboard of her and George's bed in their new Dallas home; Michelle Obama '85, describing Barack's nightly routine of tucking her into bed with a kiss goodnight before he returned to work.

While it's sometimes hard to know anymore who is drawing the privacy lines, let alone where the lines should be, there's always basic human dignity, compassion, and gut instinct to guide a journalist across uncharted terrain. A radio shock jock chided me after my September 2010 interview with Elin Nordegren for not asking her whether she'd been tested for STDs after Tiger's multiple affairs were exposed. "That," he insisted, "is what we all want to know!" Not me. Some things, I still believe, are truly none of my business.

Frank Wojciechowski

Sandra Sobieraj Westfall '89 is People *magazine's Washington bureau chief.*

PRINCETONIANS

Jedd Wolchok '87 is a leader in the immunotherapy field.

JEDD WOLCHOK '87

A BELIEVER FROM THE START

An immunologist studies how drugs and vaccines could arm the immune system to fight cancer

With his boyish appearance, Jedd Wolchok '87 could be mistaken for a medical resident. But he is an oncologist and an immunologist at Memorial Sloan-Kettering Cancer Center in New York who has spent 25 years studying how drugs and vaccines could arm the immune system to fight cancer.

A leader in the immunotherapy field, he is at the center of the development of a new class of drugs that could provide a turning point in cancer treatment. The currently available immunotherapies work only in a tiny fraction of patients with certain types of cancer and must be given by experienced immunotherapists. But the newer therapies being tested in clinical trials so far have worked on a larger patient population and in more types of cancer, including lung cancer, the second most common cancer in the United States.

This new generation of drugs is poised to introduce immunotherapy to the rest of the cancer world in a major way, according to Keith Flaherty, an oncologist at the Dana-Farber/Harvard Cancer Center in Boston.

White blood cells can recognize and attack a tumor. However, tumors have ways to evade these immune cells, including boosting the activity of certain molecules that can suppress the activity of immune cells. The new class of cancer drugs — antibodies that block this negative activity — can extend the lives of some patients with cancers previously considered to be terminal by years.

Until a few years ago, immunotherapies were marginalized, considered complicated treatments administered at few cancer centers. Success rates were low, and the therapies could be given only to otherwise healthy patients who could tolerate the autoimmune effects of an unleashed immune system. There was little evidence that more than two tumor types could be treated this way.

But for Wolchok, immunotherapy has been a question not of "if" but "when." "I saw that it wasn't a question

continues on page 54

STARTING OUT

JOHN MISHU '13

Intern for the labor relations department in Major League Baseball's commissioner's office in New York City.

DUTIES: Mishu helps determine how much arbitration-eligible players and free agents are worth.

CHALLENGE: In analyzing players' monetary value, "I can't bring 'baseball-fan Johnny' into my valuations. ... I've got to put my admiration for them aside."

STAYING IN THE GAME: Mishu gets to do in the workplace what he has done for years with his friends: talk baseball.

From top: Michael Falco/Black Star; Courtesy John Mishu '13

continued from page 53

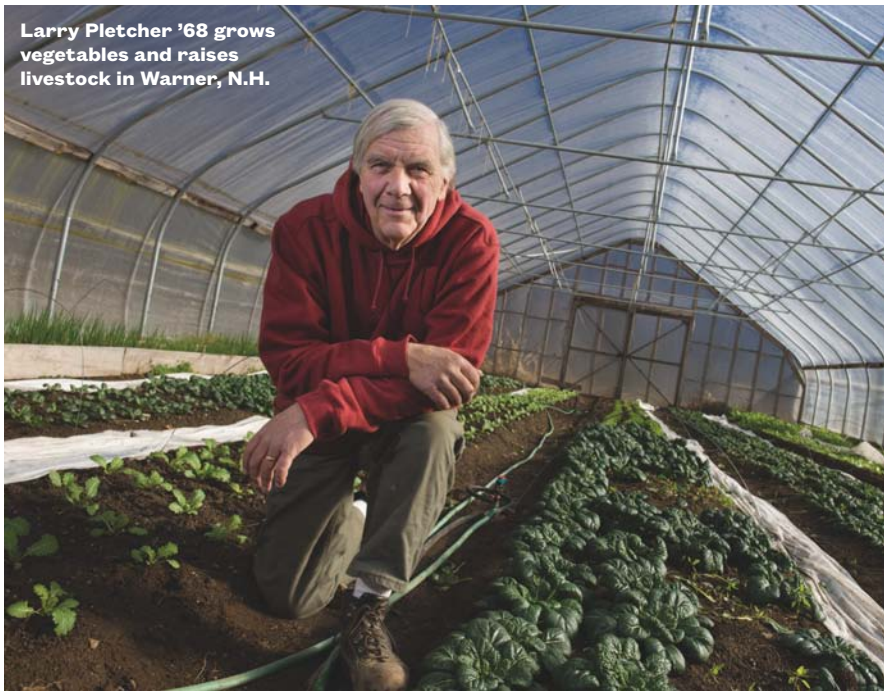
of whether it was real, but a matter of making the clinical successes more frequent," says Wolchok, a melanoma specialist at Sloan-Kettering's Ludwig Center for Cancer Immunotherapy.

Wolchok's start in tumor immunotherapy traces back to the summer after his freshman year at Princeton. He spent that summer at Sloan-Kettering working with Lloyd Old, considered the father of modern tumor immunology. After completing medical school and a residency in New York, Wolchok returned to Sloan-Kettering to study what happens to the immune system during cancer and how to stimulate immune cells to recognize tumors as foreign.

Wolchok took part in clinical trials that showed, in results released in the summer of 2013, that the new, still-experimental drugs, called anti-PD-1 and anti-PD-L1 antibodies, substantially shrank tumors in one-third to one-half of patients. One trial reported that 43 percent of advanced melanoma patients were alive two years after starting treatment. (Typically, only one-fourth to one-third of advanced melanoma patients remain alive for that long.) The newer drugs minimize the toxic autoimmune side effects such as colitis and hepatitis that have been linked to other immune therapies, and can be given in an oncologist's office rather than in a hospital.

The new drugs appear to work not only in kidney cancer and melanoma, which historically have been more responsive to immunotherapy, but also for the first time in lung cancer, according to recent clinical trial results. They are being tested in other tumor types. Larger trials needed to approve the therapies in the United States and around the world are underway.

Long-lasting therapy needs to work with the immune system, which has a memory, says Wolchok, and can evolve along with the cancer, similar to children's vaccines that continue to work for decades. "I am extremely pleased that cancer immunology is changing from a speculative science into a conventional therapy," he says. *By Anna Azvolinsky *09*



Larry Pletcher '68 grows vegetables and raises livestock in Warner, N.H.

PROFILE: LARRY PLETCHER '68

ONCE A LAWYER, NOW A FARMER

From briefs to broccoli Larry Pletcher '68 always has felt a kinship with the soil. He spent his childhood roaming the fields of a former estate in Morristown, N.J., where his family lived in the caretaker's house. Growing vegetables and showing livestock in the local 4-H chapter were *de rigueur*. Later — after he earned his law degree and entered private practice — he and his wife settled into a new home in New Hampshire and tilled a family garden plot. After a long stint working in family law in New Hampshire, Pletcher left the legal profession in 2001 and turned back to the land. "I'd been dying to start farming for a long time," he says. "My only regret is that I didn't make the switch sooner."

RÉSUMÉ
Founder and owner of the Vegetable Ranch, a 14-acre certified-organic farm in Warner, N.H. Practiced law for nearly three decades. Law degree from UCLA. Majored in politics.

A day on the farm Pletcher's day begins about 6 a.m. when he heads to the farm office to ensure that invoices for the day's deliveries are in place. Lettuce, beets, carrots, turnips — whatever vegetables are in season — are boxed and readied for pick-up by customers who purchase shares or for delivery. Plots are tilled, planted, or weeded; animals are fed; and the day ends about 7 p.m. with another round of paperwork. Pletcher provides produce to customers nearly year-round.

More labor, less stress In 2012, Pletcher started supplying scallions, cherry tomatoes, squash, radishes, and red potatoes to Concord Hospital. He has supplemented his small herd of cattle with a few Tamworth hogs to supply certified-organic pork, while his two flocks of chickens turn out a daily supply of fresh eggs. "You work longer hours and there's more physical labor on the farm," Pletcher says, "but there's much less emotional stress, and there's the satisfaction of being your own boss." *By Lori Ferguson *89*

John Sherman

MICHAEL PORTER '69

MEASURING SOCIAL PROGRESS

A new index ranks countries on aspects of well-being, including nutrition and personal rights

It's long been understood that economic measures of success like gross domestic product (GDP) give a sense of a country's well-being, but that kind of benchmark doesn't provide a complete picture, says Harvard Business School professor Michael Porter '69. While economic growth is correlated with a country's social progress — the ability to provide things like basic medical care and personal rights — economic and social progress are not the same.

Working with a team of experts, Porter served as chief architect of a new benchmark — the Social Progress Index — which was launched last April. The "beta version" of the index ranked 50 countries based on 12 components, including nutrition and basic medical care, personal safety, ecosystem sustainability, personal freedom and choice, and access to higher education. Sweden and the United Kingdom were ranked first and second. The United States came in sixth.

There have been other efforts to measure more than economic growth, but Porter said that he and his team felt the need to separate social indicators from economic ones, and pull together as many dimensions of social progress as possible.

"Social progress really is about the human condition: the ability of people to have adequate nutrition and health and live a good life and have opportunity and inclusion and all those things," he says. "Income at the country level is an enabler of that, but it's not a guarantee."

Even in wealthy countries, social progress can level out or erode, he says. For example, almost all rich countries, including the United States, rank poorly on ecosystem sustainability. And countries can have similar income levels — such as Costa Rica and South Africa — but have very different social-progress levels (Costa Rica ranks 12th on the SPI and South Africa 39th).

Porter and the Social Progress Imperative — an organization formed to disseminate the index and its findings — are trying to turn those findings into policy changes and investments. In early September, Porter traveled to Brazil and Paraguay for meetings with policymakers and government, business, and nonprofit leaders. Paraguay, he says, was the first country formally to adopt the SPI as one of its measures of national success.

The index is not static. By April — when the next index will come out — Porter hopes to have ranked at least 100 countries and enhanced the index. "We're not done [with the index], and I'm sure it can be improved," he says. *By K.F.G.*

Where does the United States rank on the Social Progress Index?

6 Overall	**1** Access to higher education
10 Nutrition and basic medical care	**48** Ecosystem sustainability

Source: The Social Progress Index, which ranks 50 countries based on 12 components.

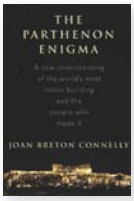
EXPLORE: Social Progress Index data at **paw.princeton.edu**

Michael Porter '69 is chief architect of the Social Progress Index.

James Duncan Davidson

READING ROOM: JOAN BRETON CONNELLY '76

HUMAN SACRIFICE AND THE PARTHENON



A glorious, 524-foot-long scene of prancing animals and toga-clad Greeks, the Parthenon frieze is among the most famous sculptures in the world. Most of it is now in the British Museum in London.

Scholars long have debated the meaning of the frieze: Does it show, as many of us were taught in school, a religious ritual that wound up the steep sides of the Acropolis every four years, back in the fifth century B.C. when the structure was built?

In *The Parthenon Enigma: A New Understanding of the World's Most Iconic Building and the People Who Made It* (Alfred A. Knopf), New York University professor of classics and art history Joan Breton Connelly '76 makes a startling claim: The frieze doesn't show that peaceable "Panathenaic procession" at all, but instead depicts a harrowing legendary event — the decision of mythical King Erechtheus to sacrifice his three daughters in order to save long-ago Athens from military ruin.

What she is reading: *The Ancient Greek Hero in 24 Hours* by Gregory Nagy: "I am very big on bringing the classics to the broadest possible public, and he does that."

As proud heirs to Greek democracy, many people view the Parthenon as among our highest "standards of what it means to be civilized," says Connelly. Thus it has "suffered from the distortions that tend to befall icons." *The Parthenon Enigma* seeks to overturn these longstanding assumptions, giving us the temple as its builders actually understood it.

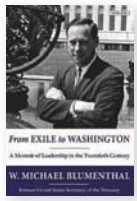
For Connelly, the eureka moment came when she was reading fragments of a lost play by Euripides. They explicitly link the story of Erechtheus' sacrifice to later religious rites at the Parthenon. These papyrus fragments only recently came to light, having been discovered accidentally as wrappings on an Egyptian mummy.

Connelly offers a new interpretation of the culminating scene of the Parthenon frieze, in which a man and a child together hold a blanket-like cloth. Advocates of the longstanding Panathenaic explanation say this is the *peplos,* the sacred robe of Athena that was carried in the religious parade. The man, they believe, is a priest. No, Connelly argues, he is Erechtheus; the child is his youngest daughter, shown with her burial shroud. Nearby stand two young women, who Connelly believes are the older daughters who likewise will be sacrificed, as the Oracle of Delphi grimly had commanded. The frieze "tells the tale of the city's founding hero," says Connelly, and shows that we are descended from a civilization that glorified human sacrifice as practiced in its mythical past. This fits uneasily with what Connelly calls the "nostalgic" Western view of ancient Athens, its "idealizing vision of a city inhabited by philosophical rationalists."

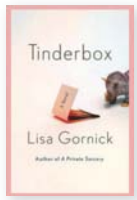
Many scholars are unwilling to relinquish the traditional explanation of the frieze, in part, she argues, because they are uncomfortable equating high-minded Athens with human sacrifice. "I've especially written this book for the young," Connelly says. "It's future generations you write for, people who have not yet made up their minds."

By W. Barksdale Maynard '88

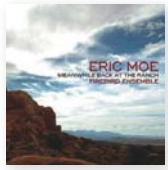
NEW RELEASES



W. Michael Blumenthal *56 was born in Germany in 1926 and became a refugee in Shanghai before immigrating to the United States in 1947 and working in the corporate world and in government — including as treasury secretary in the Carter administration. *From Exile to Washington: A Memoir of Leadership in the Twentieth Century* (Overlook Press) "tells the story of the century's ups and downs as I experienced them, close to some of the major decision makers," writes Blumenthal.



Tinderbox (Sarah Crichton Books), a novel by **Lisa Gornick '77,** explores a family and its secrets after Myra, a Manhattan therapist, hires a nanny to help out when Myra's struggling grown son, his wife, and his son move back home.



The CD *Eric Moe: Meanwhile Back at the Ranch* (New World Records) includes five works of chamber music composed by **Eric Moe '76** and performed by the Boston-based Firebird Ensemble. Moe is a guest pianist on two tracks. *Fanfare* magazine called his work "some of the most musical and satisfying of his generation in the U.S."

LISTEN: An excerpt from a track on the CD by Eric Moe '76 at **paw.princeton.edu**

Photo: Andreas Constantinou

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/2014/01/08/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 1936

Frederick W. Hummel '36

Fritz died May 24, 2013, in Whiting, N.J., at the age of 98.

After graduating from Princeton with honors in chemistry, Fritz was accepted at Hahnemann Medical College, from which he graduated in 1940. In 1942, he joined the Army, serving as a medical officer in Australia and New Guinea. After the war, he completed surgical training and had a long, distinguished career as an abdominal surgeon on the Jersey shore, presiding as chief of staff of Point Pleasant Hospital in 1968–69.

In 1940, Fritz married Ruth Conklin, with whom he had three children: Suzanne, Karl '67, and Sylvia. Settling initially in Belmar, N.J., the family moved to Bricktown in 1954.

Fritz's loyalty to Princeton endured throughout his life. His most recent duties were those of class treasurer. He was proud of the fact that he always walked the entire P-rade route, the latest at his 75th.

Fritz was a devoted husband and father. He will be remembered for his sharp intellect, infectious humor, generosity, and love of travel. At one time he owned a Chinese junk. He was a lifelong reader and classical music lover.

He is survived by Ruth, their children, five grandchildren, and three great-grandchildren.

THE CLASS OF 1944

I. Gordon Odell '44

Gordy died Aug. 15, 2013, in Aliso Viejo, Calif.

Raised in Winnetka, Ill., he prepared at the Berkshire School, where he was class president. At Princeton he roomed with Al Sheridan, then John Barr. He majored in economics, was a member of Orange Key, and served as Quadrangle Club president.

In 1943 he was a lieutenant serving with the 865th Battalion in Europe. He later became a captain and earned a Bronze Star.

In 1954, Gordy married Jane "Janey" Schaff, the sister of Phil '42, Chuck '45, and Dave Schaff '47, and cousin of '44 classmate Wally Schaff. He joined the Elgin Watch Co. in Illinois and became vice president of business development. He later moved to California, where he was involved in merging North American Aviation with Rockwell International. In 1981 he created his own financial- and business-consulting company. He and Jim Gamble '44 were fast friends; both had homes in California and Michigan.

Gordy was a volunteer for the Tournament of Roses in Pasadena, Calif., for 25 years and served on Princeton's committee to nominate trustees.

Gordy is survived by Janey; their children, Toby, Philip, and Bill Odell, Janey Cutting, and Ann Rosenberger; and 11 grandchildren. By far his favorite colors were orange and black.

THE CLASS OF 1946

Donald D. Boudreau '46

Nearly 50 years ago, when the American Psychiatric Association needed a strong presentation of its position on federal law on comprehensive health planning, it turned to Dr. Don Boudreau to write the paper. His psychiatric practice in Syracuse, N.Y., also led him to become for many years the Onondaga County commissioner of mental health (i.e., full-time director of community-health services), supervising psychiatrist at Hutchings Psychiatric Center in Syracuse, assistant professor of psychiatry at SUNY Health Science Center, member of the medical staff at four Syracuse-area hospitals and medical centers, and distinguished fellow of the American Psychiatric Association.

Don commented in our 25th yearbook that his work left "little time for extracurricular activities," but he managed to have a reputation for smacking the tennis ball, expertly skiing upstate New York hills, and placidly sailing the nearby Finger Lakes. His primary loves, however, were his wife, Elisabeth Fagan Boudreau, who died in 1993, and their four children and six grandchildren.

Surviving at the time of his death Jan. 19, 2013, were his children, Susan Fragale, and Eilis, Christopher, and Stephen Boudreau, and their children; and his sister, Betty Jane Boudreau. To them all, '46 expresses its sincerest sympathy.

Spencer J. Dvorkin '46

Any number of classmates have served on the boards of education in towns where they have lived. Only one of them, Spencer Dvorkin, is known to have married his town's superintendent of schools.

Spencer met Nancy L. Taddiken during his 15 years on the board of education in the Edgemont community, a part of Greenburgh, N.Y., and his time as supervisor of a $10 million school-construction project. Earlier he served on Greenburgh's zoning board, was president of several local civic organizations, and was a volunteer firefighter in the Greenville Fire Company. Even earlier he served for six years on the Board of Education of Katonah-Lewisboro and volunteered regularly at Meadow Pond Elementary School in South Salem, N.Y.

Spencer's specific interest in the quality of education sprang from his long career in real-estate development and his broader interest in the quality of life where he lived. "Property management, engineering, and small construction" were the words he used to describe his work.

Surviving Spencer at the time of his death March 1, 2013, at Columbia Presbyterian Medical Center were his wife; his daughters, Elizabeth Botwin, Julia Mastnak, Constance, and Kate; and five grandsons. To them all, '46 sends its heartfelt condolences.

Walter L. Marshall '46

When Walt Marshall was born in Princeton, his father was teaching chemistry at the University. But by 1942, his father was in Schenectady heading the General Electric research lab's chemistry section. After Walt earned his Ph.D. in chemical engineering at Harvard, Schenectady and GE became his home from 1950 to 1987. During those years, as manager of GE's materials and processes laboratory, he directed work for the U.S. Department of Energy, the Electric Power Research Institute, and GE's Large Steam Turbine Division. In one of his favorite achievements, Walt used studies of worker productivity to persuade tight-fisted GE management to install air-conditioning in the plant's just-plain-hot original building No. 5.

Walt's favorite place was his 150-acre farm at nearby Delanson (population 400). There he produced dahlias, raspberries, and fresh vegetables. From their home's 1,800-foot altitude, he and his family enjoyed a commanding view of the Schoharie Valley.

POST A REMEMBRANCE with a memorial at **paw.princeton.edu**

After his retirement, Walt moved to Trappe, Md., to continue gardening and to sail as a senior member of the U.S. Power Squadron. At the time of his death Jan. 20, 2013, he was survived by his wife, Jean; sons David '71 and John '74; daughter Katherine Bastian; and eight grandchildren. The class sends them heartfelt condolences.

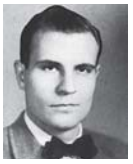
Harry A. Stout '46

In 1984, when Harry Stout renovated a family-owned-business building in downtown Indianapolis, he launched a movement that soon produced an attractive arts and design area. Filled with locally owned restaurants, theaters, and shops on Massachusetts Avenue, it is what the city now boasts as its "Mass Ave Cultural District." Harry was the third-generation proprietor of its "anchor store," the longest-in-business footwear store (now more than 125 years old) in the United States.

Harry piloted Army Air Corps B-24 bombers on missions worldwide, including "flying the Hump" over the Himalayas. He was discharged as a major, rejoined us to graduate in 1948, carried on the family business, and earned the devotion of millions of happy Hoosier feet.

When he died Feb. 21, 2013, *The Indianapolis Star* reported, "For 54 years, Harry was married to and adored Elizabeth 'Perkey' Stout. Together they were the foundation of a loving family, enjoyed wonderful friends and countless dogs, and offered a welcoming heart to anyone they met."

Harry's survivors include six children: Hilary Stout Salatich, Nancy Stout Hutchins, Cathy Stout Bayse, Wendy Stout O'Brien, Julie Ellis Stout, and Harry Braden Stout; two nephews; a niece; 18 grandchildren; and 31 great-grandchildren. The class sends warmest condolences to all.



Edward K. Sweeny '46

"My practice embraces all ages," said Dr. Ed Sweeny, "from newborn babies to very senior citizens in their 90s." His practice, after he served three years in the Navy (where he was senior medical officer of Submarine Squadron 4 in Norfolk, Va.), was in the Kaiser Permanente Medical Center in Redwood City, Calif. There he was physician-in-charge, then physician-in-chief and chief of staff. In 1979, he also became clinical assistant professor of medicine in immunology at Stanford University.

On retirement, Ed moved to Fernandina, a one-time pirate haven on Amelia Island, the southernmost barrier island on the Atlantic coast and northernmost in the state of Florida. When he died there Dec. 5, 2012, he was survived by the children of his first marriage, sons Paul '74, Dave, and Bob, and daughter Jan; his wife, Ree, and their two sons; and two grandchildren. To them all, the class sends its warm condolences.

THE CLASS OF 1947

Hanfred R. Seela '47

"Hans" died peacefully in his sleep April 16, 2013, at the Bristol Village Nursing Home in Waverly, Ohio, where he had spent his last years.

Born in Hamburg, Germany, he immigrated with his parents to the United States in 1927. He attended Pompton Lakes (N.J.) High School, but in 1942 at age 17, he was accepted into the Navy's V-12 program at Princeton. He received his degree in October 1949.

He attended Syracuse College of Medicine (now SUNY Upstate Medical University), where he earned his medical degree with a specialty in obstetrics and gynecology. Hans served two years as a doctor in the Navy before settling in Ridgewood, N.J., where he started a family and a medical practice. He was a popular obstetrician who delivered more than 2,000 babies as the founder of Ridgewood Ob-Gyn Associates. He also was on the staff of the Valley Hospital in Ridgewood and served as chief of staff for obstetrics.

After suffering a disabling stroke in 1987, Hans and his wife divided their time between Sarasota, Fla., and Carmel, Ind. He is survived by Jacqueline, his wife of 25 years; and his children from his first marriage, Laurie Wolynec, Robert Seela, Elizabeth Derr; stepchildren Erin Thompson and Timothy Kelley; and six grandchildren. He was a gifted individual who lived the American dream to the fullest.

John S. Warriner '47

John Warriner died July 27, 2013. He was living in Watsonville, Calif., with his wife, Jane.

John prepped at St. Mark's before coming to Princeton in 1943. During the war he served the Army Infantry and was awarded a Bronze Star for heroism in France.

Returning to Princeton, he married recent Smith graduate Jane ("Ricky") Cunningham in 1949, and they lived in the Princeton Community Players house. A geology major, John graduated in 1950.

His first two jobs were in gold mining, first in Perron, Quebec, then in Grass Valley, Calif. When the California gold-mining business was near collapse, John started Fearon Publishing in San Francisco, which produced teachers' aids and textbooks for California schools.

John retired in 1977, moved to Watsonville, and devoted full time to birding. He was involved in a research project for a threatened shorebird, the snowy plover. He was co-compiler of the Moss Landing Christmas bird count, and also a founding board member of the Elkhorn Slough Foundation.

His love of nature, birding, and travel sent John and Ricky all over the world — Africa, Central and South America, New Zealand, and Australia, to name a few destinations.

John is remembered for his intellect, love of books, quick wit, and generosity. The class sends sympathy to Ricky and their two daughters.

THE CLASS OF 1948

Edward J. Lavino II '48

A Philadelphia native, Ed was born April 26, 1926, and died July 21, 2013, at home in Jupiter Island, Fla. He was 87.

He graduated from Lawrenceville and was in the Marine V-12 program at Princeton. He earned a graduate degree in ceramic engineering at Penn State.

Ed's work career was at E.J. Lavino and Co., where he became chairman in 1968. The firm's business interests included geothermal power, oil and gas exploration, and aircraft leasing.

Ed was an avid golfer and sailor, a big-band fan, and a collector of antique toy trains.

In 1960 he married Linda (née Harper). She died in 1985, and in 1990 he married Pamela (née Campbell), who survives him as do his children, Teddy and Linda; and two stepchildren, Rob Campbell and Shaun McCarthy, and their families.

THE CLASS OF 1950

Donald C. de la Chapelle '50 Don, a man of strong faith and love of family, died of Alzheimer's disease June 21, 2013.

Don was born in New York City and graduated from Horace Mann School. At Princeton he was an advertising manager at *The Daily Princetonian* and the U-Store, belonged to Terrace, and majored in psychology.

The Army soon interrupted his career, which started with a New York advertising agency. Completing Officers' Training School, he shipped out to Germany as a lieutenant in the engineering corps. After three years of service, he joined Pan American Airways, working in New York and Dallas, and back in New York in 1971, where he became a vice president.

When Pan Am reorganized a year later, he requested a return to Texas and then lived in Houston the rest of his life. Pan Am's impending demise prompted him to join Atlas Travel, which specialized in corporate travel and was later acquired by a larger travel company, Navigant.

Extensive international travel had come with his career, so retirement in 2000 enabled Don and his wife to explore the United States. He was an avid gardener, a volunteer in many ministries, and a baseball fan.

Our sympathy goes to Peggy, his wife of

61 years; daughter Patty; son Bill; and six grandchildren.

Appleton Fryer '50

Appleton Fryer, better known as "Tony," died June 25, 2013, in Buffalo after a brief illness. As one of his sons wrote, "Tony was a proud Princetonian who gave generously of his time and resources to Annual Giving, the Western New York Schools Committee, and the Rowing Association."

Tony graduated from St. Mark's and briefly served in the Navy. At Princeton, he majored in modern languages and graduated with honors. He was both an oarsman and manager of the crew, and a member of the Nassoons, the Glee Club, and Cottage Club.

After a stint in the Army that took him to Germany as a liaison officer to the French army, he returned to his hometown of Buffalo. There he held many positions in business and financial fields, most notably founding the Duo-Fast Co., which he owned until 1984.

In 1979 he was appointed Buffalo's first honorary consul for Japan, for which he received a special award from the Japanese consulate general in 2002. His community benefited greatly from his involvement in cultural, educational, patriotic, religious, and fraternal affairs.

Our condolences go to Angeline, his wife of 60 years; and his children, Appleton Jr. '78, Daniel '78, Robert '82, and Catherine '83.

Daniel Golden '50

Dan died June 14, 2013, at a retirement home in Dedham, Mass., from complications of pneumonia.

Throughout his life, Dan maintained his ties with Princeton and designated the University library for remembrances in his memory.

He was a lifelong resident of Newton, Mass., and graduated from Newton High School. At Princeton, he was active in Whig-Clio and the Bridge Club. His major was in the School of Public and International Affairs.

Soon after graduation, he entered the Army, serving most of his two-year hitch with the 2nd Armored Division in Germany, where he observed that President Truman's edict to integrate the Army "was going smoothly." After his discharge, he returned to Boston and joined State Street Bank and Trust Co., now State Street Corp. He worked as a corporate trust officer for State Street his entire career, retiring after 50 years.

Dan was active in local Democratic politics and traveled extensively. He never married.

We extend our sympathy to his nephews, Michael and David Golden, and his niece, Judy Golden.

Franklin D. Reeve '50

Frank died June 28, 2013, in a New Hampshire hospital from complications of diabetes.

He graduated from Exeter. At Princeton, he majored in English. He was active in Theatre Intime, editor of the *Nassau Lit*, and a member of the track team and Ivy. At Princeton a class taught by R.P. Blackmur inspired him to write poetry.

Frank distanced himself from Princeton some time in the 1950s, so what follows has been gleaned from obituaries. He earned a doctorate from Columbia, where he taught Slavic languages from 1952 to 1961. He acted professionally for a brief time but left the stage to concentrate on writing poetry. In 1962, he moved to Wesleyan, where he was tenured as a professor of Russian language and literature.

As he approached 40, he gave up his Wesleyan professorship to devote himself to full-time writing. He published more than 30 works, including a book about a 1962 goodwill visit to the Soviet Union with Robert Frost. He had resided in Vermont since the 1980s.

The late actor Christopher Reeve was Frank's son from his first marriage. He went on to marry three more times. Among his survivors is his son Benjamin '76.

THE CLASS OF 1951

Charles L.R. Anderson '51

Andy was born Jan. 7, 1929, in Reisterstown, Md., son of Mabel Hobbs and Charles R. Anderson.

A graduate of the McDonogh School in Owings Mills, Md., he was in the NROTC program and an English major at Princeton. He served as managing editor of the *Nassau Lit*, was on the class council and president of Court Club, and was a member of Whig-Clio.

Andy's Navy career spanned 22 years. He retired as a commander in 1973, having served in the Atlantic fleet as ship captain and as a management specialist.

Andy turned to a second career in criminal-justice planning and administration, serving in Norfolk, Va., as police procedures analyst and in later years as director of New Hampshire Correctional Industries. He taught college and graduate-level courses at the Armed Forces Staff College in Norfolk, at Golden Gate University programs in Norfolk and Langley, Va., and at Pease Air Force Base in New Hampshire. He was a Mason and a member of the Second Congregational Church in Wilton, N.H.

Andy died Aug. 27, 2012. He is survived by his son, John; daughter Heather; his former wife, Jessie Anderson; granddaughter Morgan; three great-granddaughters; and his longtime companion, Dorothy Wood.

Charles Burkelman '51

Charlie was born Oct. 15, 1929, in New York City to Annette Adams and Martin Burkelman '18, and came to us from Hopkins Grammar School in New Haven.

At Princeton he was a mechanical engineering major and a member of Campus Club. He roomed with Bill Coale, Bill Davis, Frank Driver, Lou Emanuel, Earle Helton, Tom Lewis, Andy Neely, Harry Schoettle, and Dick Williams. After OCS he served in the Navy on the USS *Saratoga*.

Charlie and Marjorie Lutz were married in 1954. He worked first for Driver-Harris (Frank Driver's family firm) as a process engineer. Thereafter he worked for many years at Lily Tulip Paper Cup headquarters in Toledo. The company was sold to KKR & Co., and Charlie was transferred to Augusta, Ga., where he eventually retired.

He was an avid sailor and a member of the North Cape Yacht Club near Toledo, Ohio, and the Augusta Sailing Club, serving as commodore of each. He was a longtime volunteer for Annual Giving.

After Marjorie's death, Charlie married Claire Wolke, a widow and longtime friend of the family. Charlie died Dec. 7, 2012. He is survived by Claire; his son, Bruce '78; his daughter, Susan Kirby; four grandchildren; and a great-granddaughter.

Albert A. Lakeland Jr. '51

Pete was born Sept. 10, 1929, in Baldwin, N.Y., to A.A. and Muriel Ager Lakeland.

A graduate of Lawrenceville, Pete majored in English at Princeton and belonged to Dial Lodge. He participated in wrestling (receiving a freshman trophy) and 150-pound football, roomed with Crawford MacCallam, and graduated with honors. He earned a master's degree, also with honors, in English and comparative literature from Columbia in 1953. In 1972 he graduated from the University of Maryland School of Law.

Between 1956 and 1967 he was a Foreign Service officer with postings in Mumbai and New Delhi, during which time he became fluent in Hindi. In 1963 he returned to Washington as India desk officer, and in 1965 became special assistant to presidential adviser William Bundy. From 1967 until he retired in 1990 he was a Senate staffer, initially in the office of New York Sen. Jacob Javits and later as minority counsel to the Foreign Relations Committee.

Pete died Nov. 16, 2012, at Emeritus Senior Living Center in Arlington, Va., after a heart attack. His marriage to the former Dorothy Wingate ended in divorce. He is survived by his children, Nancy Ocean, Peter, and William;

five grandchildren; three great-grandchildren; and his brother, William '44. His sister Muriel predeceased him.

THE CLASS OF 1952

Richard W. Kazmaier Jr. '52 Dick died on Aug. 1, 2013, in Boston.

He entered Princeton from Maumee (Ohio) High School, where he was a five-sport athlete. At Princeton, he majored in psychology, joined Cottage Club, and played varsity football and basketball.

Dick was an exceptional football player. An essential cog as tailback in two undefeated seasons, he won Princeton's Poe Award, became Heisman Trophy winner in 1951, the Associated Press's athlete of the year, and was featured on *Time*'s cover. We became known as "Kazmaier's class."

After Harvard Business School and three years as a Naval officer, Dick formed his own successful sports-marketing and consulting firm. He served two administrations as chairman of the President's Council on Physical Fitness.

Dick and Jay Sherrerd spent many hours raising top dollars for Princeton's Annual Giving. He was reunion chairman at our 25th and was elected an alumni trustee.

Throughout his life, Dick remained the modest and self-effacing comrade we all knew on campus. A true team player, he once said, "Football is a consummate team sport. Nobody does anything of substance unless they do it with everybody else on the team."

The class extends sympathy to Patti, his wife of 60 years; daughters Kathy, Kristen, Michele, Kimberly '77, and Susan '81; 13 grandchildren; and three great-grandchildren. Daughter Patty '86 died in 1990.

Earl S. Moore Jr. '52 Earl (whom we knew as Claude at Princeton) came from University City (Mo.) High School, joined Cannon Club, majored in English, and roomed with Fred Atwood, Carl Bickert, and Ray McGill.

Earl joined the Army and served — after studying Mandarin at the Army Language School in Monterey, Calif. — in Korea and Japan. This skill had a later value when, during his long career at McGraw-Hill, he was instrumental in establishing a Chinese-language edition of *Business Week* in 1986, in cooperation with the Chinese government.

He retired as vice president, international, in 1991 and then founded a consulting business, Asia Pacific Marketing. He and his wife, Darlene, lived in Greenwich, Conn., where Earl was a member of Rotary and the Milbrook Club.

Earl died Aug. 16, 2013. The class sends sympathy to Darlene and their son, Earl S. III.

Charles L. Saunders Jr. '52 Chuck came to the class from Evanston Township (Ill.) High School and roomed with Andy Deiss and Hank Overbeck. He withdrew after sophomore year to attend the University of Wisconsin College of Agriculture, expecting to manage his family farm, according to his entry in the *Nassau Herald*.

After service in the Army, however, he earned a law degree from the University of Virginia School of Law, where he was editor-in-chief of the law review. He practiced in Washington and was deputy chief counsel at the IRS during the Nixon/Ford administration. He taught tax law at the University of Georgia and at UVA School of Law. He later practiced tax law in Albuquerque, retiring to live with his wife, Marcia, in Corrales, N.M.

Chuck died Aug. 20, 2013, leaving Marcia; his son, Charlie; and daughter Sarah '88, to all of whom the class offers sympathy.

THE CLASS OF 1953

Joseph L. Fromm '53 Joe was anticipating attending his 60th reunion with his wife, the former Mary Macheak. However, he died July 31, 2013, as a result of two strokes at his Grosse Pointe, Mich., home.

At Princeton, he majored in economics, was assistant and then head baseball manager, and took his meals at Campus Club. His roommates were close friend Peter Ashurkoff, who was to introduce Joe to Mary, Norb Ehrmann, Bob Fosmoe '52, and Paul Hertelendy.

After graduation he served in the Army and in 1958 graduated from Harvard Business School. In Detroit, he was an officer with American Motors and later Chrysler. When they merged, Joe moved on and founded his own consulting firm, Fiduciary Advisors.

Always interested in the public sector, Joe was a councilman and mayor of Grosse Pointe Farms. It's been said that if he had been persuaded to run for mayor of Detroit and was elected, he would have helped solve some of its financial problems. He loved his family and served his community.

Joe is survived by Mary, whom he married after the death of his first wife, Beverly Booth Fromm; his children from his first marriage, Charles, Laurence, Kenneth, Lisa Simon, and Brian; and seven grandchildren.

Robert P. Hauptfuhrer '53
Bob, a quintessential Princetonian in the University's service, died Aug. 11, 2013, of a subdural hematoma. He was a charter trustee

from 1987 to 1997, serving over a dozen University services and finishing his term as vice chair of the executive committee.

Entering from William Penn Charter School, Bob studied public affairs in SPIA and belonged to Cap and Gown. He graduated *summa cum laude* and as a member of Phi Beta Kappa. He played basketball for three years, and was class treasurer from 1962 to 1965 and president from 1965 to 1968. He served two years in the Navy.

Bob graduated as a Baker Scholar from Harvard Business School and joined Sun Oil Co. in 1957, eventually becoming president and then heading the newly spun-off Oryx Energy in Dallas, Texas, as CEO and board chair. He retired in 1994.

Bob is survived by his devoted wife, the former Barbara Dunlop, whom he married in 1963; children Brenda Helber, Bruce, and Bryan; and four cherished grandchildren, including Andrew R. Helber '16.

Bob was dealing with cancer and had a quadruple bypass 29 years ago. However, he managed to celebrate his 50th wedding anniversary and attend our 60th reunion. As fellow trustee John Beck said, "Bob died with as much dignity as anyone I've ever known."

Stephen Paliska '53 Steve, who specialized in mechanical engineering and worked globally designing an asphalt plant in Puerto Rico, a NATO jet-refueling station in Iceland, a desalination plant on Ascension Island, and a fire-breathing dragon at Disneyland, died July 21, 2013. He had a stroke four years ago, according to his wife, Toni Marie Callaway, and he died in Palm Springs Regional Hospital from a bacterial infection.

Born in Cincinnati, Steve attended the Wardlaw School and at Princeton roomed with Eric Sundt and Clark Tufts. Clark recalls that Steve kept a "souped-up" car behind Terrace Club and on weekends would race on the New Jersey dirt tracks. Clark was best man when Steve married Barbara Burns, the mother of his sons Steven III and Paul. They later divorced. Steve met his second wife, Toni, when they were engineers in the oil fields surrounding Bakersfield, Calif.

Besides Toni and his sons, Steve leaves behind three grandchildren and a sister. Steve's family members said he liked "Princeton reunions, Ivy League clothes with cowboy boots, country-western music, fast cars, and pretty women." For those of us who've had the pleasure of meeting Toni, she is the prettiest.

Edward H. White III '53
Ned, who followed his grandfather and father to Princeton, was born in New York City to the

former Katherine Dougherty, a Smith College graduate and a pioneer biologist, and Edward H. Jr. 1910, a New York Stock Exchange member. He died July 31, 2012, in Tucson, Ariz., from complications after a fall.

He boarded at the Asheville (N.C.) School. At Princeton he roomed with Fred Catterall and Hank Walter senior year, and the three dined at Key and Seal. Ned had an amazing intellect but never let on he was a member of Mensa.

He earned a law degree from the University of Virginia School of Law and was a bank trust officer before obtaining a master's degree in library science in 1963, the year he married Sally Long, an accomplished artist. They moved to Arizona, where he became chief librarian at the University of Arizona College of Law, assisting students and lawyers and heading public relations until his retirement.

Surviving are Sally; his children, Juliana Ore-Giron, Sally Markley, and Edward H. IV; and six grandchildren. His children said their father "had a powerful skill of observation," that he "was able to nail the character of an individual in short order and without judgment," and he "always picked out the most delicious item on a menu."

THE CLASS OF 1955

Allen Richards Boyd '55

Dick Boyd, intelligence officer, holder of a degree in advanced international studies, reporter, writer, Congolese adviser, marketer, and founder of African Imprint Library Services, died of pancreatic cancer Aug. 22, 2013, in Sarasota, Fla.

The son of John Ritchie Boyd '20 and Mary Juliet Williams Boyd, Dick was born Aug. 7, 1933, in Greenwich, Conn. He prepared at Kent (Conn.) School and at Princeton majored in the Special Program in European Civilization, writing his thesis on Russian purges. He participated in the French and Glee clubs and joined Colonial Club.

For many years he ran African Imprint Library Services, the only importer and supplier to research libraries around the world of all types of materials published in Africa and the Caribbean, with his son, Christopher.

Dick played a lot of tennis and golf and, more seriously, collected and decorated antique maps of the West Indies. His one book, a high-school text titled *Tropical and Southern Africa*, was read attentively by his wonderful wife, Candace. His calm demeanor, determined optimism, and wry sense of humor will be missed.

Dick is survived by Candace; children Scott, Christopher, Stephanie, Rebecca, Robert, and Peter; sister Juliet; and his brother, Edgar '58. To them all goes the sympathy of the class.

Robert Cochran '55

Bob, the son of Dr. William Carter Cochran '25 and Mary Cochran, was born Oct. 9, 1932. He and his twin brother, Jim '55, were raised in China until World War II.

At Princeton he majored in economics, joined Prospect Club, and roomed at 35 N.W. College with brother Jim and Rubin Pittman. After spending two years at Boston University Medical School, Bob joined the Navy Medical Corps and served in Norfolk, Va., Vietnam (on the USS *Repose*), and New York City. For 15 years he was chief of surgery at Bethesda Naval Medical Center, where he was physician to Presidents Ford, Carter, and Reagan.

After retirement from the Navy, Bob was appointed professor of surgery at West Virginia University School of Medicine, Charleston Division, serving until his death Sept. 2, 2013. Bob twice received the Vincent Von Kern Award for a surgeon making the greatest contribution to resident education.

A passionate and eternally suffering Red Sox fan, Bob also followed the Patriots and the Redskins. He spent 25 years traveling with his wife, Beckey; their last trip around Cape Horn from Buenos Aires to Santiago made after his diagnosis of lung cancer.

He is survived by Beckey; children Barbara, Gwendolen, and Williams; brother Jim; and sister Ann Hunt. To them all, the class expresses sympathy and admiration.

THE CLASS OF 1956

Galen J. White Jr. '56

Galen died May 20, 2013, at home in Louisville, Ky., after a long illness.

Galen was born in Jackson, Ky., and graduated from Louisville Male High School. At Princeton, he joined Tiger Inn and majored in history. After three years in the Army, he earned a law degree from the University of Pennsylvania Law School.

In 1958, Galen married Ethel Story Wright (Vassar '58). He practiced law in Philadelphia and in Louisville, retiring in 1998 from Boehl, Stopher & Graves, where he was a partner.

Galen's many interests included history, education, the arts, and the law. He served as chairman of the board of St. Francis School in Goshen and as chancellor of the Episcopal Diocese of Kentucky. In retirement, he volunteered as a reader of law texts for Recording for the Blind and as a docent at Farmington Historic Plantation.

Galen is survived by Ethel; four children, Joanna Kille, Caroline '87, Catherine Banigan-White, and Galen III; son-in-law John Kille; grandchildren Alexander and Andrew Kille and Charlotte Banigan-White; and sisters Ann Anderson and Margaret Flintom.

He will be remembered for his vigorous mind, love of music, ability to recognize an old friend instantly, unwavering sense of fairness, delightful sense of humor, quiet courage, and warm and generous heart.

THE CLASS OF 1957

John J. Hunt '57

Jack died July 29, 2013, from complications following surgery.

While at Princeton, he majored in engineering, played football, lacrosse and wrestling, and joined Ivy Club. After graduation, Jack joined the Marines and married Sue Wilkes.

After teaching at the Lawrenceville School, Jack moved his family to Cambridge, Mass., in 1965, where he earned a doctorate in education from Harvard. His career in education included positions as superintendent of schools in Hightstown, N.J., Paradise Valley, Ariz., and Jefferson County, Ala.

His great passion was single-handed ocean sailing. Twice he sailed in the OSTAR race from Plymouth, England, to Newport, R.I. He also loved writing.

Jack later taught at the university level at the University of South Florida in Tampa and Florida Atlantic University in Boca Raton. He retired in 2004.

The class extends its condolences to Sue, Jack's wife of 54 years; his daughter, Patty; and son Tim. He was a most interesting classmate.

John H. Stennis '57

John died Sept. 5, 2013, at a Jackson, Miss., hospital after a period of declining health.

At Princeton, John majored in the Woodrow Wilson School and joined Quadrangle Club. His senior-year roommates were John Martinson, David Hinchman, and Richard Brown.

He graduated in 1960 from the University of Virginia Law School, where he was decisions editor of the law review. Since 1960, he had been a partner in Watkins Ludlam Winter & Stennis. The focus of his practice was legislative relations, public finance, and governmental law. While a member of the Mississippi House of Representatives from 1969 to 1984, he was chair of the Banking and Judiciary committees and member of the Ways and Means and Water Resources committees. John served in the Mississippi Air National Guard for 30 years, retiring as a federally recognized general officer with the rank of brigadier general.

He broke with his father over civil rights, emerging as a champion of liberal legislation in the 1970s. In 1981 he helped introduce legislation requiring lobbyists to disclose

money spent at the capital. At that time it failed. At all times he exhibited a brilliant legal mind and a farseeing vision.

John's wife, Martha Allred Stennis, predeceased him. To his son, Hamp; daughter Laurin; and sister Margaret, the class sends condolences. This scion of the Old South will not be forgotten.

THE CLASS OF 1960

George P. Hutchinson '60

George died instantly June 17, 2013, in a traffic accident near Kampala, Uganda, while he was on a mission trip. A resident of Gainesville, Ga., since 1987, he was the director of Church Planting International, assisting indigenous church ministries in developing countries.

George's European history thesis was titled "Gregor Strasser as a National Socialist." He took his meals at Wilson Lodge and was active in the Princeton Evangelical Fellowship. He earned a doctorate in philosophy at Oxford and was ordained as a minister in the Presbyterian Church. He wrote extensively and traveled widely, preaching and training international pastors.

The first reunion George attended was our 50th. His thoughts, convictions, and details of his life are recorded in his special commentary in the yearbook for that reunion. Throughout his life he sought to serve the Lord and his fellow man. *The Gainesville Times* noted a statement George often made: "The measure of your ministry is not what it looks like at the time, but what remains after you die."

The class extends sincere sympathy to Linda, George's wife of 46 years; his sons, Maj. John R. Hutchinson, Albert Hutchinson, Capt. Chester H.L. Hutchinson, and Jackson J. Hutchinson; and eight grandchildren.

THE CLASS OF 1962

Bruce G. Dunning '62

Bruce Dunning was born in Rahway, N.J., April 5, 1940, and graduated from Westfield High School.

At Princeton, Bruce majored in English. He was actived in WPRB, McCarter Center for the Performing Arts, Theatre Intime, and the Princeton Community Players.

Bruce received a master's degree in journalism from Columbia University in 1963 and in 1968 he began a long career with CBS. He is perhaps best remembered for his report "The Last Flight from Da Nang." This five-minute news segment won Bruce a "best TV news report" award from the Overseas Press Club of America and was included in Columbia Journalism School's 100 Great Stories list.

While serving as CBS Asia bureau chief from 1989 until 2005, he was president of the Princeton Club of Japan and hosted University president Shirley Tilghman. Bruce also spearheaded the "SuperClass at 50" yearbook and was elected class president at the 50th reunion.

Upon Bruce's retirement, Dan Rather commented, "No CBS News correspondent — living or dead — has more of my respect than does Bruce."

Bruce died Aug. 26, 2013, in New York of injuries from a fall. The class extends its condolences to Bruce's partner of 26 years, the artist Tetsu Kawana; his brother, Alan '68, and his wife, Anne; and his nieces and nephew, Ashley '11, Mary Kay '99, Catherine '95, and John '95.

THE CLASS OF 1963

Omar D. Crothers III '63

Chip, a prominent Portland, Maine, surgeon who helped start a center for orthopedics as well as a place for skiers with disabilities, died May 17, 2013, of complications from heart surgery.

Arriving at Princeton from McDonogh School in Baltimore, Chip majored in biology, played four years of lacrosse, and ate at Cottage. He roomed senior year with Dick Jones and Dave Bryson.

After medical school at the University of Maryland, Chip earned a reputation as one of the leading hip surgeons in New England, performing more than 3,000 operations. He stopped surgery in his 50s due to heart problems and turned to medical administration. Later he became a non-operating medical orthopedist at Orthopedic Associates, which he co-founded.

Inspired in the early 1980s, by seeing his young patient with cerebral palsy skimming down a slope, he tirelessly helped create Maine Adaptive Sports and Recreation on land donated by a resort. It has brought joy to the lives of thousands, and in 2011 the Maine Ski Hall of Fame inducted him.

Some of Chip's ashes are scattered on land beneath the feet of children learning to ski. Surviving are his children, W. Sean Crothers, Lauren Crothers Simard, Mary Crothers Stone, Jacob "Gus" Crothers, and Elizabeth Kanha Crothers Stockford; and six grandchildren.

THE CLASS OF 1964

Lutz K. Berkner '64

Lutz, who died of lung cancer Jan. 16, 2011, was born to Hans and Sigrid Berkner in Dessau, Germany, during, as he wrote in his hilariously deadpan *Nassau Herald* biographical sketch, "an air raid and has been suffering from shellshock ever since."

Nonetheless he excelled at Stratford (Conn.) High School and was an early concentrator in history at Princeton, where he wrote his thesis for Professor Lawrence Stone on "Educational and Social Thought in 18th-Century France." He did this even though he "spent ... his senior year in Philadelphia," winning the favor of a Penn student named Dimi Strangeways, who would become his wife of 46 years.

Lutz received a Ph.D. in history from Harvard and taught for several years at UCLA before becoming an educational researcher in New Jersey — the Berkners lived in Princeton for 17 years — and later California. He was nationally esteemed for his statistical studies of college students: who went to college, how they did when they got there, and what sort of financial aid they received. As one leading education policymaker wrote, "He was, for all purposes, the guru of student pathways in higher education."

The class extends condolences to Dimi; their children, Laurie and Chris; and grandchildren, Lucy and Violet.

Kenneth J. Cohen '64

Ken died peacefully June 10, 2013, at his home in Cranford, N.J. With eternal optimism he fought a long and courageous battle with Parkinson's disease, with his devoted wife, Phyllis, and other family members at his side throughout.

Ken came to Princeton from Bridgeton (N.J.) High School, having spent a year in France as an exchange student. He was a principal clarinetist in both the marching and concert bands and was a member of Terrace Club. After graduating *cum laude* in physics, Ken earned a Ph.D. from MIT in 1967 and furthered his interest in high-energy/elementary-particle physics through a postdoc in Germany.

Ken's varied career encompassed teaching and high-energy research at Rutgers and wireless-systems engineering as a distinguished member of the technical staff at Bell Laboratories (later Lucent Technologies). After retiring from Lucent in 2001, he continued his contributions to today's ubiquitous wireless devices as an independent contractor until 2009.

Ken enjoyed traveling the world and frequent visits to Carnegie Hall and the Metropolitan Opera with Phyllis, family beach vacations, fine art, food and wine, and diverse intellectual challenges.

The class extends sympathy to Phyllis and her daughter, Catherine Sotolongo; Ken's son, Matthew; and his two grandsons.

THE CLASS OF 1966

Daniel F. Adams '66

Dan died Aug. 25, 2013, in Windsor, Calif., from the effects of pancreatic cancer.

Dan was a star before, during, and after

Princeton. In high school in his native Roswell, N.M., he was class and student body president, valedictorian, and a basketball and baseball standout. At Princeton he won prizes for excellence in public and international affairs. He played baseball all four years and was a member of Tiger Inn.

After graduating *summa cum laude*, Dan went to Chile as a Fulbright scholar. He earned a master's degree from the Johns Hopkins School of International Affairs (where he was student body president) and a master's degree in government from Harvard.

In 1971, Dan joined the World Bank's International Finance Corp., specializing in capital-market development in underdeveloped countries — along the way creating major financial institutions in Chile, Venezuela, and the Philippines — and rising to the level of vice president.

In 1997 he retired to his working cattle ranch in New Mexico, where he pursued his avid interests in Southwestern archaeology and conservation while continuing to advise two Latin American investment funds.

The class extends condolences to Dan's widow, Sandy Jordan; stepdaughters Julie and Tatiana; and his brothers, Ben and Terry.

Lawrence Wayne Brown '66 The class received word in October that Wayne Brown had died July 2, 2013, in Sentara Northern Virginia Medical Center in Woodbridge, Va.

Wayne came to Princeton from the Peddie School, where he played football and was active in the band, school newspaper, and glee club. At Princeton he majored in politics, worked in the dining halls, and belonged to Cloister Inn. He sang in the Glee Club and was on the staff of WPRB.

Wayne was a longtime resident of Dumfries, Va. From 1984 through 2009, he was employed by Associated Press Broadcast Services, working in Washington, D.C., as a reporter, national and world editor, and anchor.

The class mourns Wayne's passing and extends its sympathy to his family.

Robert S. Ross Jr. '66 Robert Ross died of heart failure Sept. 30, 2013, at his home in Washington, D.C. He was 69.

Born on March 27, 1944, in Bryn Mawr, Pa., Robin was the son of Janet and Robert S. Ross. He received his early education at Episcopal Academy before graduating from St. Paul's School, in Concord, N.H. He majored in art history at Princeton, where he was president of Ivy Club and a starting halfback on the varsity soccer team. Robin served in the Pennsylvania Army National Guard and received his law degree from Temple University.

In June 1966, immediately after college graduation, Robin married Louise Potter and started his legal career in her native New York, where their two children were born. In 1979 he joined Pennsylvania Gov. Dick Thornburgh's cabinet, and in 1988 he was appointed chief of staff to Attorney General Thornburgh in the George H.W. Bush administration. During the ensuing years, Robin's broad experience and sound judgment became the basis for a successful legal and government-relations practice in Pennsylvania and the nation's capital.

In recent years, Robin and Louise resided in Washington, where they maintained active work schedules and a family life enriched by growing grandchildren.

To Louise, children Jennifer and Robert, and the rest of his family, the class extends its deepest sympathy.

THE CLASS OF 1978

Craig A. MacCallum '78 Craig MacCallum, of Montclair, N.J., died May 31, 2013, in an airplane accident.

Craig was raised in New Hartford, N.Y. An Eagle Scout and graduate of New Hartford High School, he entered Princeton with the Class of '77 and graduated with '78. He majored in economics at Princeton, earned an MBA from New York University, and had a career in real-estate asset management, turnarounds, and banking.

At the time of his death Craig was doing what he loved: flying. He earned his pilot's license before his driver's license, became a flying instructor, and once issued an ultimatum to his future wife: "If you want to be with me, you also get my airplane."

Craig crashed soon after taking off from Linden Airport when the Diamond DA20 he was flying struggled to gain altitude. To minimize loss of life, he steered the plane away from congested areas and it nose-dived into an empty lot. Craig died a hero.

A devoted husband and father, Craig is survived by his wife, Carol Schlein; children Margaret and James; mother Janet MacCallum; and his four siblings and their children. A large contingent of classmates attended his memorial. The class sends deep sympathy to all.

Paul Rake '78 Paul died in Oct. 12, 2012, in New Milford, Conn., after undergoing treatment for a heart ailment.

He studied psychology, engineering, and physics at Princeton and after graduation worked as a mechanical engineer. The last years of his life were spent on the streets of New Milford with his bike, his pipe, and his sleeping bag.

St. John's Episcopal Church was a frequent home base. Paul became the church's unofficial watchman, reporting any suspicious activity and alerting the staff when the building needed repairs. He often played classical music on the church piano. To those who interacted with him, the tall, sandy-haired figure was known as the "Gentle Giant," a man of curiosity and keen intelligence. He fiercely guarded his privacy and independence, living life on his own terms and earning the respect of others for it.

Paul's ashes rest in St. John's quiet memorial garden, where he often slept. In tribute to his memory the church set up Tall Paul's Closet, a room where warm winter coats and clothing are available to members of the nearby homeless community. May he rest in peace. The class extends its sympathy to surviving family members.

Robert Thomas '78 Robert "B.T." Thomas of Sinking Spring, Pa., died Nov. 5, 2012, of complications from pancreatitis.

A native of Tacoma, Wash., he majored in politics at Princeton, played football and rugby, and occupied a loft in legendary Blair Tower. Bob treasured his undergraduate years, especially time spent at Tiger Inn shooting eight-ball and cavorting with fellow club members in the annual rumble known as Trees and Trolls. Bob's reputation was enhanced by his status as one of the select few who owned a car, into which his sidekicks piled for late-night forays to Jack-in-the-Box in Trenton.

Bob spent 30 years working at Carpenter Technology, a manufacturer and distributor of specialty metals, before taking a position with Boston Centerless. Much of his adult life was devoted to mentoring young people, both spiritually and on the playing fields. Bob was a Sunday school teacher and youth group leader at the First Presbyterian Church of Reading, where he also was an elder, and for years he coached youth football, soccer, and baseball.

Our deep sympathy goes to Bob's wife, Virginia Frey Thomas, to whom he was married for 34 years; sons Robert, Nathan, and Ian; mother Frances Smith Thomas; and other surviving family members.

THE CLASS OF 1981

Larry Conn '81 Our classmate Larry Conn failed to return as scheduled from a solo backpacking trip in the Sierra Nevada Mountains in October 2012. After many months, searchers found evidence that Larry,

an experienced hiker who had traversed the mountainous terrain many times on his own, had been caught in a snowstorm, pitched his tent, but did not survive the extreme conditions.

Larry was born in Washington, D.C. His family moved to South Orange, N.J., where he graduated from Columbia High School. At Princeton, Larry majored in psychology and was a member of the chess team and Quadrangle Club. After graduating from Stanford Law School, he made his home in California, where he practiced law with expertise in health-care regulations and fraud.

Larry's passion for backcountry hiking, which he acquired from his father, Bob, reflected his strong sense of self-reliance. He was an independent thinker — an avowed nonconformist. His classmates will remember him for that, as well as for his deep intellect, his ready laugh, his deadpan commentary on the scene around him, and his keen sense of the absurd.

Larry leaves behind his partner, Claus Svendsen; their son, Alexander; his mother, Elaine Conn; and brother, David Conn.

GRADUATE ALUMNI

Robert L. Bishop *39

Robert Bishop, a respected MIT professor emeritus of economics, died Feb. 7, 2013. He was 96.

Bishop graduated from Harvard in 1937 and spent a year in Europe on a traveling fellowship. Returning to the United States in 1938, he spent a year in Princeton's graduate department of economics before leaving without a degree and returning to Harvard, where he received a master's degree in economics in 1942. In 1950, he earned a Harvard Ph.D.

In 1942, Bishop joined the MIT faculty. He was chair of the economics department from 1958 to 1965, and was named dean of the MIT School of Humanities, Arts, and Social Sciences in 1964. After serving as dean into 1973, he returned to teaching and retired in 1986. He was a microeconomic theorist who examined such topics as game theory and public finance.

"If you asked me to name some of the smartest economists I've ever known, I would include Bishop," said Robert Solow, one of MIT's Nobel Prize-winning economics professors. "When Bob joined the MIT economics department it was nothing. He was integral in building the department from what was a backwater into one of the best around."

Bishop's wife Joan, whom he married in 1942, predeceased him in 1981.

John S. Vanderoef *68

John Vanderoef, professor of political science emeritus at Florida State University (FSU), died March 23, 2013, at the age of 83.

Vanderoef graduated from FSU with a bachelor's degree in 1950 and a master's degree in 1951, both in political science. He served in the Air Force during the Korean War, after which he earned a master's degree in politics from Princeton in 1958.

In 1959, he began teaching at FSU and remained there until retiring in 1997. He completed his Princeton Ph.D. in 1968.

His major areas of expertise were British government and American political thought. He was a well-regarded professor and adviser to the thousands of students in his classes during his almost 40 years of teaching.

Vanderoef is survived by a first cousin, Jean Kohl, and his lifelong friend and colleague, Dr. Richard B. Gray.

William L. Hemphill *75

William Hemphill, an adjunct economist with the International Monetary Fund (IMF) in Washington, D.C., died Nov. 10, 2012. He was 70.

He received a bachelor's degree in economics from Monmouth College in 1963. From 1963 to 1964, he studied as a Rotarian fellow at the American University of Beirut, and in 1975 he earned a Ph.D. in economics from Princeton.

Hemphill was employed by the International Monetary Fund. After retiring, he taught for several years at Georgetown and George Washington universities, after which he returned to the IMF in an adjunct capacity.

In addition to his international and macroeconomic work, Hemphill was accomplished at the piano, guitar, and other musical instruments. He sang with several choral groups and played string bass for a local ragtime band until his death.

He is survived by his wife, Clara M. Smith, whom he married in 1999, and two sons from a previous marriage to Deirdre R. Levine.

J. David Cohen *76

David Cohen, professor of physics at the University of Oregon, died Oct. 29, 2012. He was 65.

Cohen graduated from the University of Washington in 1968, and after Army service graduated with a Ph.D. in physics from Princeton in 1976. He next held a postdoctoral position at Illinois, and in 1978 began at Bell Labs on his life's work: the characterization of defects in semiconductors, especially relating to solar cells.

In 1981 he went to the physics department at the University of Oregon, and spent the rest of his career there. He developed measurement techniques now widely relied upon for characterization of solar cells in research laboratories worldwide. He was also a major contributor to the application of the admittance spectroscopy technique to solar cells.

His work represents one of the cornerstones of understanding defect states in amorphous silicon solar cells. His more recent efforts in the area of chalcogenide solar-cell materials are important as foundations for improving their performance.

Cohen was a dedicated adviser and mentor to his students and is remembered as a humanitarian who cared about others. He is survived by his wife, Carol.

Thomas C. Cox *80

Thomas Cox, associate professor emeritus of history at the University of Southern California Dornsife, died Dec. 9, 2011. He was 72.

Cox graduated from the University of Kansas in 1969, and in 1980 received a Ph.D. in history from Princeton. He taught at Middlebury College, and began at USC Dornsife in 1982 as an assistant professor of history. He became associate professor emeritus in 2008. He was a historian in African-American studies and American intellectual and social history.

His writings included two books. One was *Blacks in Topeka, Kansas, 1865-1915: A Social History* (1982). The other examined how governments helped Kansas residents in *Fenceposts: The Plains Grasshopper Plague of 1874-1877* (2010).

Steven Ross *80, professor of history at USC Dornsife and Cox's friend since their doctoral student days at Princeton, said, "Over the years, he made his greatest mark as a teacher. Tom was one of the best teachers of intellectual history I have ever worked with. His lectures were impeccable — and what made them so was that they were aimed at his students rather than at the profession."

Cox is survived by Gerry Cox, his former wife of 30 years.

James H. Horne *90

James Horne, who had careers in academia, investment banking, and lastly in research science, died April 29, 2012. He was 47.

He graduated *summa cum laude* from Harvard in 1985 and earned a Ph.D. in physics from Princeton in 1990. He then held postdoctoral positions at the University of California, Santa Barbara, Yale, and Cambridge (U.K.). His academic career started in astronomy and moved to relativity and gravitation.

In 1996, Horne changed careers and moved into investment banking. He worked at several financial firms in London as a risk manager.

In 2002, he moved to Boulder, Colo., as a research scientist at Space Imagery and later at SAIC. In the mountains around Boulder, he enjoyed trail running, camping, and skiing.

Horne is survived by his wife, Katherine; two children; his parents; two siblings; and four nieces and nephews.

Graduate memorials are prepared by the APGA.

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W. Barksdale Maynard '88

Students crowded Murray Hall on Jan. 16, 1890, to hear New York anti-vice crusader Anthony Comstock fulminate against "the various temptations of young men." Comstock was famous for finding indecency everywhere — so irreverent undergraduates glued natty red-flannel underwear to the nude Gladiator statue outside the gym, just prior to his arrival.

The graduating Class of 1880 had donated the Gladiator — a hollow copy of the Borghese Warrior from ancient Greece — hoping to outdo the Class of 1879, which gave two lions to flank the front steps at Nassau Hall. The lions survive today at Wilson College (replaced at Nassau Hall by tigers), but the Gladiator was doomed almost from the beginning. His sword and fig leaf soon were stolen, and many pranks left him worse for the wear.

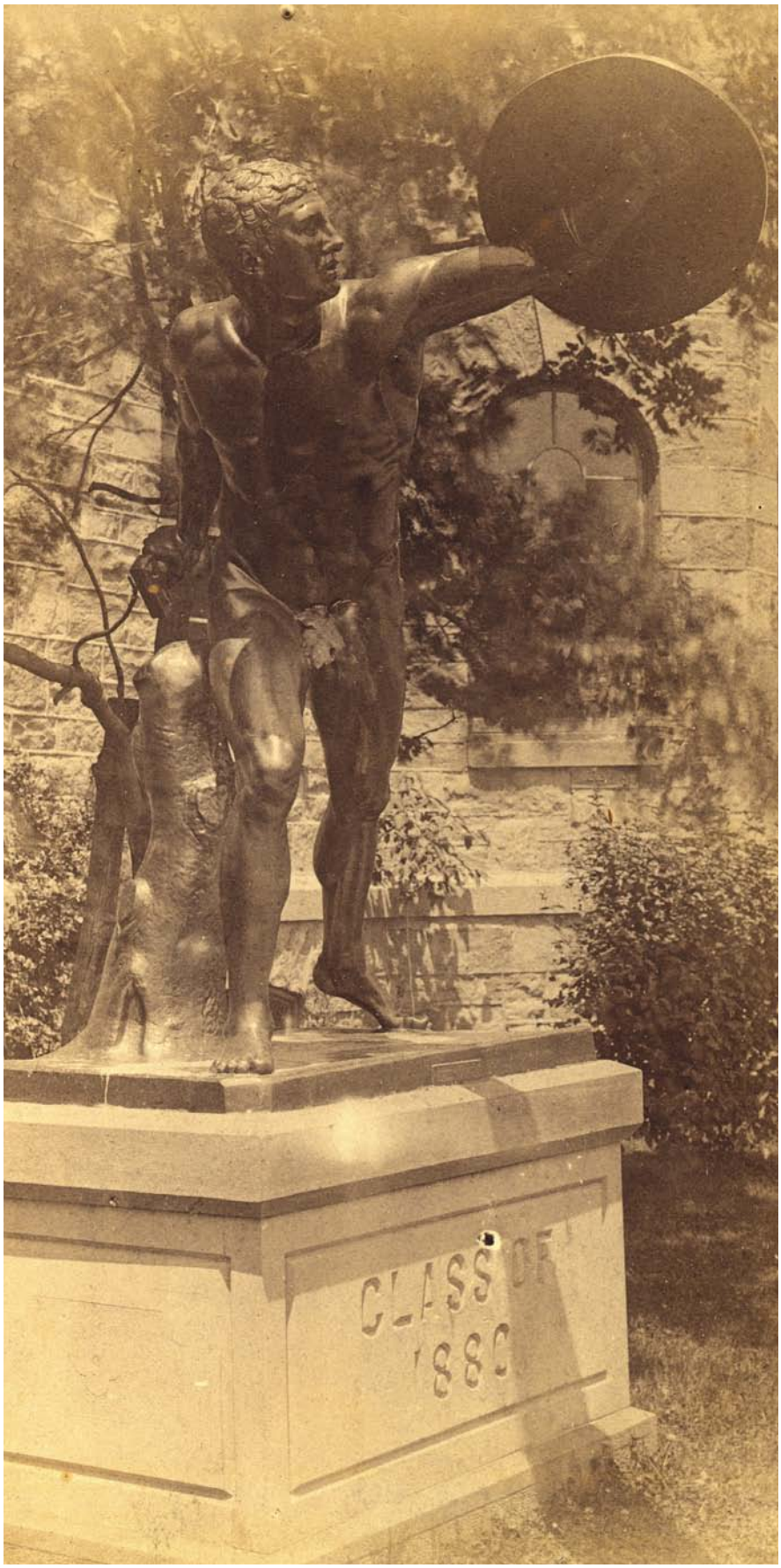
"Is it not time to put a stop to the mutilation of the statue?" begged *The Daily Princetonian* in 1895. "It should be safe from the childish acts of would-be jokers."

One morning in 1898, the janitor at Brokaw Memorial, the campus swimming facility, summoned proctor Bill Coan in horror: There was a drowned man at the bottom of the pool.

Coan fished out the Gladiator. Three days later he was startled to see a person atop Brown Hall, poised for a suicidal jump. "I climbed up through the skylight to the roof," Coan recalled, "and with the assistance of my partner, lowered the 250 pounds of bronze to the ground."

Once again he hid the peregrinating statue. Then, "to my amazement while I was going to the Williams-Princeton baseball game in May," Coan remembered, "what should I see but the bronze Gladiator seated on the corner ... to the great amusement of the baseball fans."

Thereafter the Greek warrior went straight to the town dump, an ignominious end to a brief career among Philistines.



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