

FACULTY
DIVERSITY

FREE FOOD:
A GUIDE

IN THE
BEGINNING

PRINCETON ALUMNI WEEKLY



POLO RETURNS

Fight like crazy
to win — but
remember
your manners!

APRIL 22, 2015
PAW.PRINCETON.EDU



PRINCETON VARSITY CLUB

Education Through Athletics



**Varsity Letter Winners:
Show Your Princeton Pride, Order Your PVC Merchandise Today!**

The varsity letter sweater and framed varsity letter are available for purchase by Princeton varsity letter winners through the Princeton Varsity Club.

PVC fleece blankets are available for purchase by all Princeton Athletics supporters.

For more information or to place an order, please visit the PVC website at www.PrincetonVarsityClub.org.

PVC Framed Varsity Letter



PVC Varsity Letter Sweater



PVC Fleece Blanket



PRINCETON ALUMNI WEEKLY

An editorially independent magazine by alumni for alumni since 1900



Top: Princeton University Archives; from left: Courtesy Cynthia Phifer; Kracauer '75 '79; Official White House Photo by Lawrence Jackson; Princeton University Archives; Sameer A. Khan; SPIDER Collaboration

PRESIDENT'S PAGE	2
INBOX	3
FROM THE EDITOR	5
ON THE CAMPUS	7
Faculty diversity ♦ Student experiment: Eating for free ♦ Former architecture dean speaks out ♦ 3-D printing ♦ Fung Forum ♦ Admission offers ♦ Meningitis risk ♦	
SPORTS: Women's basketball in NCAAs ♦ Women's lacrosse ♦ Sports shorts	
LIFE OF THE MIND	15
Helping governments succeed ♦ Renewable energy ♦ How Hebrew and Arabic came together	
PRINCETONIANS	29
Chris Moore '10 brings math to the Cubs ♦ Macauley Peterson '01 writes about chess ♦ Robin Givhan '86 explores fashion in new book	
CLASS NOTES	32
MEMORIALS	49
CLASSIFIEDS	54
THAT WAS THEN	56

Princeton's national-championship polo squad about a century ago, page 24



How It All Began **18** For half a century, Princeton has been leading the exploration of how the universe began. Last year was among the busiest yet. *By Mark Alpert '82*

Ride Like a Centaur **24** Snorting horses, thrown elbows galore, and the sweet scent of manure are making a comeback. Princeton's Polo Club has returned. *By David Walter '11*

PAW.PRINCETON.EDU



Michael Graves
Cynthia Phifer Kracauer '75 '79 and John R. DaSilva '85 remember a beloved teacher.



Spirit of '65
Gregg Lange '70 looks at Princetonians in the civil-rights movement, on campus and beyond.



Covering the Strike
Former *Daily Princetonian* staffers recall the hectic, headline-filled days of May 1970.



Hip, Hip ...
Tom Meeker '56, who teaches the locomotive to freshmen, explains the cheer's finer points.



Cosmic Echoes
View more images from assistant professor Bill Jones '98's project in Antarctica.

The Enduring Tradition of Annual Giving

As Princeton grappled with escalating inflation and operating costs in the years after World War II, a group of 24 concerned undergraduates wanted their peers to understand the University's financial condition.

The students sent a pamphlet to all undergraduates in October 1948 to explain factors affecting Princeton's bottom line, including the high costs of educating each student, even those paying full tuition and fees; the need to support basic research beyond external funding from government, industry, and foundations; and the steep competition for top-quality faculty.

Thankfully, they noted, alumni had come "to the rescue."

"Putting money in the sock for Princeton is a fine old custom among alumni and one that has made Princeton what it is," they wrote. "...Without that kind of financial support, together with the moral support and interest which such generosity reflects, Princeton might just be another college."

While times certainly have changed from 1948 to today's globalized, technology-driven society, the issues shaping Princeton's finances then remain fundamental now. And the sentiments expressed by those student pamphleteers — gratitude for our alumni's role in making Princeton one of the world's greatest universities — ring just as true today.



TOM GRIMES

Members of recent graduating classes participate in an Annual Giving volunteer "boot camp" in the Chancellor Green Rotunda last November. Young alumni participation in giving is key to the University's future.

Princeton's Annual Giving campaign was beginning its ninth year when that pamphlet was published. Now in its 75th year, Annual Giving is a source of vital, unrestricted funds that allow us to uphold our commitment to excellence in everything we do — attracting and empowering talented students from all backgrounds, recruiting and retaining world-class scholars, and serving society by educating future leaders and creating new knowledge.

Annual Giving has been critical, in particular, to maintaining our groundbreaking financial aid program. Continued support of Annual Giving by alumni and parents during the Great Recession of 2008 and 2009 enabled Princeton to increase our financial aid budget to support students and families who faced tough times. This was a wonderful reflection of the loyalty and commitment of our alumni, and it was

greatly appreciated — as we saw at Class Day 2010, when keynote speaker and University Trustee Charles Gibson '65 was interrupted by rousing applause while noting that alumni generosity enabled most students to graduate debt-free.

Annual Giving contributions also allow Princeton to seize new opportunities when great ideas come along, such as the Bridge Year Program and the Princeton Neuroscience Institute. While we, of course, need to raise major capital gifts to fully endow these initiatives, Annual Giving funds helped us get them started.

Our history shows that every gift matters. Late in the first Annual Giving campaign in 1940-41, founding chair Harold Helm '20 reported that gifts ranged from 10 cents to \$1,000. Today, gifts of \$100 or less — which still come, as Helm described, "from the ends of the earth" — annually total \$1.5 million. This is the equivalent of the annual income on \$30 million of endowment. If Princeton were to receive a \$30 million unrestricted donation to our endowment, we would quite accurately describe it as one of the largest such gifts in the University's history. The cumulative impact of tens of thousands of gifts of various sizes is equally powerful, which is one reason why participation at all levels is so crucial to Princeton's well-being and its future.

Beyond providing financial support, Annual Giving helps to bring the University and the alumni community closer together. When John MacLean Jr. 1816 founded what was then called the Alumni Association of Nassau Hall in 1826, he described its main purposes as building alumni community and fundraising. The strength of our alumni community today is multifaceted and, as any Reunions attendee knows, unparalleled. Participation as an Annual Giving donor or volunteer is among the most meaningful manifestations of alumni engagement and pride.

While I marvel at the dedication of all of our alumni, the participation of younger alumni classes and senior classes has been particularly gratifying. In last year's Annual Giving campaign, the youngest 10 classes had an average participation rate of 72.1 percent. We are fortunate that the tradition of giving has been passed from each generation to the next, and that younger classes embrace this connection to the life of the University. Their dedication will help carry our alma mater forward.

When President Harold Dodds *1914 wrote in this magazine 75 years ago to encourage participation in the nascent Alumni Giving campaign, he could not have envisioned the growth in our spheres of scholarly exploration, our student body, and our campus size. But his message remains true, even though he presided over a much different Princeton.

"This money will be an expression of confidence in Princeton and in all that Princeton stands for as a privately maintained institution of learning at a time when every phase of our life is undergoing the closest scrutiny to determine its value in the national scheme," President Dodds wrote. "... I believe that all of us here at Princeton and all of you alumni throughout the world share a common determination to have Princeton go forward, to have Princeton grow constantly greater."

Inbox

SEARCHING FOR EXOPLANETS

Re “Life Among the Stars” (cover story, March 18): There may be trillions of planets in the universe. The important question to consider is what conditions should exist to make a planet habitable for animal life. Peter Ward and Donald Brownlee in their book *Rare Earth: Why Complex Life Is Uncommon in the Universe* show that more than 100 narrowly tuned constraints have to be satisfied for an Earth-like planet to exist. If so, this could bring the probability to one, i.e., us! Astrophysicist Frank Drake arrived at the same conclusion 40 years ago.

Kenell J. Touryan '62
Indian Hills, Colo.

Excellent presentation. Two questions: Evidently the geometry of the starshade’s “petals” is critical to minimizing diffraction. What happens if one of the petals is hit by a micrometeorite, creating a tiny pinhole? Also, how is the orientation/rotation of the “occulter” (viz. the second spacecraft that blocks the starlight) maintained with respect to the telescope?

Paul Francis Jacobs '66
Saunderstown, R.I.

Editor’s note: Professor N. Jeremy Kasdin '85 offers this response: Multiple layers of insulation should prevent a light path for a typical micrometeorite strike, and the effect of a small number of chips along the edge is within our error budget. The occulter will spin about its axis. By spinning, certain localized errors are averaged and thus

easily differentiated from planets. Attitude control is similar to any conventional satellite; performance is very insensitive to errors in the angle of the starshade relative to the line of sight to the star.

ROTC'S VITAL ROLE

Following up on Mike Burrill '66’s thoughtful letter (Inbox, Feb. 4), ROTC likewise offered me the privilege to be in the nation’s service (Vietnam '67-'68 and the Gulf War '90-'91). Perhaps more important than providing an opportunity for individuals to choose military service, ROTC also gives nonmilitary students a chance to engage with cadets and midshipmen. It is vital that those in government and politics, as well as the general public, have something of an understanding of our armed forces. Rubbing shoulders with ROTC classmates has the long-term benefit of building relationships with and respect for the military in ways that can’t be achieved through media and classroom portrayals alone. Princeton has emphasized diversity as a way for future leaders to understand all aspects of our society; I am most grateful that we continue to add and expand military service to the mix.

Wil Painter '67
Lebanon, Ind.

GATHERING IN DAVOS

President Eisgruber '83 fails to see the irony in his article regarding the World Economic Forum in Davos, Switzerland (President’s Page, March 4). Polluting the air as they go, 2,500 wealthy people jet to

CATCHING UP @ PAW ONLINE

Did you know that all episodes of PAW’s podcasts are available for free on iTunes?

To subscribe to PAW Tracks, our oral-history series, visit <http://bit.ly/PAWTracks>.

To subscribe to Gregg Lange '70’s Rally 'Round the Cannon, visit <http://bit.ly/RallyPodcast>.



FROM PAW'S PAGES: 3/26/48

THE RUGGERS REPLY

JUST a word or two of clarification about the Rugby Club to which Mr. Heimann kindly referred in his column (PAW, March 5).

The Rugby Club is a semi-independent organization which represents Princeton University. It is required to conform with those eligibility regulations which apply to any formal university team. As it is an athletic group, it is interested in winning as many games as possible. As a club it is interested in having a good time.

We feel that any man who is capable of running around a field for an hour in a



Can beer and scrums be mixed?

game which has no time outs and no substitutions is perfectly entitled to drink as much beer as he can hold at the half-time. So far we don't know anyone like that. This year we have a good team, in good condition, and it should be a winner.

THE PRINCETON RUGBY CLUB
Princeton, N.J.

(To the Rugby Club, which leaves this week-end to compete with Yale and other teams for the Bermuda Cup, best wishes and good wind.—ED)

Switzerland to discuss — you guessed it — climate change and inequality.

Charles S. Rockey Jr. '57
Boca Grande, Fla.

FACULTY AND DIVESTMENT

I also am disappointed and disturbed that 76 tenured faculty members at Princeton University have signed a divestment petition against Israel (On the Campus, Jan. 7). In fact, five professors actually drafted the petition, which then was circulated among undergraduates at the University. The names of these faculty members and their departments should be made public, possibly in PAW. Are the majority of the faculty members in one or two departments, or are they spread throughout the University? As

PRINCETON ALUMNI WEEKLY

An editorially independent magazine by
alumni for alumni since 1900

April 22, 2015 Volume 115, Number 11

Editor

Marilyn H. Marks *86

Managing Editor

W. Raymond Ollwerther '71

Associate Editor

Jennifer Altmann

Digital Editor

Brett Tomlinson

Class Notes Editor

Fran Hulette

Senior Writer

Mark F. Bernstein '83

Writer

Allie Wenner

Art Director

Marianne Gaffney Nelson

Publisher

Nancy S. MacMillan p'97

Advertising Director

Colleen Finnegan

Student Interns

Katharine S. Boyer '16; Mary Hui '17;

Martin D. Page '16; Morgan B. Nelson '15;

Jennifer Shyue '17; Melissa Yin '16

Proofreader

Joseph Bakes

Webmaster

River Graphics

PAW Board

Richard Just '01, Chair

Sandra Sobieraj Westfall '89, Vice Chair

James Blue '91

Carmen Drahl *07

*Robert K. Durkee '69

Michael Graziano '89 *96

*Richard Klein '82

John McCarthy '88

*Margaret Moore Miller '80

Charles Swift '88

*Jeff Wieser '74

*ex officio

Bianca Bosker '08,

Young-alumni representative

Local Advertising/Classifieds

Colleen Finnegan

Phone 609-258-4886, cfinnega@princeton.edu

National Advertising Representative

Ross Garnick, rossgarnick@ivymags.com

Phone 212-724-0906, Fax 631-912-9313

Princeton Alumni Weekly (I.S.S.N. 0149-9270) is an editorially independent, nonprofit magazine supported by class subscriptions, paid advertising, and a University subsidy. Its purpose is to report with impartiality news of the alumni, the administration, the faculty, and the student body of Princeton University. The views expressed in the *Princeton Alumni Weekly* do not necessarily represent official positions of the University. The magazine is published twice monthly in October, March, and April; monthly in September, November, December, January, February, May, June, and July; plus a supplemental Reunions Guide in May/June.

Princeton Alumni Weekly, 194 Nassau Street, Suite 38, Princeton, NJ 08542. Tel 609-258-4885; fax 609-258-2247; email paw@princeton.edu; website paw.princeton.edu.

Printed by Fry Communications Inc. in Mechanicsburg, Pa. Annual subscriptions \$22 (\$26 outside the U.S.), single copies \$2. All orders must be paid in advance. Copyright © 2015 the Trustees of Princeton University. All rights reserved. Reproduction in whole or in part without permission is prohibited. Periodicals postage paid at Princeton, N.J., and at additional mailing offices.

Postmaster: Send Form 3579 (address changes) to PAW Address Changes, 194 Nassau Street, Suite 38, Princeton, NJ 08542.

Inbox

an alumnus, I would like a sense as to how these misinformed and biased academics might be influencing Princeton students and the future leaders of our country. I agree with Stephen Tauber *68 (Inbox, March 4) that such anti-Israel rhetoric and discourse is simply anti-Semitism by another name. Some things never change, even at Princeton University.

Howard J. Zeff '58

Milwaukee, Wis.

Editor's note: The names of faculty petitioners can be found at www.princetondivests.org.

APPRECIATING THE ACCORDION

I read your excellent article on Mike Bulboff '02 and his accordion store (Princetonians, Feb. 4). I take issue with your alliterative description of the "soulful sounds" of the accordion.

As evidence, I refer you to the remarkable CD of accordionist and Princeton graduate Rob Curto '91 and his recording titled *Piano de Fole*, recorded in Brazilia and mastered in Brooklyn (www.robcurto.com). The Jan. 16, 2013, issue of PAW included an article on him and an audio clip.

Joel Pensley '62 p'92

New York, N.Y.

RECALLING ROBERT SHELL

I hope all members of the Princeton community will join in mourning the Feb. 3 death, at 66, of the celebrated Africanist Robert Shell at his home in Cape Province, South Africa. Shell was my good friend, and he recalled his years at Princeton in the 1980s as an assistant professor as among the happiest of his life. He was reunited before his death with his beloved daughter. A few years ago he remarried, fittingly, a librarian at a major African library. Rob was a man of brilliance, having a good heart, and dedicated to his work. His contribution to his field is truly major.

Arthur Waldron

Assistant Professor of History

and East Asian Studies

Princeton, 1983-1991

Professor of International

Relations

University of Pennsylvania

THESIS LESSONS

This is my first letter after 50 years. My senior thesis was not fun. It was on hydrogen bonding in substituted amino alcohols. I felt it was a failure because I couldn't make some of the alcohols to test. My thesis adviser recommended finding out what mistakes I was making in the preparation, which I never could

YOUR COMMENTS ONLINE

The Unforgettable Lectures of 'Dr. Boom'



The March 18 "That Was Then" story about chemistry professor Hubert Alyea '24 *28 sparked memories at PAW Online of one of the University's most colorful faculty members.

"By the spring of '63 we had all heard of Alyea's slam-bang, end-of-the-year chem class," wrote **Robert Buntrock *67**. The class ended "with the famous Princeton version of the clock reaction, invented by Alyea, with him singing '... and the Tiger stands defender of the Orange (cylinder of liquid turns from colorless to orange) and the Black' (color changes, on cue, to purple/black; ensuing pandemonium). Of course, the demos were punctuated by ignition of tethered hydrogen balloons with a burner."

William Beckner *75 recalled hearing Alyea's lectures in Missouri in 1959: "He was inspiring and partially motivated me to choose physics for my B.S. degree."

Ted Pockman '49 wrote about taking a chemistry class with Alyea in the summer of 1945. "In August the world became aware of atomic energy through media reports on the bombs," Pockman wrote. "But we learned about it from Dr. Alyea with his demonstration of nuclear fission using mousetraps and pingpong balls." ♦

do although I spent hours in the lab. I regretted not doing a library project, because it would have been easier. As a result of the unsuccessful thesis, I chose not to continue in chemistry but became a patent attorney. Many years after graduation and discussing the thesis failure with some classmates, I learned that my thesis was not a failure, but an adventure into science.

John Raubitschek '64
Alexandria, Va.

FROM THE ARCHIVES



The photo of skaters on Lake Carnegie (From the Archives, March 4) brought back a lovely memory. In early 1969, the lake ice was excellent, and while skating near the boathouse I met my German instructor, Franz Mohn. At his suggestion, we skated up Stony Brook, winding for a long distance through the Institute Woods. Eventually we came to a riffle and had to turn back, but skating through the woods was almost magical. It was wonderfully peaceful and beautiful, and remains one of my nicest memories of ice skating, and of Princeton.

Jim Paulson '72 *77
Oshkosh, Wis.

WE'D LIKE TO HEAR FROM YOU

Email: paw@princeton.edu
Mail: PAW, 194 Nassau St., Suite 38, Princeton, NJ 08542
PAW Online: Comment on a story at paw.princeton.edu
Phone: 609-258-4885
Fax: 609-258-2247

Letters should not exceed 250 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.

FROM THE EDITOR

Reading Lists



Princeton alumni have a lot to say, and they are good at getting it on the page. In the last six months, alumni and faculty members have published nearly 150 books, by our estimates, and PAW has covered them in the magazine, on our website, and in our monthly email newsletter, Princeton Books, thanks primarily to the efforts of books editor Jennifer Altmann. The breadth of subjects is dazzling: From sociology to St. Paul, gynecology to genealogy, Syria to censorship, Princetonians cover a lot of territory.

One of the most prolific writers is Jodi Picoult '87. In the last 23 years, she has published 23 novels, and her last eight books debuted at No. 1 on *The New York Times* bestseller list. How has she managed to write so much, and so well? "I'm a workaholic," she says. "I will start a new book the day after finishing a previous one."

Next month, Picoult will answer questions from PAW readers, so ask her anything from why she writes musicals to how she came up with the jaw-dropping ending in her latest novel, *Leaving Time*. Visit paw.princeton.edu by May 4 to submit your questions and sign up for PAW's books newsletter.

Not all Princeton writers are aiming for the bestseller list — some just want to get down on paper what they've learned about life so far. After Kelly Lytle '05 lost his father, Rob Lytle, to a heart attack at 56, he began writing letters to the man he considered his best friend. *To Dad, From Kelly* reflects, he says, "on the lessons I learned from my father and the questions between us that went unasked and unanswered." It's a tribute to the power of love, and of the written word.

— *Marilyn H. Marks '86*



Opening Doors

Susan Gordon
Sales Associate
Susan cell: 609 529-6044
Susan.Gordon@cbmoves.com

COLDWELL BANKER
RESIDENTIAL BROKERAGE

PrincetonRealEstate.net

© 2015 Coldwell Banker Corporation. Coldwell Banker® is a registered trademark of Coldwell Banker Corporation. An Equal Opportunity Company. Equal Housing Opportunity. Owned and Operated by MRT Incorporated.



THE RIGHT AUDIENCE

Affluent, Loyal, Connected

Promote your business, your services, your brand to **69,000 potential customers** in the *Princeton Alumni Weekly*.

For more information contact
Colleen Finnegan
609.258.4886
cfinnega@princeton.edu



From left: Princeton University Archives; Frank Wojciechowski



PRINCETON IS A PLACE WHERE...

“What I love about Princeton is the feeling that there are no limits. Princeton teaches you that whatever you decide to do, it can be the best of the best.”

—JANET MORRISON CLARKE '75, ANNUAL GIVING CHAIR, 1990-1992; ANNIVERSARY CAMPAIGN FOR PRINCETON CO-CHAIR, 1995-2000



ANNUAL GIVING MAKES THE DIFFERENCE.

Since the inaugural Annual Giving campaign in 1940-41, generations of alumni, parents, and friends have joined together to create a tradition of giving back and providing essential support for Princeton.

This year's Annual Giving campaign ends on June 30, 2015. To contribute by credit card, please call the 24-hour gift line at 800-258-5421 (outside the U.S., 609-258-3373), or use the secure website at www.princeton.edu. Checks made payable to Princeton University can be mailed to Annual Giving, Box 5357, Princeton, NJ 08543-5357.

On the Campus



The Scheide Library — its renowned collection of rare books and manuscripts housed within Firestone Library amid oak furnishings, stained-glass leaded windows, and a bust of George Washington — was donated to the University by the late William H. Scheide '36. *Photograph by Ricardo Barros*

Forging Faculty Diversity

Initiatives include commitment of funds for up to 20 hires to support inclusivity

The University is committing funds to support as many as 15 to 20 new hires that diversify the faculty — one of several initiatives announced in response to a September 2013 report by the Trustee Ad Hoc Committee on Diversity. Deborah Prentice, dean of the faculty, said the first hires could take place as early as this coming fall.

The trustee committee called for a “sense of urgency” in efforts to make the University’s faculty, postdoctoral, graduate student, and staff populations more inclusive. “[Princeton] needs to make substantive changes to its culture and structure if it hopes to remain a great American and global university, where the most gifted and promising individuals from every segment of society feel welcome and thrive,” the report said.

University statistics from September 2014 show that 83 percent of tenured faculty are white and 75 percent are men. Among assistant professors, 66 percent are men and 76 percent are white.

Each academic department is planning for the next five and 10 years



“Those of us who are trying to promote diversity on this campus are doing so because we believe it will make us better.”

— Deborah Prentice, dean of the faculty

as part of the University’s strategic-planning process, and ways to increase diversity will be included, Prentice said. Final proposals are due in May.

“Those of us who are trying to promote diversity on this campus are doing so because we believe it will make us better,” she said. “Our research and

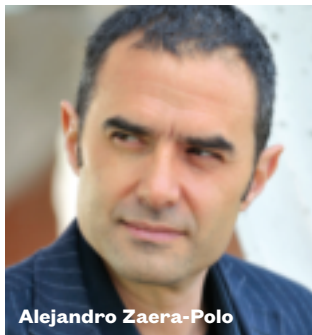
our teaching will be better if we can get all of the talent of the world instead of just the people who look a certain way or come from a particular school.”

The dean of the faculty’s office will contribute funding that is equivalent to 10 positions to support diversity efforts; since departments normally share in funding new positions, the result could be 15 to 20 new faculty members.

In addition, the Faculty Advisory Committee on Diversity will hold two speaker series during the next academic year. One will offer public lectures to encourage a continuing conversation about diversity on campus. The other will bring in young scholars — mainly graduate students and postdocs — to present their work, which Prentice said will help connect departments with students from schools outside of traditional faculty networks. (The trustee committee found that nearly half of Princeton’s tenured and tenure-track faculty had Ph.D.s from just six institutions: Princeton, Harvard, Stanford, MIT, Yale, and UC-Berkeley.)

These visits may help dispel the “stereotype of Princeton as a privileged, white male place” and encourage the scholars to want to return for teaching positions, Prentice said. “Those who do come here typically find it to be much better” than they expected. ♦ By A.W.

FORMER DEAN SPEAKS OUT ABOUT HIS RESIGNATION



Alejandro Zaera-Polo

Five months after abruptly stepping down as dean of the School of Architecture, Alejandro Zaera-Polo issued a public statement in March about his resignation.

“My sudden departure as dean was requested by President

Eisgruber following my acknowledgment that I had removed all citations from my contribution to the publication accompanying the exhibition ‘Elements of Architecture’ at the Venice Biennale 2014,” said Zaera-Polo, who remains a professor of architecture. The international event is a showcase of architectural trends and research.

Admitting that his actions “were unorthodox in an academic setting,” Zaera-Polo said he had not “breached any moral, ethical, or other applicable standards” and that the citations were removed

to make the publication “more accessible for the general public.”

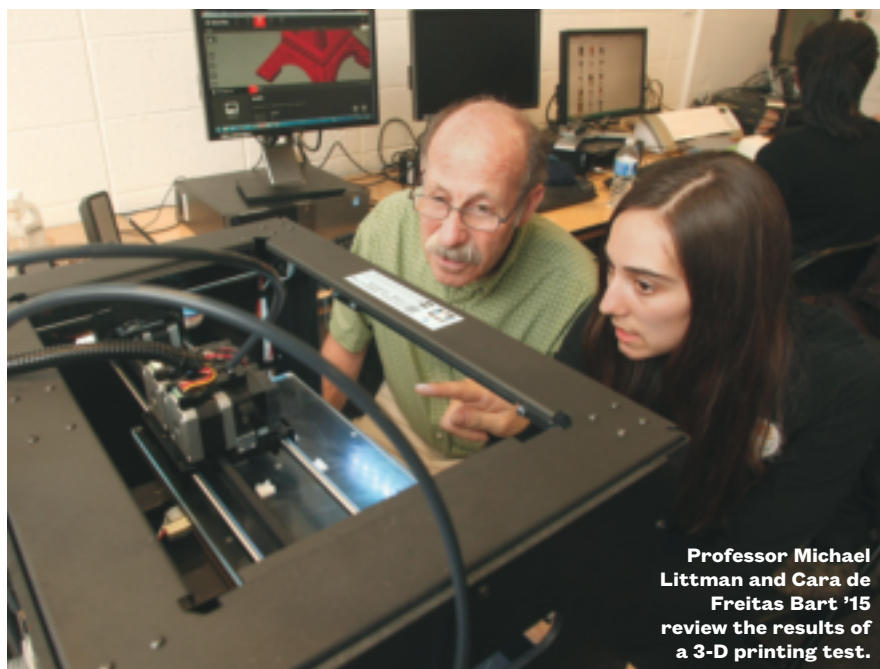
He acknowledged “a few instances of paraphrasing, which would have required citation if they were to meet strict academic standards,” but said they were inadvertent and presented information “easily available from multiple sources on [the] Internet.”

Terming Zaera-Polo’s comments “inaccurate and incomplete,” University spokesman Martin Mbugua said the dean was asked to resign “because of statements he made in writing that indicated

he was unfamiliar with the University’s policies on plagiarism and that he may have directed his collaborators to breach the rules of the University.”

Zaera-Polo said that as dean he had tried to move the architecture school away from “a self-referential system” and increase its engagement with industry, the community, and the public. He said the school’s “theoretical inclination” should continue, but focus on areas such as entrepreneurship and new technologies and media. ♦ By W.R.O.

From top: Denise Applewhite/Office of Communications; Wikipedia



Professor Michael Littman and Cara de Freitas Bart '15 review the results of a 3-D printing test.

dispenses a thin layer of plastic or other materials. The object is produced layer by layer until the process is complete.

Littman said 3-D printing allows computer-aided designs to be easily constructed and tested. Engineers previously required custom-ordered metal parts to test out their designs, a process that was generally more expensive and took much longer.

“We get to this intermediate stage of testing out ideas much more quickly because you can draw it faster than you can build it,” he said.

Because most of the 3-D printers on campus are available only to faculty members and students in certain departments, a group of undergraduates formed a 3-D printing club last year that any student can join.

Since September, membership has jumped from about 40 students to nearly 300, said club president Mark Scerbo '18. Items printed by students have included a model of the brain, a playable flute, and a replica of the Princeton shield, he said.

“The main appeal of 3-D printing for me, and I think most students, is the freedom to truly create whatever you can think of,” said club member Sunny He '18.

Princeton faculty members also are using 3-D printing as a research tool. One MAE assistant professor, Michael McAlpine, who drew national attention two years ago for his work on a “bionic ear,” recently headed a project in which researchers 3-D printed tiny light-emitting diodes into a standard contact lens, which allows the device to project beams of colored light. The research was lauded as the first step toward the creation of high-tech contact lenses that can beam data and moving images onto the user’s eyeballs. The project was funded by the Air Force, which hopes to use the contact lenses to monitor pilots’ health and alertness.

As it turned out for Newill-Smith, his thesis adviser wasn’t the only one impressed with the asteroid gripper. After sending NASA a copy of his thesis, he landed an interview at the NASA Jet Propulsion Laboratory in California and was hired as a robotics mechanical engineer. “It’s a dream come true,” he said. ♦ By A.W.

A New Dimension

3-D printing increasingly popular as a research tool for student projects

For their thesis project last year, three seniors designed and tested a model of a robot with high-tech grippers that could land on and explore an asteroid.

“Basically, it works the same way that beetles climb walls — there are these tiny microspines on their legs, and they reach up and drag across the surface to find these little nooks and crannies on the surface,” said David Newill-Smith '14, who created the robot along with Albert Boohene '14 and Timothy Trieu '14.

It’s not unusual for mechanical and aerospace engineering majors to build a space vehicle or

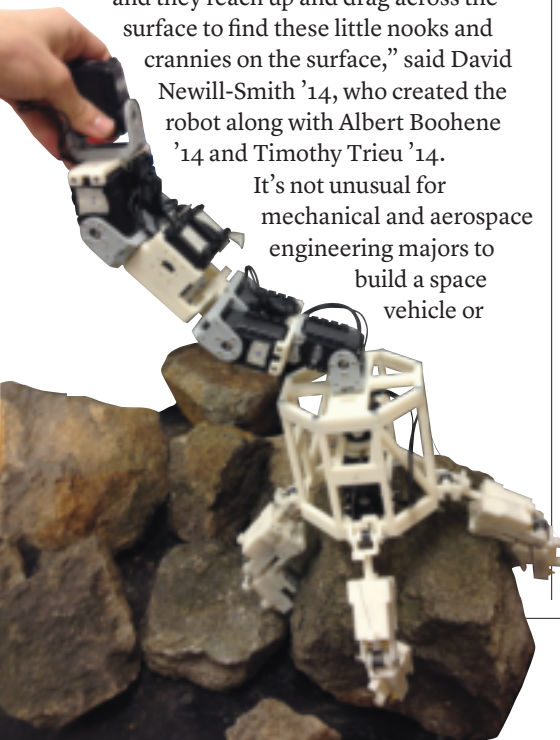
robot. But the seniors’ project had a twist — they used a 3-D printer to construct their working model.

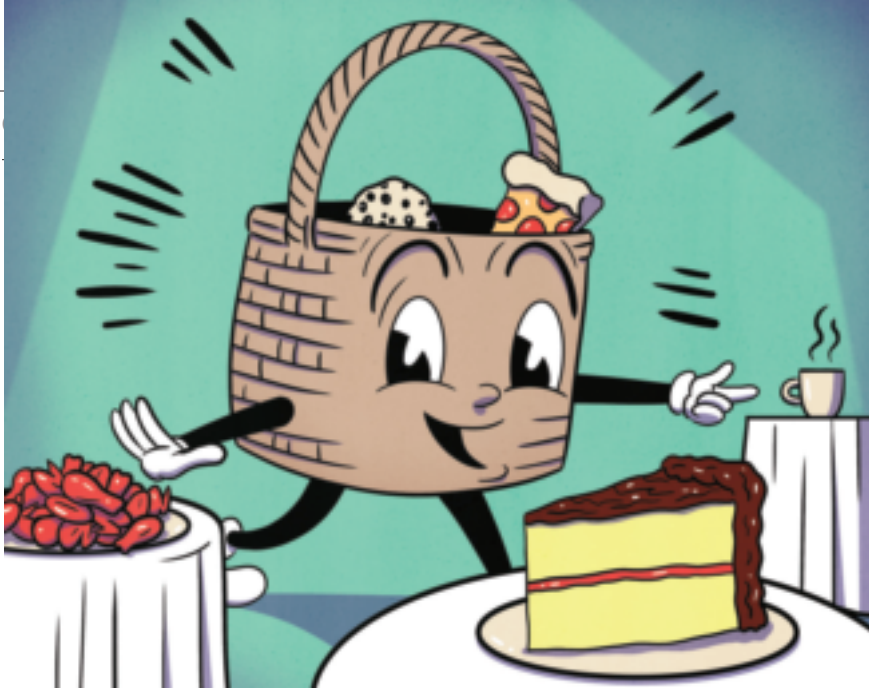
Over the last several years, it has become more common for students to incorporate 3-D printing into their research. In 2013, one student used 3-D printed parts to create a model of a spacecraft that could land on Mars.

When department chair Michael Littman secured funding in 2006 to purchase a 3-D printer, MAE became the first department at Princeton to utilize the technology in its undergraduate courses. Since then, every MAE major has taken a course in engineering design, learning how to use computer-aided design programs that serve as a platform to create and print 3-D objects.

The first step in 3-D printing is to create a computer-generated design of the desired object; the printing software then slices the model into thousands of horizontal layers. This file is uploaded to the 3-D printer, which has a nozzle that

The parts of this model of a robot that could navigate an asteroid’s surface were created by students on a 3-D printer.





STUDENT DISPATCH

Cookies, Wings, and Ramen Noodles — The Tale of a Free-Food Forager

By Kevin Cheng '17



It's a Tuesday night, and hundreds of students have lined up in Mathey Common Room in anticipation of a perk of Princeton

student life: complimentary grilled-cheese sandwiches, part of a weekly study break. If you want to draw a crowd, it's tough to beat the lure of free food.

But is it possible to live entirely on free food? I rose to the challenge: For three days during midterms week, I would not swipe into a dining hall or purchase food. I assumed that midterms — a period during which study breaks are plentiful — would be the perfect time for a novice Princeton forager.

Eager for advice, I looked for suggestions. Especially valuable is the “freefood” email listserv dedicated to advertising the whereabouts of leftover food on campus. Created in 2011 by Kevin Donahue '12, it's open to any student who wants email blasts promoting everything from cupcakes to leftover pizza.

Whispers of secret food abounded. One student said he often had seen coffee and platters of cookies in various humanities buildings throughout the day. A Woodrow Wilson School concentrator

noted that the school frequently holds luncheons (translation: unattended platters of food).

With that in mind, I began my quest on Tuesday with a lunchtime foray into Robertson Hall, home to the Wilson School. On the lower level, I was greeted by an assortment of deli sandwiches, fruit salad, and sparkling water. An attendant told me that the food was for an event featuring a conversation with a professor. Pressed for time before my next class, I asked if I could grab a turkey-and-cheese sandwich to go. Take as much as you want, she said.

Tuesday evening was a bonanza: pizza and wings at Frist for a women's basketball-viewing party, ramen noodles for a senior's art exhibit in the Lewis Center of the Arts, ice cream sundaes sweetening midterm study sessions — all in one night! As I arrived at each event, I joined students who had come prepared with plates, forks, and Tupperware

Whispers of secret free food abounded. One student said he often had seen coffee and platters of cookies throughout the day in humanities buildings.

containers. Helping myself to the food, I thought: If things are this easy, the week should be cake.

And indeed, cake — and cookies — would be all I could find for lunch on Wednesday (like many students, I usually skip breakfast because I'm rushing to class in the morning). Famished after my meager lunch, I got an email from the freefood listserv titled “[Freefood] Chicken & Broccoli and Rice in Murray Dodge Hall.” The meal, courtesy of the Office of Religious Life, converted me into a believer — in the freefood listserv, at least.

Free-food frequenter Walker Carpenter '17 said he usually could fill his container even after most students have left an event. “Sometimes even after I get what I can grab, there is a lot of food left over,” Carpenter said. “It really makes you think about how much gets thrown away every day.”

Lunch on Thursday was a second-rate sequel to Wednesday: Saltine crackers and a sad-looking chocolate-chip cookie I found on a tray outside Chancellor Green. This left me starving through my three-hour afternoon seminar — but beggars can't be choosers, and so I was grateful for the comparative-literature professors with sweet teeth.

Dinner was a treat. Both the freefood listserv and a friend referred me to the Real Food Co-op, where students cook in a kitchen in the basement of Edwards Hall. (Guests eat for free!) On the menu: Vegetarian chili, steamed broccoli with cheese, white rice, and chocolate cake with ice cream.

Among food foragers, Danny Weiss '12, who went a whole year without a meal plan, is legendary. “Food has never been that important to me, and senior year I just couldn't justify spending so much money on it, so I didn't spend any on it,” he said. Surviving on leftovers has a moral dimension as well. “Most of my efforts were going to taking the excess that otherwise would have gone to waste,” Weiss said.

That path was not for me, though. After three days, I was ready to pay for regular meals again. I wasn't exactly starving, but just the thought of eating cookies for lunch everyday was giving me a stomachache. ♦

IN SHORT



West College

The **ACCEPTANCE RATE** for applicants for admission dropped below 7 percent for the first time as the University extended 1,908 offers of admission for the Class of 2019 — 6.99 percent of the record 27,290 applicants. Of those offered admission, 48 percent are women, 11.4 percent are international students, 49 percent are U.S. students self-identified as racial or ethnic minorities, 61 percent are from public schools, and 15 percent are the first in their families to attend college. Ten percent are legacies, and 39.6 percent — 767 students — were admitted through early action.

About 1,200 students were offered positions on the wait list. Admitted candidates have until May 1 to accept their admission offer. Princeton expects to enroll 1,310 incoming freshmen; an additional 35 are expected to defer enrollment to take part in the bridge-year program, a year of community service in China, India, Bolivia, Senegal, or Brazil.

The third **PRINCETON-FUNG GLOBAL FORUM** will bring researchers, public-health officials, and policymakers to Dublin, Ireland, Nov. 2-3 to discuss “Modern Plagues: Lessons Learned From the Ebola Crisis.” Scheduled speakers include more than a dozen Princeton professors and several alumni who work for government or nonprofit groups, as well as other scholars and institutional leaders.

“As we become a more global community, it’s important to know how crises are handled and think about how we should respond to the next crisis,” said Elisabeth Donahue, associate dean of the Woodrow Wilson School, which has organized the conference.

The forum is open to the public. Registration is required; more information can be found at <http://fungforum.princeton.edu/>.

FIFTY YEARS OF ACADEMIC FEMINISM

with
Joan Scott



2015 MEREDITH MILLER MEMORIAL LECTURE

Wednesday, April 22, 2015

4:30 PM

McCormick Hall Room 101

Historian Joan Scott explores her long career in women's, gender, and sexuality studies in its historical context.

Reception to follow in Prospect House



Have a fabulous second home to rent?

Advertise it in PAW where you will reach readers that will treat your home as their own!

Contact Colleen Finnegan
cfinnega@princeton.edu
609-258-4886

32 Chambers St.
Princeton, NJ 08542

Princeton University buyers and sellers like to use us!

800-763-1416
609-924-1416
www.stockton-realtor.com

On the Campus

IN SHORT



Senior research mathematician **JOHN NASH *50** is a winner of the 2015 Abel Prize for his work on partial differential equations. The

award, presented by the Norwegian Academy of Science and Letters, is one of the most prestigious in mathematics. Nash, a 1994 Nobel Prize laureate in economics known for his research in game theory, was portrayed in the 2001 film *A Beautiful Mind*. He will split the \$800,000 prize with colleague Louis Nirenberg, a professor emeritus at New York University.

The risk of **MENINGITIS B** on campus is now considered the same as at any other university, Princeton officials said last month after consulting with the Centers for Disease Control and Prevention. No new cases have been reported since November 2013, following an outbreak of nine cases associated with the University.

Princeton said that 98 percent of undergraduates have received at least one dose of the meningitis B vaccine. The University recommends that all new students receive the vaccine before arriving in the fall.

A fund launched by members of the **CLASS OF 1977** on the crowdfunding website GoFundMe.com to express solidarity with sexual-assault victims has raised more than \$7,300, surpassing its \$5,000 goal in four days. Class members created the fund, called "Not the Princeton Mom," in response to classmate Susan Patton's statements on date rape and sexual assault. The proceeds will be donated to the University's Sexual Harassment/Assault Advising, Resources, and Education (SHARE) office.

Patton, who has referred to herself as "The Princeton Mom," sparked controversy for her comments during TV appearances. In December, she suggested that victims of campus sexual assault had to take responsibility for putting themselves in a vulnerable situation, and distinguished between rape "at

the point of a gun or knife" and "what really is a clumsy hookup melodrama or a fumbled attempt at a kiss or a caress," calling the latter category "not a crime," but "a learning experience."



This official guidebook to Versailles, first published in 1674, is included in "**VERSAILLES ON PAPER**," an exhibition in Firestone Library's main gallery through July 19. On display are books and prints from the 17th and 18th centuries that document the development of the palace and gardens during the reign of Louis XIV. The exhibition's website is <http://rbsc.princeton.edu/versailles/>. ♦

From left: Office of Communications; Marquand Library of Art and Archaeology; Princeton University

The advertisement features a wooden jewelry box with the Princeton University crest and name on the lid, an open wooden box containing jewelry, and a wooden graduation tassel. The background is dark with a spotlight effect on the gifts.

Timeless Gifts for the Princeton Grad

PrincetonGraduationGifts.com

Handcrafted, American Made heirloom gifts.
Made for this generation and the next!®

South Bend
WOODWORKS™



Blake Dietrick '15 scored 26 points in the loss to Maryland.

WOMEN'S BASKETBALL

Tournament-Tested

Despite unfavorable seeding, Princeton reaches NCAA second round

Early in the week leading up to the NCAA Tournament, well before Princeton played games in front of a U.S. president and two Supreme Court justices, head coach Courtney Banghart told reporters that her Tigers had become “America’s team.”

It wasn’t meant to sound grandiose. Rather, she was responding to the supportive messages she had received after Princeton, with the only perfect record among Division I women’s teams and a No. 13 ranking in the national polls, was seeded eighth in its

tournament region. In the eyes of the selection committee, the Tigers were rated somewhere between 29th and 32nd in the 64-team tournament field. But the team took it in stride, winning its opening-round game against Wisconsin-Green Bay March 21 — the first NCAA Tournament victory in program history — before falling, 85-70, to top-seeded Maryland March 23.

Against Green Bay, President Barack Obama, the uncle of reserve forward Leslie Robinson ’18, watched from the stands as Princeton drained three 3-pointers to

take an early lead. By halftime, the Tigers were behind, 34-33, trailing at the break for the first time since their opening game in November. They stormed ahead in the second half with a steady, confident performance punctuated with moments of brilliance, as when forward Annie Tarakchian ’16 snagged a rebound and whipped a baseball pass 70 feet down the court to Alex Wheatley ’16 for a breakaway layup. Princeton won 80-70, and Tarakchian finished with 19 points, 17 rebounds, and five assists.

Maryland, the Big Ten champion, proved to be a tougher matchup. Playing at home in front of more than 7,700 fans, the Terrapins featured stellar perimeter shooters and a formidable front line. Princeton seemed determined not to be outmuscled, scoring most of its first-half points on shots within 10 feet of the basket. The Tigers again trailed at halftime, 42-38, but never seemed overmatched.

The pivotal stretch came early in the second half. In a four-minute span, Princeton missed six consecutive shots while Maryland made five in a row, plus two free throws, and opened up a 17-point lead. Blake Dietrick ’15 did her best to pull the Tigers back into contention, scoring a team-high 26 points, but Maryland’s hot shooting never cooled. The Terrapins made 53.4 percent of their field-goal attempts, including 12-for-20 shooting on 3-pointers.

Dietrick, a co-captain and the lone senior starter, said after the Maryland game that she and her teammates left the floor with no regrets. “In this moment, I am just so happy and proud of every single one of them,” she said. “I couldn’t have asked for a better team.”

◆ By B.T.



Photos: Beverly Schaefer



Playing in College Park, Md., the Tigers attracted scores of D.C.-area fans, including President Barack Obama, left, with brother-in-law Craig Robinson ’83, and Supreme Court Justices Elena Kagan ’81 and Sonia Sotomayor ’76.

WOMEN'S LACROSSE

After Strong Start, Tigers Take Aim at Another Ivy Title

By the midpoint of the regular season, Princeton women's lacrosse already had built an impressive résumé, with a 7-1 record that included wins over No. 9 Loyola and No. 11 Penn State. Head coach Chris Sailer and her team — an Ivy League co-champion and at-large choice for the NCAA Tournament in 2014 — set their sights on winning the Ivy's automatic bid this year.

"Recent history has proven that to win the Ivies you have to beat Penn," Sailer said. "But that game doesn't even matter unless you do well in your other Ivy games, so we really do take a one-game-at-a-time focus. In our minds, we have seven Ivy League championship games to play, each one as important as the others."

The Tigers, ranked No. 11 in the Division I coaches' poll, won their first two Ivy games decisively. The second, a 17-12 win over Harvard March 21, was the 350th victory in Sailer's Hall of Fame career.

Princeton's attack is versatile and unpredictable, with goals coming from different angles and different players, including Olivia Hompe '17 (23 goals), Erin Slifer '15 (20), and Stephanie Paloscio '16 (11). Goalie Ellie DeGarmo '17 has a .500 save percentage, the eighth highest in the country. ♦ *By Alexandra Markovich '17*



Olivia Hompe '17



NBA Commissioner Adam Silver spoke on campus March 24.

ACTIVISM IN SPORTS

Free Speech and Basketball

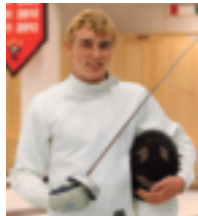
NBA Commissioner Adam Silver told a Princeton audience that when a handful of the league's stars wore "I Can't Breathe" T-shirts during warmups last year, following a Staten Island, N.Y., grand jury's decision not to indict the police officer involved in the death of Eric Garner, he appreciated their effort to express their point of view.

Speaking about Chicago Bulls guard Derrick Rose, the first player to wear the shirt, Silver said, "Credit to him — he knew exactly what he was doing. He knew how much more effective that would be than making a statement to a reporter after a game." But Silver cautioned that too many political statements on the court would be "a disservice to the fans, who come to see a basketball game."

Steve Mills '81, general manager of the New York Knicks, and Craig Robinson '83, an ESPN commentator and former college coach, joined Silver for the March 24 discussion of "Political Expression and Activism in Today's NBA," moderated by Professor Eddie Glaude '97. ♦ *By B.T.*

SPORTS SHORTS

MEN'S AND WOMEN'S FENCING finished fourth in the NCAA Championships March 19-22 — the program's fifth consecutive top-four finish. Ten Tigers earned All-America honors: Anna Van Brummen '16 and Isabel Ford '16 (women's épée);



Ashley Tsue '17 (women's foil); Allison Lee '18 and Gracie Stone '16 (women's saber); Jack Hudson '16, above, and Alex House '17 (men's épée); Thomas Dudey '18 (men's foil); and Edward Chin '18 and Peter Pak '17 (men's saber).

Jordan Lippetz '17 shot a 2-over-par 146 in two rounds to lead **WOMEN'S GOLF** to the

team title at the Low Country Intercollegiate in Hilton Head Island, S.C., March 21-22.

MEN'S LACROSSE improved to 6-1 with an 11-10 win over Yale March 21. The Tigers took an 11-7 lead early in the fourth period, but Yale scored three straight goals to cut the lead to one. Princeton goalie Eric Sanschagrín '15 saved the Elis' last shot at a tying goal with 1:30 remaining.

WOMEN'S WATER POLO won seven of eight games in its trip to California March 14-21, improving to 21-2. The Tigers' March 21 win over Whittier was head coach Luis Nicolao's 400th on the women's side. Nicolao also has won 341 games with the Tiger men.

Clockwise, from top right: Sameer A. Khan; Beverly Schaefer; Noel Valero '82 '85

Life of the Mind

INTERNATIONAL AFFAIRS

Reform School

Jennifer Widner gathers case studies of problem-solving in developing countries

Developing countries face all sorts of practical questions: What is the best way to improve policing? Should a new form of government be parliamentary or presidential? How does a nation address high rates of absenteeism by health-care workers?

Jennifer Widner, a professor of politics and international affairs at the Woodrow Wilson School, says the answers to those questions and many others are in the heads of cabinet ministers and civil servants, but “very little of that was being captured by policy institutions or scholars.”

So in 2008 Widner founded Innovations for Successful Societies, based at the Wilson School, which has created a library of practical tips on addressing knotty governmental challenges. The program gathers accounts of successful problem-solving in developing countries and distills the findings in clear, nonacademic prose that can be found, free of charge, on the program’s website, along with audio files of interviews. So far the program has assembled about 150 case studies that draw on work in 64 countries. The website has received more than 40,000 visits in the last year from people in 195 countries.

Widner’s team of five researchers travels around the globe to interview people. In Chile, researchers looked at transferring power in a crisis following a 2010 earthquake that complicated the installation of the country’s first new government in 20 years. In Kosovo, they examined how the government installed a more transparent police service in a region plagued by corruption.

One of the group’s most widely circulated papers was a study of how, following a financial crisis and natural disaster in 1997, Indonesia allowed local groups — not faraway administrators — to determine how to spend grants. Another well-regarded case explains how a state in Malaysia simplified the way people could register the land they owned, creating a more orderly, efficient process for property transactions. “Economic development can’t take off until people can buy and sell land,” Widner says.

Many of the researchers are recent Princeton graduates. Researchers are not sent to war zones, but it helps if they have a healthy sense of adventure.

“I spend my time in places where most people don’t tend to go,” says senior research specialist Rachel Jackson ’11, who has reported from Mexico, Vietnam, Sierra Leone, Zambia, and South Africa. Last summer she spent several weeks in Hanoi, interviewing more than a dozen people for a survey about the quality of life in Vietnam, asking them how their local and provincial governments were doing.

Many interview subjects are full of idealism, and a number have gone on to higher office. When the team first worked with Joko Widodo, he was the crime-busting mayor of Surakarta, Indonesia. Now, he is the nation’s president. ♦ *By Merrell Noden ’78*



Professor Jennifer Widner has created a library of practical tips on addressing knotty governmental challenges.

Warren Powell '77, a professor of operations research and financial engineering, has developed a model to determine when to use renewable energy and batteries, alone or in combination.



ENERGY

Blowing in the Wind

Devising cost-effective ways to use renewable sources of energy

The Obama administration wants to decrease American reliance on fossil fuels by doubling the amount of wind and solar electricity we produce by 2025. That goal has energy producers studying when it's practical to produce wind and solar energy, known as renewables, and when it's not. Warren Powell '77, a professor of operations research and financial engineering,

is studying the best ways to integrate renewables and battery storage into the current energy grid.

Powell's work addresses a challenge for the energy industry: relying on renewable sources that are highly variable and difficult to estimate. While the sun rises and falls regularly, predicting where and when cloud cover will appear is difficult. Wind energy is equally

“Storing energy during the day to use at night is extremely expensive, and likely to stay that way for the foreseeable future.”

— Professor Warren Powell '77

challenging. “Wind is complicated to forecast,” says Powell. “We don't know what the atmosphere is doing every square meter at every second.”

Storing energy is one solution, but maintaining large amounts of energy in a battery for more than an hour or two is expensive. Furthermore, batteries store energy in direct current, known as DC, and power moves along the grid in alternating current, known as AC. The inverters currently used to switch between DC and AC are only 85 percent efficient. “You lose a lot,” Powell says.

Powell's team has developed a model to determine when to use renewable energy and batteries, alone or in combination, given particular conditions, such as the amount of power available from elsewhere, the level of demand, and price fluctuations. Powell's conclusions were based on a simulation that used the electricity grid serving 61 million people in the mid-Atlantic region.

The simulation suggested that, when price is considered, batteries are not cost-effective for long-term storage. Maintaining a store of renewable energy in large batteries and moving it for later use costs more than firing up fossil fuel-based turbines when energy is needed.

But battery storage is useful in one scenario, Powell says: When renewable-energy sources experience unexpected changes in wind strength or cloud cover, the fossil-fuel sources cannot react quickly enough to supply energy. In those cases, a battery can provide backup energy until other sources go online.

Ultimately, Powell's model suggests, “storage is not the panacea people once saw,” he says. “Storing energy during the day to use at night is extremely expensive, and likely to stay that way for the foreseeable future.” Still, Powell's work could lead to storing renewables in the right places at the right times. ♦ By *Nora Taranto '13*

FACULTY BOOK: LITAL LEVY

Falafel and Hummus: Arabic Meets Hebrew



On the streets of Tel Aviv, one may hear a mix of Hebrew and Arabic — from the same speaker. In her new book, *Poetic Trespass: Writing Between Hebrew and Arabic in*

Israel/Palestine, comparative literature professor Lital Levy traces the role the Arabic language has played in the creation of modern Hebrew culture and argues that there is a complex interaction between the two languages.

In the late 1800s, Hebrew mainly was spoken in a religious context, akin to the Catholic Church's use of Latin. How did the Hebrew language spoken today evolve?

When Zionist leaders made the conscious choice to revive Hebrew as a spoken language, it was intimately connected in their minds to the land of Palestine and the goal of Jews resettling that land. They believed that the Jewish state couldn't exist without the language. So it was natural to many of the people who were reshaping Hebrew that Arabic would be part of that process, because Arabic was the language that was being spoken in Palestine at the time. Words were borrowed from Arabic to fill gaps in Hebrew. Today, Arabic shares its status as an official language of Israel with Hebrew, but both languages are highly politicized. Most Israelis aren't aware of Hebrew's debt to Arabic.

How much do Hebrew speakers use Arabic words today?

Anyone who has spent time in Israel will tell you that there are a lot of Arabic words in Hebrew slang, but they're mainly obscenities or names of foods, such as falafel. In general, most Jewish Israelis feel uneasy in the presence of people speaking Arabic. They're surprised to find there is such a thing as modern Arabic literature. And now we're seeing



“Arabic shares its status as an official language of Israel with Hebrew, but both languages are highly politicized.”

Professor Lital Levy

proposals from politicians who want to demote Arabic by making Hebrew the sole official language of Israel. They present Arabic as the language of the enemy and an inferior language. There's a strong sentiment in Israel right now that the country, as a Jewish state, needs the Hebrew language to be the only language.

Between the 1950s and the 1970s, many Jewish immigrants from North Africa and the Middle East spoke Arabic. What happened when they settled in Israel?

There was a lot of shame and stigma attached to Arabic. The perception was that Arabic was the language of Arabs, so it was unacceptable for Jews to speak it. The first generation that came to Israel were mostly unable to reinvent themselves. Their children were able to integrate, but they lost that linguistic connection to Arabic. In the third generation, we can see people — a small group of people, but a significant group — trying to find a place for Arabic within their Jewish identity. ♦ *Interview conducted and condensed by Amelia Thomson-DeVeaux '11*

Ken Reisman

J. & S.S. DeYoung, Inc.

Source of the Unusual®

SINCE 1835

Experts in Rare Gems and
Period Jewelry
with worldwide markets



Van Grief & Arpels

We purchase individual items or entire estates, and offer appraisal services to banks and attorneys

Janet Samuel Levy '78

212-541-7202

jl@theyoungcollection.com

Calling All Princeton Authors!

Reach **69,000** readers by promoting your book in *PAW's Princeton Authors Summer Reading advertising section*...just in time for summer vacations!

Cover dates:

June 3 & July 8

Space deadlines:

April 22 & May 20

Contact

Advertising Director

Colleen Finnegan

cfinnega@princeton.edu

609-258-4886



How It All Began

For half a century Princetonians have studied the history of the universe, but the past year was among the most exciting yet.

By Mark Alpert '82

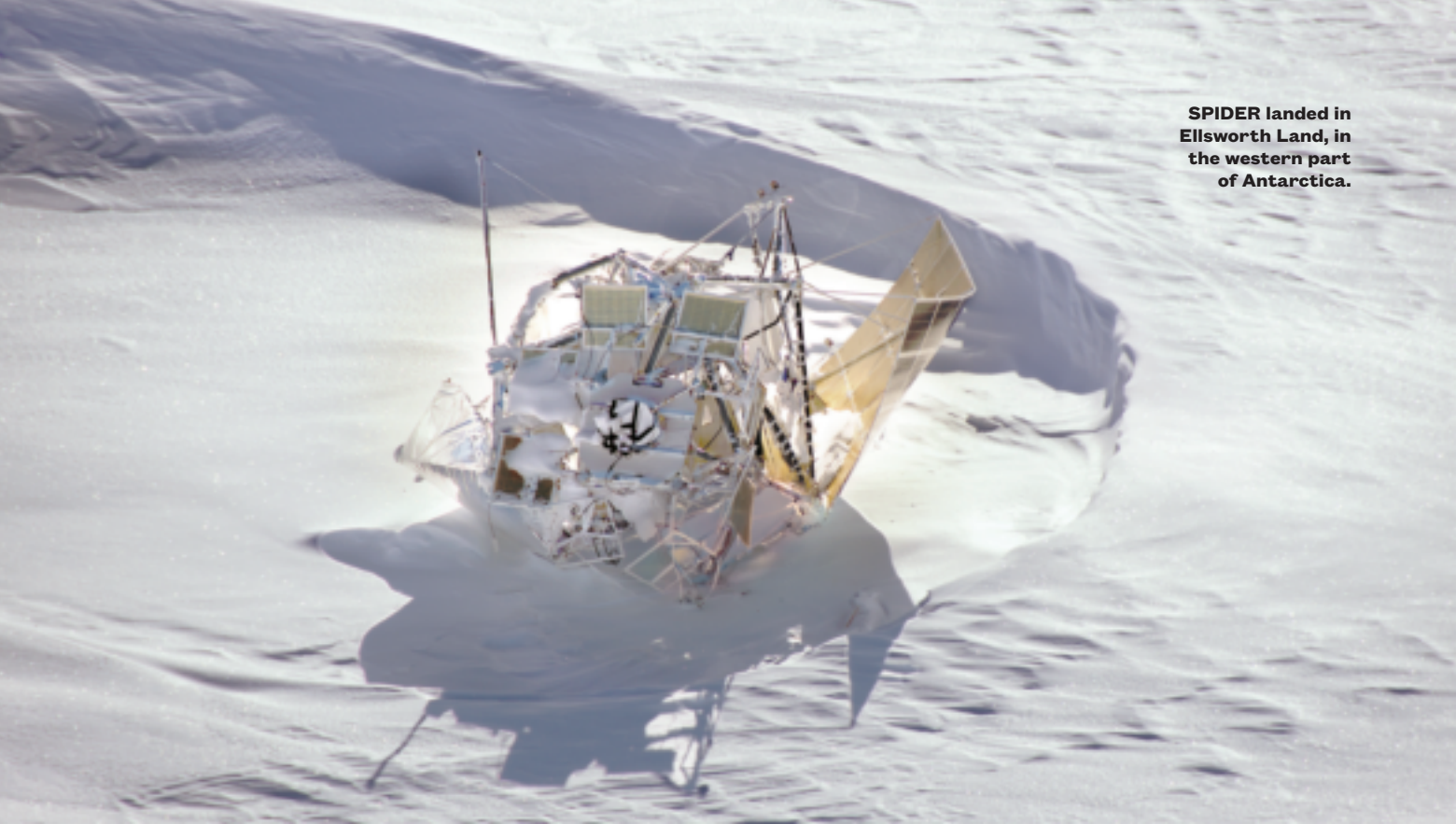


Scientists pose in October at McMurdo Station, the largest Antarctic research center, where they were preparing for the launch of SPIDER, an instrument that would gather data that could shed light on the origins of the universe. Physicist William C. Jones '98, the team leader, is fourth from left.



SPIDER Collaboration

SPIDER landed in Ellsworth Land, in the western part of Antarctica.



The year 2015 started with very good news for Princeton professors and graduate students who specialize in cosmology, the study of the origin and evolution of the universe. On New Year's Day, a huge, helium-filled balloon lifted a three-ton scientific instrument high above the ice of Antarctica. For the next 16 days, the instrument known as SPIDER — the Suborbital Polarimeter for Inflation, Dust and the Epoch of Reionization — drifted through the stratosphere at an altitude of more than 20 miles, moving in a wide arc around the South Pole. At McMurdo Station, the biggest Antarctic research center, a team led by Princeton physicist William C. Jones '98 anxiously monitored the instrument's progress.

As SPIDER floated over the continent, its six telescopes painstakingly measured the cosmic microwave background (CMB), the ancient radiation that cosmologists love to study because it holds so many clues to the history of the universe. By Jan. 17, though, the instrument had run out of the cryogenic fluids that kept its detectors cold enough to observe the faint microwaves. SPIDER was more than 1,000 miles from its launch point, and the fickle circumpolar winds weren't bringing it back to McMurdo; instead, they were pushing it north, toward the Antarctic Sea. So the researchers radioed a signal that detached the instrument from its balloon and sent it parachuting down to the icy wastes of Ellsworth Land, in the western part of the continent.

Then the race began. SPIDER had collected an enormous amount of data, too much to be sent to the researchers by radio, so the digital records of the CMB measurements had to be retrieved from the instrument. But the landing site was far from any of the U.S. stations in Antarctica, and time was running

short; within a few weeks, the 24-hour daylight of the continent's summer would give way to the perpetually dark Antarctic winter. After waiting a week for bad weather to lift, the British Antarctic Survey came to the rescue Feb. 4 when it sent a twin-engine turboprop to SPIDER's remote landing site to recover the precious hard drives and solid-state drives holding the collected data. The instrument itself would have to remain on the ice for the winter, but because it was designed to withstand the extreme cold of the stratosphere, Jones and his fellow researchers believe SPIDER would survive the long night and fly again.

SPIDER's results may shed light on one of the biggest questions in all of science: What created our universe 13.8 billion years ago? In March 2014, a feud erupted in the tight-knit world of cosmology when researchers operating another microwave telescope in Antarctica — a ground-based instrument at the South Pole called BICEP2 — claimed they had observed signals in the CMB that supported the theory of inflation, a hypothesis developed in the 1980s to explain what could have triggered the Big Bang. But other scientists swiftly disputed the claim, with several of Princeton's cosmologists among the skeptics. The observed signals, they argued, didn't originate in the early universe; instead, they came from the interstellar dust in our Milky Way galaxy, which the cosmic

SPIDER's results may shed light on one of the biggest questions in all of science: What created our universe 13.8 billion years ago?

Sam Burrell / British Antarctic Survey

microwaves had to pass through on their way to Earth.

Over the following months the BICEP2 researchers continued to analyze their observations and compare them with measurements made by the Planck spacecraft, which had observed the CMB from deep space between 2009 and 2013. In their final analysis, released in late January, the researchers concluded that the skeptics were largely right: The BICEP2 data offered no strong evidence for inflation because galactic dust could have caused the suspect signals. But the lasting lesson of the Great Dustup of 2014 was that scientists need better surveys of the CMB to answer the big questions of cosmology.

Pinceton has been at the forefront of CMB research ever since the cosmic microwaves were discovered half a century ago. The radiation was emitted very early in the history of the universe, a mere 380,000 years after the Big Bang started. At that time, the dense primordial soup of matter and radiation had expanded and cooled just enough to allow the speeding electrons and protons to form atoms of hydrogen. Because there were no more charged particles to scatter the radiation, it began to travel across the cosmos, propagating in all directions. As the universe continued to expand, the radiation's temperature dropped and its wavelength stretched until it became a faint microwave haze. If you're old enough to remember the rabbit-ear antennae of broadcast television, you've probably seen the CMB: When the TV was tuned between channels, about 1 percent of the static on the screen came from cosmic microwaves.

According to Jim Peebles '62, professor emeritus in Princeton's physics department, the University's dominance of cosmology was "an accident of history" that began with the hiring of Robert Dicke '39, who had worked to develop radar during World War II. In the 1960s Dicke set out to discover cosmic radiation using a microwave receiver similar to the ones he'd designed for wartime use. He enlisted the help of three younger faculty members — Peebles, David Wilkinson, and Peter Roll — but before they could start the experiment, Dicke got a call from Bell Labs researcher Arno Penzias. He and co-worker Robert Wilson had detected a puzzling microwave signal using a radio antenna in nearby Holmdel, N.J., and they were trying to find out where it came from. After getting off the phone, Dicke reportedly told his younger colleagues, "Boys, we've been scooped."

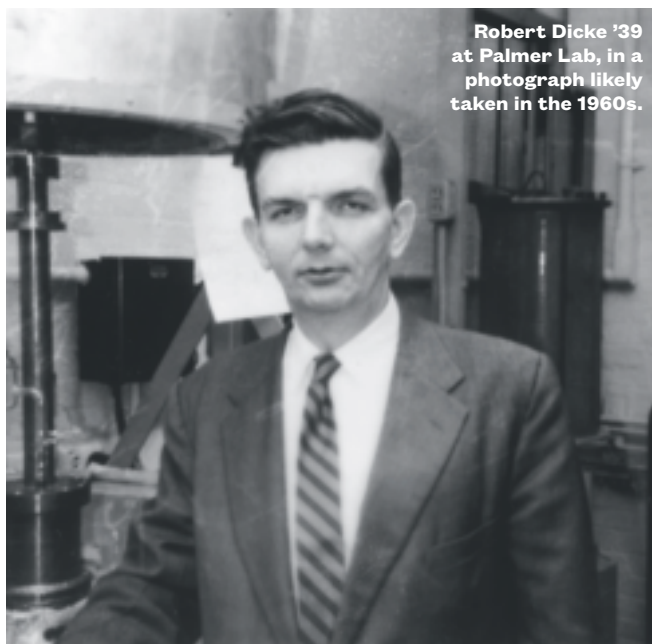
Nevertheless, Dicke's team achieved the second clean detection of the CMB, and over the following decades Princeton researchers made ever more precise observations of the radiation. Although the intensity of the cosmic microwaves seemed remarkably isotropic — their temperature appeared to be the same in every part of the sky — theorists expected to find small variations, called anisotropies. They assumed that the primordial soup of the early universe had to be slightly denser in some spots than in others; that was the only way to explain the later formation of stars and galaxies and galactic clusters, which must have coalesced from the denser areas. And the cosmic microwaves emitted in those areas had to be slightly hotter than the radiation coming from the emptier spots. Confirmation of this hunch didn't come until 1992, when the Cosmic Background Explorer satellite measured the tiny temperature variations, which differed by only one

part in 100,000 from the average.

A decade later the Wilkinson Microwave Anisotropy Probe — a NASA spacecraft named after the Princeton physicist and CMB pioneer, who died in 2002 — greatly improved the measurements of the microwave-temperature variations. The next generation of Princeton cosmologists, including physics professors Lyman Page and David Spergel '82, spearheaded the experiment, which produced a full-sky map of the hot and cold spots in the CMB. In this map, which was further refined by the later results from the Planck spacecraft, the universe looks remarkably simple. Its overall geometry is flat, Euclidean. Its density fluctuations are nearly scale-invariant (variations within small regions of the sky look like variations within larger regions) and its temperature differences are Gaussian (the probability distribution of the differences can be plotted as a bell-shaped curve around the average).

But the results also highlight huge gaps in our knowledge of the universe. The data fit cosmological theories only if we assume that just 5 percent of the universe's mass consists of ordinary matter such as atoms. About 27 percent must be dark matter, hypothesized particles that don't emit or absorb light but appear to hold galaxies together with their gravity. And 68 percent must be dark energy, a mysterious substance that seems to have a kind of antigravity that is accelerating the universe's expansion. The fact that scientists haven't directly observed either dark matter or dark energy is disquieting, to say the least.

What's more, the current results can't tell us how or why the cosmic expansion began. The initial observation of the near-uniform density of the early universe posed a dilemma for cosmologists: How did the primordial soup get so smooth? To solve the puzzle, theorists proposed that inflation — a fleeting moment of violent expansion — kick-started the Big Bang. They hypothesized that a so-called inflaton field stretched a microscopic bit of vacuum into a vast, smooth expanse full of energy, literally turning nothing into everything. Over the past 30 years, cosmologists have modified the hypothesis and



Robert Dicke '39
at Palmer Lab, in a
photograph likely
taken in the 1960s.

devised many versions of it, with several positing that inflation actually is a never-ending process that continually produces an infinite number of universes, each with its own properties and physical laws.

But most versions of the theory have something in common: They predict that inflation would have sent gravitational waves rippling across the early universe. Like dark matter and dark energy, gravitational waves haven't been directly observed, but Albert Einstein predicted that certain kinds of acceleration would generate them. If inflation occurred and produced these waves, they would have stretched and squeezed the primordial soup and left a characteristic signal in the cosmic radiation. Specifically, the radiation would have been polarized — that is, oriented in a particular direction — when it scattered off the charged particles for the last time. Density variations in the cosmic soup also would have polarized the radiation, but primordial gravitational waves would have left a distinctive polarization pattern called B-mode, which would appear as swirls on the CMB maps.

Over the last decade, researchers have built a wide variety of instruments to measure the polarization of the CMB, in part to hunt for evidence of the inflationary gravitational waves. Because water vapor in the atmosphere can interfere with microwave observations, many of the new instruments are located in dry, high-altitude locations such as the South Pole and the Atacama Desert in northern Chile. Princeton physics professor Suzanne Staggs '93 has been involved in operating several generations of CMB detectors positioned near the peak of Cerro Toco, a mountain in the Atacama Desert, at an elevation of 17,000 feet. "I love going there," Staggs says. "The ground is reddish and very stark, and the sky is unbelievably clear. It's a beautiful place, and there's nothing to do there but science."

The observatory is about an hour's drive from the town of San Pedro de Atacama, at the end of a dirt road with many hairpin curves. Staggs and her fellow researchers — usually no more than six are there at a time — have set up an office in a double-length shipping container at the site, but more often they're tinkering with the detectors, getting them ready to make observations and repairing any damaged equipment. For the first few days on the site, the scientists have to adjust to the altitude, but once they become acclimated they can work there for up to 14 hours before heading back to their primitive accommodations in town. "I get mountain euphoria up there, a sense of well-being," Staggs says. "And that's a good thing to have when you're fixing a lot of broken things."

One of Staggs' detectors, Atacama B-mode Search, was designed specifically to look for CMB polarization that might have been caused by gravitational waves. It started scanning selected regions of the sky in 2012, but the results from the experiment haven't been published yet. Staggs' newest

instrument is the Atacama Cosmology Telescope Polarimeter, which is intended to investigate CMB polarization signals caused by other phenomena. These investigations may offer clues to the nature of dark energy. They also may shine some light on the enigmatic Dark Ages of the universe, the period after the emission of the CMB but before the formation of the first stars. (The latter event is sometimes called the Epoch of Reionization because the intense starlight ionized the interstellar hydrogen atoms, converting them back to speeding electrons and protons.)

Other universities have joined the hunt for CMB polarization signals. Also perched on the slopes of Cerro Toco is the POLARBEAR detector operated by researchers from the University of California, Berkeley. Scientists from Columbia University led the EBEX experiment, which employed a balloon-borne detector roughly similar to Princeton's SPIDER. And although the Amundsen-Scott South Pole Station is one of the coldest and most remote places on Earth, it has become a hotbed of CMB research. In addition to hosting BICEP2 (which was preceded by BICEP1 and soon will be superseded by BICEP3), the research center is home to the Keck Array and the South Pole Telescope, which also are scrutinizing the CMB for signs of B-mode polarization.

The competition among the research groups is usually healthy and mutually beneficial, but the problems with the BICEP2 results illustrated the dangers of striving to be first. Led by John Kovac '92, a professor of astronomy and physics at Harvard University, the BICEP2 group focused its observations on a patch of sky where they believed the CMB passed through minimal amounts of galactic dust. The researchers reported a surprisingly strong B-mode signal at 150 gigahertz, which is within the frequency range where the cosmic microwaves are the most intense. The observed polarization patterns were at the degree-scale — that is, each pattern sprawled across a chunk of sky about a degree across. (For purposes of comparison, a full moon is about half a degree wide.) At this scale, the B-mode polarization is more likely to be caused by primordial gravitational waves, so the signal was interpreted as evidence for the theory of inflation. The announcement was trumpeted in the newspapers and even spurred talk of a Nobel Prize.

But Princeton's Spergel didn't believe it. Riding the train to New York City, he read the research paper by the BICEP2 group and noticed a problem with its estimates of the polarized emissions from interstellar dust. (The tiny particles absorb distant starlight and reradiate the energy as microwaves, and their emissions can get polarized if the dust is aligned by galactic magnetic fields.) The BICEP2 estimates were based on incomplete data from the Planck spacecraft, which measured the CMB polarization at seven microwave frequencies. Working with Raphael Flauger of the Institute for Advanced Study and J. Colin Hill '14, Spergel used more complete data to estimate the polarized-dust emissions within the region observed by BICEP2. Their paper concluded that all of the B-mode signal reported by Kovac and his colleagues could have come from dust.

Princeton cosmologist Paul Steinhardt, who helped to develop the theory of inflation in the 1980s but has become a critic of the hypothesis since then, was also skeptical, because the BICEP2 researchers had looked at polarization at only

“It was Princeton versus the rest of the world.”
Then it became clear that the rest of the world was wrong.

In the Atacama Desert in northern Chile, professor Suzanne Staggs '93 climbs to the top of the Atacama Cosmology Telescope to inspect a sensor.



one frequency in a relatively small part of the sky. “I saw clear problems with their paper from day one,” Steinhardt says. “And there were a number of us here who felt that way. For a while, it was Princeton versus the rest of the world.”

Once cosmologists saw all the data from Planck, it became clear that the rest of the world was wrong. The spacecraft’s CMB maps showed that no part of the sky is free from the polarized-dust emissions. Given the current evidence, it’s impossible to know whether those emissions are drowning out a genuine signal from the moment of creation, or whether that signal simply doesn’t exist. In retrospect, Kovac notes that the BICEP2 paper did include caveats about the uncertainties regarding dust emissions. “The paper we wrote was actually cautious,” Kovac says. “We said the research needs follow-up. But that’s not the way the news was reported.”

The prevalence of dust emissions has a sobering implication for all CMB observers: It might be impossible to detect the polarization signal from inflationary gravitational waves if it’s buried in so much dusty noise. But with all the new data pouring in from so many experiments, most researchers are still hopeful that they will settle the issue one way or another. Even if the inflationary signal is much smaller than the noise, Staggs believes researchers have a chance of teasing it out if they use improved detectors and make comprehensive observations at many frequencies. Kovac, who is involved in both the Keck Array and BICEP3 experiments, argues that the CMB field is more vibrant than ever. “As we add more evidence, the answer will emerge,” he says.

And what if, in the end, scientists find no evidence for ancient gravitational waves? Would that sound the death knell for the theory of inflation? Steinhardt worries that some cosmologists will hang on to the hypothesis no matter what the experiments show. Because theorists can adjust inflation to produce any outcome, he says, it can’t be proven false. As he wrote in an essay for *Nature* last June: “The inflationary paradigm is fundamentally untestable, and hence scientifically meaningless.” (He offers an alternative, proposing that the Big Bang was really a Big Bounce — see “The Cosmic Apocalypse,” PAW, Feb. 11, 2009.)

Peebles, who has watched cosmology blossom at Princeton since the 1960s, is helping to organize a conference at the University this June called CMB@50. The program will feature a mix of old and new: recollections of pivotal observations from some of the scientists who made them (including Wilson, co-discoverer of the CMB), as well as discussions of future directions in the field. It will be a celebration, Peebles says, and Princeton is the logical place for it. “We’re not a large group here, but we’re influential,” he says. “We had respected physicists, and they attracted more people to do the same thing. It was a historical accident, but a happy accident.” ♦

Mark Alpert '82 is the author of four science thrillers, including the international bestseller Final Theory. His first novel for young adults, The Six, will be published in July.



VIEW: More photos from the SPIDER team’s work in Antarctica at paw.princeton.edu

POLO MAKES A COMEBACK

By David Walter '11

RIDE

Like a

Centaur

WIN

Like a

Tiger

When the Princeton and Yale men's polo teams faced each other in New Haven in February, it would have been natural to cast Princeton as the lovable underdogs: the Bad News Tigers, a plucky gang of orange-and-black longshots. But because polo is as

overdog a sport as they come, there was little support for such narrative dramatics. Instead, the pre-match mood was one of self-effacing good manners. An hour before the match, Princeton's captain, Nikolas Weissmueller, set out a box of Dunkin' Donuts for everyone to enjoy. "The thing about polo," he explained, "is that you have to lose like you enjoy it, and win like you don't care."

That's a nice and gentlemanly attitude, the kind of thing you'd expect in a sport played by born winners. Up close, however, polo is not the glossy stuff of Ralph Lauren catalogs. There are mad dashes, snorting horses, and thrown elbows, all mixed up in a frenzied combination of horse racing, chess, and hockey.

In the plainest terms, then, and all gentlemanliness aside, did the Princeton polo team want to destroy Yale on that freezing Saturday in Connecticut? Yes, it did. Was it likely to succeed? No, it was not.

Yale's bench of players was deep and seasoned. Its star freshman had played competitively in India before starting college. Princeton's most experienced player was Weissmueller, a chemical engineering postdoc who had been playing for two-and-a-half years. ("On and off," he clarifies for precision, "because I couldn't afford to play much as a Ph.D. student in England.")

Yale also enjoyed home-horse advantage: The game would be played using Yale's practice mounts, which in polo are called "ponies." This meant a familiar ride for Yale, and a fast learning curve for Princeton.

History, too, was on the Elis' side. With 19 national championships and more than 100 years of equestrian excellence, Yale is the winningest program in U.S. college polo. Princeton hadn't played a game of polo since 1963 — making February's match against Yale a rebirth for the program.

If any campus should have a team, perhaps it's Princeton. Polo is one of the world's oldest team sports, with a millennia-long history on the plains of Asia. The history of the college game in America is much shorter — but it begins at Nassau Hall.

In 1903 a group of undergraduates banded together to play what was then known as "pony polo" (as opposed to "bicycle polo," also in vogue at the time). The game had been brought to the United States a few decades before by British expatriates, who had adapted the game from a version played in India. In the Anglophone formulation, polo consisted of two teams of four (three in indoor polo), mounted on horses, advancing a small ball down a field using the long edge of a croquet-like mallet. Some players served primarily as attack, some as defense. The attackers' aim was to place the ball between the



Polo team members in the stable of the Frenchtown, N.J., riding facility where they practice — back row, from left: Arthur MacWaters '18, David Esterlit '18, Alexander Sen '16, postdoc Nikolas Weissmueller; center, from left: Emily Esser '18, Valeria Ibarcena '17, Carolina Salazar '18; seated, from left: Dawn Wang '15, Frank Jiang '17



opponent's goal posts. There is no goalie except for certain penalty shots. This is still the game today, more or less.

In May 1903, Princeton and Yale played the country's first intercollegiate polo match at Van Cortlandt Park in New York City. Led by captain Walter Devereux Jr. 1904, Princeton won, 7 goals to 2. But it was a pyrrhic victory. During the match, Devereux accidentally struck a Yale player named Henry Babcock Jr. in the head with his mallet. At the time Babcock had laughed off the injury; the next day, however, he fell unconscious and died. The Princeton team disbanded for the season soon after. "The players feel too keenly the death of Babcock to continue the game," *The New York Times* reported.

The team that started up again in 1920 looked considerably different than its turn-of-the-century predecessor. For one thing, most players now wore helmets. For another, there was a new boss in charge. With the end of World War I, the U.S. Army turned to expanding its Reserve Officer Training Corps on college campuses, and polo was one of its best recruiting tools. ROTC students could gain free access to government stables and polo equipment, no experience required. The hope among the ROTC brass was that polo itself — with its emphasis on riding skills, quick reversals, and long-range assaults on goal — would serve as a kind of military tactics training.

The result was a golden age for university polo. New players and playing styles abounded. The West had the rough-and-tumble University of Arizona, described in a local paper as "hard-riding cowboys on sure-footed mustangs." In the East, you watched out for the military schools, straight-backed squads that served as a further link to the game's martial traditions. Among the Ivies, Yale was consistently splendid, while Princeton had a reputation for patchy brilliance.

In 1920, for instance, the revived Princeton polo team conducted most of its practices in the judging ring of the New Jersey State Fair, lost every regular-season match it played, and then — surprise! — won the sport's year-end intercollegiate championships. By 1927, the team was 60 men strong, and a polo match on Princeton's new Devereux Memorial Field drew more spectators than baseball over Houseparties weekend.

These were glory days. The 1930s and early 1940s brought Princeton a slew of championships — a total of six indoor and

outdoor titles — under the leadership of stellar players like Leonard '31 and Raymond '33 Firestone (of the tire company and the library). But signs of the game's irrelevance were growing. What use was a horse-powered war simulation in an age of heavy metal destruction? In 1937, the Princeton Field Artillery stopped using live horses in its exercises and switched to cars and other machinery. The end was nigh.

In May 1942, Princeton hosted the intercollegiate polo finals for the first and last time, beating Yale 6-4 to capture the championship. Soon after, the War Department decided it had better things to do than administer a college polo league — things like, say, send its reserve officers off to fight World War II. In the absence of eligible players, the intercollegiate polo trophy went into safekeeping in Princeton's gymnasium; two years later, it was destroyed in a fire. After the war, when the GI Bill brought a rush of young families to Princeton, the University paved over Devereux Field to build the Butler apartments. As writer and professor John McPhee '53 recalled in PAW, for hometown spectators this meant the end of polo — "yes, the whole chukker, students in jodhpurs, the horse latitudes." Or, as PAW described it: "an emblem of tweedy Princeton sacrificed to the cause of mass education."

The team was revived — twice — as a club sport in the early '50s and '60s, but both squads disbanded once their core players graduated. A '60s team went 0-9 in its first full season of play (*The Daily Princetonian*: "Winless polo team lacks horses, fields"), but to its credit, demonstrated élan even in defeat. "Thruston Pettus ['63] hit a hard shot in the indoor arena at Cornell, and my recollection is that it broke a steam pipe," recalls Jerold Horn '63. "Everyone else was backing away from this explosion of the pipe. But Thruston calmly walked up to the ball and scored a goal." Princeton lost all the same.

"It was tough. We couldn't ever practice, we had to use the other team's horses, and they never seemed to give us the good ones," recalls Pettus, now a retired banker living in South Carolina. Still, he has fond memories of his time playing polo at Princeton, and he's tickled by the thought of a reconstituted team. "I find it refreshing that in this day and age PU would actually admit someone who can ride a horse. Not exactly the politically correct image!" he writes in an email.



Polo players at Princeton, in the early 1900s

The legacy of Princeton polo now rests on the shoulders of Nikolas Weissmueller and his teammates. Weissmueller is a Harvard man turned unsung Princeton hero. As a Ph.D. student at Oxford, he worked on the meningitis B vaccine used at Princeton during the outbreak in 2013-14; he also got hooked on polo.

Weissmueller joined the Princeton equestrian team soon after starting his postdoc in December 2013, and almost immediately began advocating among its ranks for a polo club. Valeria Ibarcena '17 was eager to make the switch. "The equestrian team is nice here, but it's a little bit limited in what we can do," she says. (There's a lot of riding in circles around a ring.) "I wanted a bigger adrenaline rush from polo."

By New Year's 2014, Weissmueller had lined up a coach and sponsor: Hesham El-Gharby, a former player for the Egyptian national team. El-Gharby owns a riding arena and stable in Frenchtown, N.J., about an hour from Princeton. The team pays El-Gharby for horse, arena, and equipment rentals. El-Gharby provides coaching and hospitality gratis. "He's incredibly nice," Weissmueller says. "He brings cake and pizza and shrimp, and he's just so generous."

Since last spring, Weissmueller and his teammates — about a dozen players on men's and women's squads — have been practicing twice a week to prepare for the 2015 season. Riding



Students hone their technique as polo coach Maj. F.B. Prickett watches, in this photo believed to be from the late 1920s.

tactically is not easy: Players must manage four reins with one hand while controlling their mallet with the other. Hitting a polo ball on the run is often compared to playing golf in an earthquake. "The most common mistake is people hit the ground [with the mallet] before they even get to the ball," Weissmueller says of Princeton's practices. "Actually hitting your horse in the butt is frequent, in which case it's going to run off."

And so it was with high hopes and low expectations that Weissmueller scheduled that February match against Yale. "I knew it would be a bloodbath," he says. But he was faced with a Catch-22: "To be a good program, you need good players, but to get good players, you need to be a good program." Weissmueller hopes that Princeton can emulate the polo team at his alma mater Harvard, which was revived in 2006 and since has purchased a new indoor riding hall on the strength of alumni fundraising, including contributions from the actor Tommy Lee Jones. Jones also has donated horses from his Texas ranch.

This year, Princeton's polo dues are \$1,500 per semester. Team leaders hope to lower that through fundraising. The goal is "to open up the world of polo to people who wouldn't otherwise have access to it," says Ibarcena, Princeton's women's captain. "The U.S. Polo Association says — and it's right — that college polo is the most accessible polo that a person's going to see throughout their lifetime."

Unable because of a lack of money to participate in intercollegiate league play, Princeton instead is playing "friendlies" at colleges where it can borrow horses and equipment. Matches at Harvard and Brown were set for April; a women's match at Yale was being planned.

The men's Yale match in February stood out as a chance for a splashy victory — a calling card for alumni and recruits. The only problem would be actually winning against the experienced Yale squad. As they say in sports movies — the kind they don't make about sports like polo — Princeton needed a miracle.

The miracle's name, as it turned out, was Dillon Bacon. Early in the week of the Yale-Princeton polo match, Bacon received an email from Weissmueller. "I said, 'Hey, where are you — if you're around when we're playing Yale, are you interested?'" Weissmueller recalls.

Bacon was not around: He was in Buenos Aires, where he was working at a small financial firm. But as luck had it, his flight from the United States to Argentina originally had included a return leg back to New York, which he had decided not to use. Now he figured, "Screw it! I would love to support the Princeton polo team." He quickly threw together a trip to New York.

Here is what I learned about Dillon Bacon over the course of two drives between the Upper East Side of Manhattan and Yale's Riding Hall in Bethany, Conn.: His hair is medium-length and impeccable; he prefers house music but will let you choose other songs if you're sharing a car. He holds two passports, American and British; he has great taste in neutral-colored separates. He thinks the eating-club system segregates people too much; like many of his British-schooled contemporaries, he is a member of Ivy Club. Most importantly, while Bacon walked at graduation with the Class of 2014, as of February 2015 he had not yet fulfilled Princeton's language requirement — which for the purposes of the "friendly" made him eligible to play for the Princeton men's polo team. (The same ad hoc rules for

Dillon Bacon '14,
center, in
Sotogrande,
Spain,
in August.



friendlies meant that Weissmueller, a postdoc, could play.)

I learned, furthermore, that Bacon is a very good polo player. He started playing when he was about 12 years old at boarding school in England. In Spain he has an official handicap of two out of 10 (10 being god-tier, two being on the line between semi-pro and serious amateur). Last summer his squad won three tournaments at the Andalusian polo mecca of Sotogrande — and modeled for its sponsor, the Savile Row tailor Huntsman.

The Yale players weren't expecting to see Bacon at the match, but the British among them recognized him. "You're serious?" one asked with feigned (or real) dismay. Bacon repeated his story: unfinished language requirement, in town for a long weekend, couldn't miss the return of Princeton polo.

The day before the match, he had drilled the squad and helped to devise Princeton's strategy: Overpower the Yale players, clear a path, and get him the ball whenever possible. "We went from medium-speed to fast-paced just by having him there," Weissmueller says. "He's a really chill, nice guy, but on the polo field he's ferocious."

At 200 by 80 feet, the indoor field at Yale was smaller than standard regulation size. This would make for a tight, physical match. Indoor arena polo is divided into four seven-minute *chukkers* (i.e. periods, from the Sanskrit *cakra*, meaning "wheel"). Teams switch off horses every *chukker* to keep their rides sprightly. As an arena game, the match was three on three, plus a referee in the ring to call fouls — of which there were many.

"All the penalties are designed for the safety of the horse," Yale's announcer informed the assembled crowd of 30 friends and parents at the start of the first *chukker*. Chief among these fouls is a violation called "crossing," which occurs when a player strays in front of the ball's projected line of motion. This leaves players with a few defensive options. They can force opponents off the path of the ball by pressuring them from the side (sometimes through vigorous saddle-to-saddle elbowing). Or they can try to hook their rival's mallet with their own to interrupt the opponent's shot.

"In arena polo, people tend to win based on penalty shots," the announcer continued, a prediction that largely proved true. From time to time, however, there were flashes of grace. Midway through the first *chukker*, with Princeton leading 3-1, Bacon broke away from a scrum near Princeton's end of the arena and

cantered toward the other side. He wasn't simply thwacking the ball toward the goal, as most other players did during the match; he was dribbling, pushing the ball only as far as he needed to set up another advancing swing. At 15 feet out, with a languid stroke and a boom, he guided the ball into the center of the goal.

Even the Yale crowd broke out in spontaneous applause. At the college level, polo can present as an unwieldy negotiation among man, mallet, and horse. Bacon had produced a higher kinetic harmony. I recalled a compliment I'd read in an article about polo from the 1920s: "He rode like a centaur."

"He's a standout," one woman said from her perch in an elevated viewing box.

"I hear he already graduated," her friend replied.

"Technically not!" I chirped.

A few seconds later, Bacon took another foul shot for the Princeton team.

"Why is Dillon always hitting?"

"Because he's the best."

"Because he's a ringer."

Yale soon tried to triple-team Bacon, but Weissmueller and teammate Alex Sen '16 worked to separate two of Yale's defenders from the action. Bacon scored five times in the period, putting Princeton up 5 to 3.

In the second *chukker*, disaster. After switching ponies, Bacon landed on an ornery horse named Picasa. His difficulty in steering her limited Princeton to two goals. At one point Picasa threw Bacon from his saddle. ("Just get off the horse, any way you can!" Bacon says later. "You really don't want to get caught in the stirrup.") Yale took advantage of the tumult to go up 8-7; the audience took advantage of the frequent play stoppages to swap stories about the expat set: Who had just broken up with whom, who was flunking out of Harvard, who had pledged what frat, which this crowd pronounced "frot."

Back on the field, the pressure mounted throughout the third *chukker*. "You gotta get my back!" Bacon instructed his teammates. The referee threw in the ball; Bacon intercepted it straight away and dribbled toward the right corner wall of the arena. This was faultless tactical play, and he tapped the ball in with ease. By the end of the *chukker*, the score was 13-11 in Princeton's favor, and the horses steamed with sweat.

Princeton's strategy for the fourth *chukker* was to play clean and slow, and preserve the lead by not fouling. In this the team largely failed, notching as many fouls in the final quarter (14) as in the other three combined. Fortunately, Yale performed even worse. At the end, Yale's announcer provided the score with a minimum of ceremony: Princeton 17, Yale 14.

Both teams then retired to the equipment room for a celebratory meal of bottled water and pepperoni pizza. True to gentlemanly form, the losers seemed happy enough, while the winners projected an air of caring a little but not too much. The pizza was fresh, and the air smelled like sawdust and manure. From its perch on a shelf by the wall, a small plaque offered reassurance to all the lucky athletes assembled: "Polo brings courage, confidence, and joy." ♦

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

 **VIEW:** More archival photos of Princeton polo teams at paw.princeton.edu

PRINCETONIANS



Chris Moore '10 is the Cubs' director of research and development.

CHRIS MOORE '10

ALGORITHMS IN THE FIELD

A neuroscientist brings his knack for data analysis to a long-suffering ballclub

As a Ph.D. student at Princeton, Chris Moore '10 developed algorithms to help researchers understand how the brain works. Today, he applies the same computational skills to help the Chicago Cubs try to build a winning baseball team.

Baseball and neuroscience may

seem unrelated, but Moore, the Cubs' director of research and development, says that his academic background "translates quite well" to the challenging data sets and sophisticated questions he encounters in his job.

Baseball has a longstanding analytic

bent, among both front-office executives and hobbyists. Moore began in the latter camp: During his time at Princeton, he published a detailed analysis of the best pitchers in the major leagues on the blog baseballanalysts.com, drawing on a data set of nearly 500,000 pitches. He worked in finance after finishing his Ph.D. and made the leap to baseball in 2013, after a friend forwarded the Cubs' job posting.

Statistics play a significant role in how players are evaluated, within a team and on the free-agent market. They also factor into on-field decisions, such as how to position fielders against specific batters. New tools are paving the way for new analyses: In 2014, major-league stadiums installed a system called Statcast to track the speed and acceleration of every player on the field.

"There have been multiple generations of analysts in baseball," Moore says. "Each one found an angle to exploit. And slowly, the other teams find those angles too, and they stop working because everybody knows them. Then the challenge is for the next guy to come in and find the next angle."

Moore, a Massachusetts native, grew up rooting for the Boston Red Sox, so he can relate to Cubs fans, who have endured a championship drought that dates back to 1908. Throughout the organization, he says, "there's very much a day-to-day mindset [that] we're here to win a World Series." ♦ *By B.T.*

FOLLOWING: UMAMIGIRL.COM

Blogger:
CAROLYN COPE '98
Appreciating the flavors of life



For Carolyn Cope '98, the Japanese word *umami* describes when everyday flavors combine to create a dish greater than its parts. On her

lifestyle blog, Cope finds *umami* not just in food, but also in books and travel.

On visiting Paris with children: "Half of us preferred playing 'school' in

the hotel room to setting foot along the Seine. The other half hadn't learned yet that the key to traveling with kids is to show up with zero expectations."



PRINCETON WINDROWS

Enhanced Retirement Living

An active adult community of villas, townhomes, and apartment-style condominiums for discerning adults (55+)

609-520-3700

2000 Windrow Drive, Princeton, NJ
www.princetonwindrows.com



PRINCETONIANS

Macauley Peterson '01 helped launch chess24.com, which has live-streaming of professional matches, video lessons, and interactive online chess play.



PROFILE: MACAULEY PETERSON '01

A CHESS LOVER HELPS PEOPLE LEARN THE GAME ONLINE

Macauley Peterson '01 began playing chess in kindergarten at New York City's Hunter College Elementary School, where weekly classes were mandatory for even the youngest students. "Chess was always my primary sport. We had no football team, and I would not have made it anyway if we did," he recalls. Though he never turned professional, Peterson stuck with the game: He led the Princeton chess club, played in intercollegiate matches, and returned to Hunter to coach chess.

Next, Peterson became a chess journalist, traveling to matches all over the world and writing about them for *Chess Life* and other publications. After earning a master's degree in film from the University of Amsterdam in 2007, Peterson helped launch chess24.com, a website where amateurs and professionals can play, learn, watch, and read about chess.

The Hamburg, Germany-based site has content in English, Spanish, and German and includes live-streaming of professional matches, video lessons for users, news, and interactive online chess play. Chess is an ideal game to watch online, Peterson says, "because you can introduce features to get inside the heads of players" such as professional commentary and live chats. The site is free; a premium membership costs about \$120. Since its founding in 2014, the site has attracted 100,000 registered users.

RÉSUMÉ:
Philosophy major. President of the Princeton Chess Club. Writer for Chess Life. Co-founder of chess24.com.

Peterson loves chess because it "pushes all the same buttons as other sports — the adrenaline, the endorphin release when you win," he says. It also is egalitarian. "You're just matching wits with one other person. Size and strength don't matter. You can have a 6-year-old playing someone who's 80." ♦

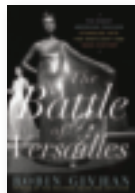
By Louis Jacobson '92

Share your story

At Reunions, the *Princeton Alumni Weekly* will be recording oral-history interviews for our PAW Tracks podcast. If you have Princeton memories to share, visit paw.princeton.edu to register.

READING ROOM: ROBIN GIVHAN '86

A SPECTACULAR TURNING POINT IN AMERICAN FASHION



In 2006, Robin Givhan '86 made history when she became the first fashion critic to win a Pulitzer Prize. As a staff writer at *The Washington Post*, she covers the rarified world of style for a broad audience. Her new book, *The Battle of Versailles: The Night American Fashion Stumbled into the Spotlight and Made History*, examines a moment in 1973 when the creative designs and spectacular runway performances of five American designers helped establish American fashion as a force on the international stage.

Why is writing about fashion important?

My job is to show what fashion can achieve. Often, people see fashion in a frivolous light — just red-carpet gowns and reality television. But fashion is also political, and there have been moments when fashion designers and models have decided that they wanted to be important players in issues like race relations.

How has fashion been involved in racial issues?

In the 1970s, the fashion world was seen as a place of racial progress. The country had just come through the turbulent 1960s. In that aftermath, there was a real commitment to incorporating black Americans into nonpolitical aspects of life, including fashion. It was important who was selling shampoo in a magazine or on television. The thought was: If we can highlight the value and beauty of black models, it will change the way we value people in general. There was this sense that fashion had the capacity to make things better, that it was a crucial part of the conversation about national identity.



What she's reading: *All the Light We Cannot See*, by Anthony Doerr. "I love to read novels in my free time, and this is a mesmerizing account of two children who are being transformed by World War II."

What was significant about the 1973 fashion show at the Palace of Versailles outside Paris?

The American designers were democratizing fashion. Anne Klein popularized the idea of separates, which meant that you could buy the skirt and the jacket and the blouse separately. More women had access to well-designed, well-made clothes. And Versailles also established the idea of fashion as spectacle. The show incorporated music and Broadway-style choreography, which seemed really innovative to the French.

What about Princeton fashion?

I still have my beer jacket hanging in my closet! I love Princeton Reunions jackets because they are all about memories and that, to me, is what clothing is all about. It immediately takes you to a place that you remember fondly. ♦ *Interview conducted and condensed by Amelia Thomson-DeVeaux '11*

Coming Soon



Bestselling writer **JODI PICOULT '87** — the author of 23 novels — will answer your questions next month. Her most recent book, *Leaving Time*, is a family drama centered on the disappearance of a young scientist who lives in Botswana to study elephants; it spent four months on the *Publishers Weekly* bestseller list. Visit paw.princeton.edu by May 4 to submit questions about Picoult's career and her books. Her answers will appear online and in print.

PRINCETON ALUMNICORPS will celebrate its 25th anniversary with a gala May 28, the first day of Reunions. Alumnicorps, which changed its name from Princeton Project 55 in 2010, is an alumni-led nonprofit that aims to build civic engagement among alumni. For more information, visit home.alumnicorps.org.



PAW's monthly email newsletter about alumni and faculty authors
Subscribe at
paw.princeton.edu

CLASS NOTES

Online Class Notes are password protected. To access, alumni must use their TigerNet ID and password. [Click here to log in: http://paw.princeton.edu/issues/2015/04/22/sections/class-notes/](http://paw.princeton.edu/issues/2015/04/22/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 1942



George B. Baldwin '42

George Baldwin died Dec. 3, 2014, in Hanover, N.H.

Jim (as he generally was known) was born Aug. 23, 1920, and prepared at the Belmont Hill School. At Princeton he majored in public and international affairs and was elected to Phi Beta Kappa. He was president of Whig-Clio and a member of the undergraduate council and Quadrangle Club.

When the United States entered World War II, Jim's role was limited by an old foot injury. After the war, Jim continued his education at MIT, where he received a Ph.D. in economics.

In 1945, Jim married Harriet Brown. They had two children, Alan and Sara. Following his graduation from MIT, Jim spent two years teaching at Vanderbilt and three in Iran, where he functioned as an adviser to the government and "fell in love with the country." After returning to the United States, Jim joined the staff of the World Bank and continued working there until his retirement.

Over the years, Jim became increasingly recognized as an expert on the Middle East and on Iran in particular. His great intelligence and warm personality made him a valuable resource in discussions about that part of the world.

George is survived by his daughter, Sara; brother Robert; sister Nancy; and three grandsons. Harriet and his son, Alan, predeceased him.



Robert N. Lowry '42

Bob Lowry died June 13, 2014, at his home in Hillsborough, Calif., as a result of sepsis following a pulmonary infection.

He prepared for Princeton at the Manlius (N.Y.) School. At Princeton, Bob majored in politics and graduated with high honors. He was a member of Dial Lodge.

Shortly after graduation, he joined the Marine Corps as a second lieutenant. He participated in the invasions of Bougainville, Guam, and Iwo Jima. Early in his service, he

met Mary Dudley, a Navy nurse. Bob and Mary were married after the end of the war.

Bob graduated from the University of Virginia School of Law. Contacts he had developed before the war led him first into railway law and then into public-utility law.

In 1953 the Lowry family moved to the San Francisco area. A rich family life with Mary and their two children gave Bob a satisfaction that seemed remote when he was a struggling officer during World War II. Additionally, reunions and mini-reunions of the Class of 1942 were particularly meaningful to him.

Bob is survived by his children, Ann and Robert; five grandchildren; and two great-grandchildren. Bob was predeceased by Mary and his parents.

THE CLASS OF 1943



Holt Apgar '43

Holt died July 23, 2014, at the Brandywine Reflections Senior Care Center in Brick, N.J.

He came to Princeton from Phillips Exeter Academy, where he ran track. He continued this activity at Princeton and was also on the 150-pound football team. Holt majored in chemical engineering and was elected to Phi Beta Kappa. He was a member of Cannon Club.

Holt's World War II service included duty as a lieutenant in the Navy, where he was in charge of ammunition for a PT squadron in the South Pacific.

Holt worked as a chemical engineer for Foote Mineral, Merck, and Rhodia. He particularly enjoyed working for Rhodia, a subsidiary of Rhône-Poulenc, a French company. At that time, he was focusing on using yttrium in the red phosphors for color TVs — something Holt was already familiar with because his senior thesis at Princeton concerned synthesizing a new red dye.

His retirement years were spent between Pinehurst, N.C., and the Jersey Shore, where he enjoyed the company of his family, including his wife of 71 years, three children, three grandchildren, and two great-grandchildren. To them, the class extends its sympathy.



Allan W. Ferrin '43

Al died in Palm Beach, Fla., May 19, 2014.

He entered Princeton from Scarsdale (N.Y.) High School, where he was active in student government and on the publications board.

At Princeton he majored in politics, was elected to Phi Beta Kappa, and graduated with high honors. He was a member of Whig-Clio and was on the freshman debate panel. Al was also treasurer of Key and Seal Club.

After graduation, Al spent three years in the Army and then went into the publishing business. He served in various executive positions until he became president of the textbook publisher Appleton Century Crofts. He left to become executive vice president of the publishing unit of the American Management Association and worked in several positions there before retiring in 1987.

After retirement, Al did volunteer work for many community organizations, including the YMCA of Pawling, N.Y., and was a volunteer firefighter in Scarsdale. He was a big contributor to the governance of his church.

The class sends its condolences to Al's son, Allan '73; and daughter, Bonnie. His wife, Barbara, predeceased him in 2010.



Ronald K. MacMaster Jr. '43

Ron served in the Army Air Force as a flight engineer and attained the rank of captain.

This followed his time at Princeton, where he majored in mechanical engineering and was in Court Club. Ron continued his education at Rutgers University, where he earned an MBA in 1955.

Ron worked in the aerospace industry his entire life. He was a flight engineer, testing airplanes at Wright Field in Ohio, where he had the privilege of working with legendary pilot Chuck Yeager. He then began designing engines at Curtiss-Wright Corp. in New Jersey. Ron moved to California in 1961, where he worked on rockets for the Aerojet and Aerospace corporations. He ended his career at Marquardt Corp., where he assisted in the development and refinement of the space shuttle engines.

Ron died Aug. 20, 2013. He is survived by his wife, Joan; children Timothy, Emily, and Douglass; and seven grandchildren.



Maynard B. Williamson '43

Our classmate Barney died June 13, 2014, in Carlisle, Pa.

Barney attended the Calvert School, where he was on the football, swimming, and tennis teams. At Princeton he majored in English and graduated with high honors. He was a member of the swimming team and was assistant program

director for WPRU. Barney was a member of Terrace Club, where he served as secretary.

Following graduation, Barney went to midshipman's school at Columbia University. He was assigned to the USS *Maloy*, which was the command post for the 29th Infantry Division during the landings on Omaha Beach.

He later was employed by Hercules Inc., where he had foreign assignments, the last of which was as director of Far East operations. During this time, Barney was president of the American Chamber of Commerce of Japan and served as chairman of the Asian Pacific American Chamber of Commerce.

He married Taeko Yasuda in 1974 and retired in 1986 when he and Taeko moved back to his home in Carlisle, Pa.

Barney continued his academic pursuits and earned a master's degree in public administration in 1990 from Shippensburg University. During this time, he served in several community activities, including — and most importantly — as a director of Princeton in Asia.

Barney is survived by Taeko and their sons, Christopher and James.

THE CLASS OF 1944



John M. Doar '44

John's death Nov. 11, 2014 — Veterans Day — was promptly announced on national TV newscasts.

John, a Wisconsin

Republican, was a civil-rights assistant under presidents Eisenhower and Kennedy and was named civil-rights assistant attorney general under President Lyndon Johnson.

Putting his life at stake in several civil-rights protests, John helped James Meredith matriculate at the segregated University of Mississippi. He prosecuted the Ku Klux Klan, and calmed protesters after the murder of civil-rights leader Medgar Evers. John contributed to drafting the 1964 Civil Rights Act. He also was chief counsel for the investigation of Watergate and drafted the articles of impeachment against President Richard Nixon.

Later, President Barack Obama awarded John the Presidential Medal of Freedom, calling him "one of the bravest American lawyers of any era."

Lincolnesque in style, modest, kind, and soft-spoken, John dedicated his life to service for individuals and his country.

At Princeton he roomed with Don DeCoster, played varsity basketball, majored in politics, was in Tiger Inn, and later became a University trustee. John loved Princeton.

He is survived by his daughter, Gael; sons Michael '78, Robert '83, and Burke '86; 12 grandchildren, including Andrew '16; and one great-grandson. He was predeceased by his first wife, Anne, with whom he had reconciled; his second wife, Patty, survives him.

THE CLASS OF 1946



Philip J. Finkelpearl '46

One of his students called Phil Finkelpearl's Shakespeare class "truly theater in itself." A longtime college professor, Phil specialized in Elizabethan and

Jacobean drama, publishing two books — *John Marston of the Middle Temple: An Elizabethan Dramatist in His Social Setting* and *Court and Country: Politics in the Plays of Beaumont and Fletcher* — as well as numerous articles on the historical and social context of the theater.

After graduating from Princeton, where he established a lifelong friendship with his roommate, Robert Venturi, Phil taught at Brandeis University, Vassar College, and the University of Massachusetts, Boston. He most recently taught at Wellesley College, where in 1985 he earned the Pinanski Prize for Excellence in Teaching.

He was awarded a Guggenheim Fellowship in 1971 and a National Endowment for the Humanities Fellowship in 1987.

Phil's death Nov. 30, 2014, left Kitty, his wife of 66 years; daughter Ellen '75; son Tom '79; and three grandchildren. The class is grateful for this life, described by those who knew Phil best as "original, irreverent, creative, playful and warm, and intensely social as well as reclusive."

THE CLASS OF 1948

Alfred L. Blessing '48

Al died Dec. 8, 2014, at his home in Haworth, N.J. He was 93. The news of his death came from his daughter, Ann Blessing, an attorney in San Francisco.

Before college, Al served four years in the Air Force. At Princeton, he was in Prospect Club and graduated with a degree in SPIA. His marriage soon after graduation was cut short; his wife died of cancer when their daughter was 3, and he did not remarry.

Al was a leader in nationwide advertising sales for *Business Week* magazine. This career began two years after graduation, and he worked there until his retirement in 1986.

He and Ann were both active in sports. They skied together repeatedly in Europe and rowed competitively, and Al sailed a small sloop off the Atlantic and Pacific coasts.

Al was an active and enthusiastic member of the class. He preceded David Reeves for a few years as class secretary and was a regular participant in our reunions.

THE CLASS OF 1949

John H. Rae Jr. '49

John Rae died Feb. 3, 2014, at home in Rochester, N.Y. He was just three months short of his 87th birthday.

John served in the Merchant Marines before entering Princeton. He majored in chemistry and was a member of Ivy. After graduation, he

worked for several years in direct sales for Gulf Oil Co., but then returned to Rochester to work for the family firm, J.H. Rae Oil Co. When his father died in 1958, John and his brother, Bob, assumed responsibility for managing the firm, where John remained as president until his retirement in 2011.

John loved to play golf, fish, sail, ski, listen to jazz, play the piano, and relax and swim on Canandaigua Lake. His family requested that any memorial contributions be made to the Nature Conservancy in Rochester.

His wife, Frances Clarke Rae, survives him, as do his daughters, Susan, Robin, Sara, and Katherine; seven grandchildren; and one great-grandchild. The class offers its condolences to them all.

THE CLASS OF 1950



F. Douglas Raymond

Jr. '50 Doug, a celebrated rheumatologist and lifelong Pennsylvanian, died Oct. 18, 2014.

He entered Princeton after graduating from Episcopal Academy and serving two years in the Navy. He was a co-founder of the Tigertones, a member of Quadrangle, and a biology major who graduated with high honors.

In 1954, he received a medical degree from the University of Pennsylvania School of Medicine. After his internship and residency, he opened his own practice in Bryn Mawr, Pa., in 1958, and worked there until retirement in 1998.

Doug was a co-founder of the Bryn Mawr Rehabilitation Center and Bryn Mawr Medical Specialists Association. He was attending physician at Bryn Mawr Hospital for nearly 40 years and was its chief of rheumatology for 25 years. At various times he was on the faculties of Penn, Temple, and the Jefferson Medical College. In addition to membership in many medical societies, he was a board member of the Episcopal Academy Alumni and of Philadelphia's Jubilee School for indigent children.

He maintained his enthusiasm for music by singing in a barbershop chorus, The Mainliners. Doug was a deeply faithful man who served his Bryn Mawr church in many ways.

We extend our sympathy to Carolyn, his wife of 61 years; children Ruth '79, Doug, David, and Elizabeth; and seven grandchildren.



Eugene V. Weinstock '50

Gene, an expert on safeguarding nuclear materials, died Oct. 8, 2014, in Lexington, Mass.

He graduated from Atlantic City (N.J.) High School and served a year in the Navy. He majored in physics, graduating with high honors and election to Phi Beta Kappa and Sigma Xi.

After receiving a doctorate in physics from the University of Pennsylvania in 1955,

Gene taught for a year in Puerto Rico. He then returned to the Brookhaven National Laboratory, where he had participated in a student program the summer after graduation.

He worked at Brookhaven for the rest of his 36-year career, first with the experimental Reactor Physics Division, and later with the Technical Support Organization for Nuclear Safeguards. From 1989 to 1991, he was assigned to the International Safeguards Project Office in Vienna as liaison officer to the United Nations International Atomic Energy Agency. In 2005, he moved from Long Island to Lexington, Mass., to be closer to family.

Gene's interests included playing tennis, listening to classical music, reading *The New York Times* daily, and eating dark chocolate. He appreciated intellectual argument. One could not miss his sardonic humor.

Our condolences go to his wife, Beverly, whom he married in the fall of 1950; his children, Deborah, Judith, and Daniel; and nine grandchildren.

THE CLASS OF 1951



Donald P. Hahn '51

Don was born Aug. 20, 1929, to Bertha Reich and Frederick A. Hahn. He prepared at The Boys' Latin School of Maryland, and at Princeton majored in biology and belonged to Ivy. He was considered the finest lacrosse player of his era: He captained our team to a national championship and was inducted into the National Lacrosse Hall of Fame.

Don earned his medical degree from Johns Hopkins in 1955 and served his internship at Bellevue Hospital in New York City. In 1957 he joined the Air Force and was stationed in the United States and abroad for the next six years.

From 1963 to 1965 he completed a residency at the Pacific Presbyterian Hospital in San Francisco. Soon after he entered into private practice in Mendocino, Calif., on the Pacific coast. In June 1969 he and Pamela West were married. Don retired in 1996 after having practiced medicine in Mendocino for more than 30 years.

Don died Feb. 3, 2014. He is survived by Pamela, daughter Caitlin, son Tobin '94, and three grandchildren. His brother, Robert, predeceased him. Don was a superb athlete and beloved medical doctor, and we are proud to call him one of our own.

THE CLASS OF 1954



Alfred J. Lata '54

Alfred died Dec. 21, 2014. Born in Cleveland, he graduated from South High School. At Princeton, he majored in chemistry and was a member of Cloister Inn. He was a soloist for the varsity and freshman glee clubs.

After graduation, he served two years in the Army and then earned a master's degree in education from Case Western University in 1957. He taught at Shaker Heights High School, and during that time he sang bass in the Cleveland Orchestra Chorus. In 1965, he joined the general chemistry program at the University of Kansas.

Alfred was one of the first to experiment with the use of computers to teach chemistry. He spoke on this topic at regional, national, and international meetings. Alfred was chairman of the American Chemical Society's Committee on Computers in Chemical Education.

Within the Lawrence, Kan., community, he was best known for his voice and acting talents. He was involved with the University Theater and Lawrence Community Theater. Alfred was one of the founding members of Voci de Camera and also sang with the Lawrence Motet Singers.

The class is honored by his service to our country and extends condolences to his wife, Mary; son John; daughter Jamie; five grandchildren; and two great-grandchildren. He was predeceased by his daughter Elizabeth.

THE CLASS OF 1955

Leo I. Ragni '55

Leo was born Jan. 1, 1934, in Bellaire, Ohio, and died Sept. 28, 2013, in St. Clairsville, Ohio.

Leo left Princeton in January 1953, worked in the family business (wholesale beer distribution) for a year, then attended Kent State for almost two years. He joined the Army and served for three years before going back to the family business.

He married his wife, Donna, in 1963, and they had a daughter, Loraine.

Leo finally received his degree in business administration in 1969 from the Ohio University Eastern campus in St. Clairsville. During this time, he was running the Ragni Distributing Co. of Bellaire. After he was able to merge it with Iron City Distributing of Mingo Junction in 1993, Leo retired in 1996 at age 62. He was a member of St. Mary's Catholic Church of St. Clairsville and the Sons of Italy. Some of his best memories are of the friends he made at Princeton.

He is survived by Donna; daughter Loraine; and two grandsons, Joseph and Leo. To them, the class offers condolences.



Stephen H. Schanuel '55

Stephen was born in St. Louis July 14, 1933. After graduating from Kirkwood (Mo.) High School, Frank majored in mathematics at Princeton. He wrote his thesis on convexity preserving maps and joined Prospect. He was head usher for the University concert series and was a member of a philosophy discussion group. After graduate work, Stephen became a professor of mathematics at SUNY Buffalo.

A dedicated and beloved brother, husband, father, grandfather, and friend, Stephen died July 21, 2014, in Jacksonville, Fla. All who knew him will remember his quick wit and beautiful smile. He is survived by his sister, Elizabeth; daughter Lynn; son Jason; son-in-law Carlos; granddaughter Jenna; nieces Carolina, Marjie, Ann, Liz, Katie, Melissa, and Christine; and nephews John and Danny. He also leaves behind countless dear friends, many from Buffalo. Stephen was predeceased by his wife, Joan; brother Peter; and sisters Susan and Dorothy.

To his survivors, the class expresses joy at having known an exceptional man.



Francis W. Sloat '55

The son of Leslie Sloat '29 and Sarah Sloat, Frank was born Dec. 22, 1933, in Middletown, N.Y. He came to Princeton from Moorestown Friends School and majored in mechanical engineering. He joined Prospect Club, where he served as its majordomo. Frank managed the freshman and varsity baseball teams and roomed with Ludwig Gutmann.

Stints in military and aircraft companies were followed by Frank's work in construction-project management. He and his family settled in Baltimore and embarked on a full travel schedule, which included a lot of camping and visits to all but two of the nation's states.

Frank took a great interest in genealogy, finding it interesting to investigate and then walk ancestral lands, find records from the 1600s, and watch family data develop.

Frank is survived by his wife, Eleanor; sons David, James, and William; a daughter, Debbie; and five grandchildren. To them all, the class offers its condolences.



Samuel T. Suratt '55

Born Aug. 9, 1933, in Ridgewood, N.J., Sam came to Princeton from Ridgewood High School. He joined Tower and graduated with honors.

His roommates were Peter Brown, Peter Van Gytenbeek, and John Snyder.

In 1965, he became archivist at the Smithsonian Institution with authority over all the archives of one of the oldest scientific research institutions in the country and the largest museum complex in the world. From 1969 to 1991, Sam was the archivist for CBS News, where he oversaw and managed the transformation of all CBS news-information resources to the computer age.

With his wife, Judy, Sam embodied the spirit of mentorship at the heart of Princeton Project 55 (now Princeton AlumniCorps). He was especially fond of introducing PP55 fellows to New York culture, including trips to the New York City Ballet and the Metropolitan Opera.

Sam delighted in providing sage professional advice and sharing his signature witticisms and incisive observations about history, art, broadcast journalism, and New York's changing neighborhoods.

Sam died Oct. 27, 2014, of pancreatic cancer. He is survived by Judy; sons Benjamin and Daniel; four grandchildren; and his brother, William. Committed to Princeton AlumniCorps, Sam left an impact on the organization and the many fellows he mentored.

THE CLASS OF 1956



Wilfred Morioka '56

Wil Morioka was born May 1, 1934, in Wahiawa, Hawaii. He attended the Punahou School and was an outstanding scholar and athlete. Wil was awarded a Navy ROTC scholarship, allowing him to enroll in Princeton, where he majored in biology.

He went out for the fencing team and was a skilled foil fencer, starting on the first team all three years. During his senior year, he received All-Ivy League status.

Following graduation, he served his four-year military-service obligation as a carrier pilot. He married Jean Yoshida, a student at the University of Pennsylvania, Dec. 25, 1956.

Wil enrolled as a student at Thomas Jefferson Medical School in Philadelphia and earned a medical degree in 1963. He then re-entered the Navy as a flight surgeon and completed his residency in 1972 in otolaryngology.

Wil settled down with his family in La Jolla, Calif., retired from the Navy in 1978, and retired from his career in 2001. He died Oct. 14, 2014.

He leaves behind his beloved wife, Jean; and four children, Leigh, James, Timothy, and Peggy. He enjoyed his retirement years during which he helped raise his grandchildren, Travis, Allison, and Tyler.

THE CLASS OF 1957



Jonathan F. Swain '57

Bing died Dec. 15, 2014, in Charlton, Mass. He was 80.

Bing was born Feb. 8, 1934, and was raised in Worcester, Mass. He spent his summers

in Nantucket, where he met his wife, Madeline "Dutch" Barbara. He prepared for Princeton at Tabor Academy, and later studied at the Oundle School in England and earned an MBA from UPenn.

At Princeton, Bing joined Colonial. He majored in philosophy, rowed crew for two years, and enjoyed riflery for four years.

In 1972, Bing started a management-consulting business that he ran successfully for 15 years. He resided in Sudbury, Mass., for 44 years, where he and Dutch raised their two daughters.

He was on active duty in the Marine

Corps from 1957 to 1959 and then retired as a lieutenant colonel after 26 years in the Marine Corps Reserve.

Bing was a successful fundraiser for Tabor Academy, Oundle School, Wheaton College, and the Marine Corps. He served as chairman or trustee of many committees, boards, programs, and clubs. He was a member of Mensa and the Wharf Rat Club in Nantucket. He enjoyed jogging, woodworking, reading, and discussing subjects of substance.

He is survived by Dutch, his wife of 56 years; daughters Jennifer and Suzanne; and three grandchildren.

THE CLASS OF 1965



Ross S. Gibson Jr. '65

Ross came to us from St. Christopher's School in Richmond, Va., along with classmate John Page Williams.

He majored in English, and his thesis was titled "Men in Combat: Novels of World War I and II." Ross took his meals at Cottage and served as the Reunions secretary for the Class of '19.

After graduation he returned to his native Virginia and earned a law degree at the University of Virginia before taking a strong left turn and obtaining a master's degree in city planning at UC, Berkeley. Halfway to our 25th reunion, he was diagnosed with a brain tumor, which cost him his left eye and a long and painful recovery hiatus.

His first career involved reviewing land development applications and making recommendations to his employer, Santa Cruz County, while continuing to live in Berkeley. In our 25th-reunion book, Ross listed his greatest joy as the time he spent with his son, Andrew, who survives him. Andrew's wife, Candice, and grandchildren Anya, Solana, and Dax also survive. At the time of his death Sept. 18, 2014, Ross was working as a screenwriter and still living in northern California.

To Andrew, the rest of Ross' family, and his friends, we send our condolences on the loss of one of us who faced down great adversity and lived a fulfilling life against great odds.

THE CLASS OF 1966



Thomas S. Gilbert '66

We lost Tom in a tragic incident Jan. 4, 2015, three days after his 70th birthday.

Tom grew up in New York City and called it home for the rest of his life. He played soccer, squash, and tennis at Phillips Exeter Academy. At Princeton, he continued the same three sports, adding crew during his freshman year. He chose the Woodrow Wilson School as his major and joined Colonial Club.

After receiving an MBA from Harvard,

Tom embarked on an illustrious career in finance. He was, at various times, managing director of Loeb Partners and chief executive of Knowledge Delivery Systems and Syzygy Therapeutics. At the time of his death, he was founder and head of the hedge fund Wainscott Capital Management.

Tom had style. He had it as an undergraduate, and he had it in his maturity. In an interview with *People* magazine, our classmate Lanny Jones described Tom this way: "He was the beau ideal of a college student, and grew up to be quite an elegant man." He was a loyal member of the Class of '66, enthusiastically participating in our events and activities.

We mourn Tom's passing and extend heartfelt condolences to his wife, Shelley Rea Gilbert, and the rest of the family.

THE CLASS OF 1969



James E. Wright '69

Jim Wright died Feb. 8, 2014, after a courageous battle with amyotrophic lateral sclerosis (ALS).

From the small town of Loudonville, Ohio, to corporate boardrooms, Jim's upward life arc reflected his energy, his enthusiasm, and his many talents. He was a tough competitor, but even more, he was a generous, kind, and thoughtful husband, father, and friend.

A natural businessman, as an undergraduate Jim headed the express-reunion agency and was a wise and entrepreneurial marketer for various projects on campus, especially for his much-loved Cannon Club.

After earning a law degree and an MBA at Cornell, he served in the Army and then began a 30-year career in commercial real-estate finance. Jim spent most of his career at Citibank, eventually settling in Toronto as the head of Citibank Corporate Real Estate Canada for 15 years. Subsequently, he joined the boards of Bentall Kennedy and MCAP.

Jim derived pleasure from traveling, gardening, country music, practical jokes, and Princeton reunions. He never missed a good evening of conversation and companionship with family and friends.

He is survived by his wife, Mary-Lou; his children, Marianna, Jay, and Carrie; and grandchildren Holly and Avery. We mourn his passing and are grateful for his good life.

THE CLASS OF 1971



Richard Stockbridge '71

Richard, known as "Hoss" to his Princeton friends, died Nov. 10, 2013, at home in Woodbine, Md., after a two-year battle with lymphoma.

Richard came to Princeton with five classmates from Baltimore Polytechnic

Institute. At Princeton, he majored in aerospace and mechanical engineering. Senior year, he lived off-campus with his wife, Anne.

After graduation, Richard continued his love of learning, studying at Princeton Theological Seminary, Rutgers, and the University of Maryland, where he earned a Ph.D. in aerospace engineering. He had a long, successful career at the Johns Hopkins Applied Physics Laboratory, using his skills in applied and computational mathematics. He was widely published and traveled extensively throughout his career.

Richard was an avid reader and a lover of classical music. He enjoyed backpacking and taking motorcycle trips with his son, Jeffrey. In 2012, Richard traveled by motorcycle back to Princeton for a nostalgic visit, stopping at Pyne Hall and recalling memorable events on campus. After retirement, Richard continued his pursuit of knowledge, immersing himself in computer code, problem solving, and stock trading. He also had more time for his dog — and constant companion — Stanley.

The class extends sympathy to Richard's wife of 43 years, Anne; daughters Sarah and Jennifer; son Jeffrey; and granddaughter Lilly.

THE CLASS OF 1972



Steven A. Martin '72

Steve died May 19, 2014, at his home in St. Charles, Ill.

He came to Princeton from Fairmont West High School in Kettering, Ohio. At Princeton, Steve majored in economics. He lived in Patton Hall junior year with Richard Clifton, Dennis Grzezinski, John Hedeman, Calvert Kendrick, Robert Thomas, and David Whitman. He spent the following summer in Japan, an experience that informed his thesis. He graduated with high honors.

Steve earned an MBA from the Wharton School at the University of Pennsylvania. He worked for Humana and BATUS Inc. in Louisville before moving to Illinois to take a position with the Sears corporate office. Following his tenure with Sears, Steve founded Martin Consulting and guided the successful transformations of many failing businesses. During the last 10 years of his career, Steve's professional focus was in Asia, especially Indonesia and China, where he served as CFO of Matahari Putra Prima among other positions.

Steve was preceded in death by his parents, Allen John and Audrey Fox Martin. He is survived by his loving wife, Vevia; daughter Samantha and her husband, Dustin; brother David and his wife, Ana, and their children, Derek and Keith.

THE CLASS OF 1985

Diana Soule '85

Diana died June 7, 2014, in a single-car



accident near her home in Concord, N.H.

Diana came to Princeton following in her brother Matt's footsteps. The youngest of five siblings, she was an accomplished equestrian and a three-sport varsity athlete at St. Paul's School in their native Concord.

At Princeton, she was a squash player, a history major and a beloved member of Cap and Gown Club. Most memorably, however, she was one of those rare few who radiated kindness and inclusivity to everyone she met. Her innate compassion was palpable to those who knew her and she was widely admired for her humility, kindness, and good nature.

After time in New York City and Los Angeles pursuing creative interests, Diana received a nursing degree from Vanderbilt, where she graduated with high honors. Nursing was a natural extension of her compassionate heart. Throughout her life, she worked in service of others: with Oxfam while at Princeton, at Memorial Sloan Kettering Cancer Center, with hospice in Los Angeles, and at Concord Hospital, where she worked in recent years.

Diana is survived by her mother, four siblings, and seven nieces and nephews, to whom she was devoted. Our class extends deep sympathy to them all. She will be greatly missed.

GRADUATE ALUMNI

Harold W. Kuhn *50

Harold Kuhn, eminent professor emeritus of mathematical economics at Princeton, died July 2, 2014, of congestive heart failure. He was 88.

After Army service from 1944 to 1946, Kuhn completed his bachelor's degree at Caltech in 1947, and in 1950 earned a Ph.D. in mathematics from Princeton. After teaching at Bryn Mawr, he returned to Princeton as an associate professor of mathematical economics in 1959 and was promoted to professor in 1963, retiring in 1995.

Kuhn was a world leader in the fields of linear and nonlinear programming, game theory, combinatorial problems, and the application of mathematical techniques to economics. Widely known for his scholarship, he was respected for his thoughtful approach to teaching and for his service to Princeton.

In the late '60s, he wrote a policy paper titled "Students and the University" that led to broad changes in the participation of students in the governance of Princeton. He also served on the committee that designed the Council of the Princeton University Community, which continues to give Princeton constituencies a voice in its governance. In his memory, Princeton flew the University flag over East Pyne at half-staff.

Kuhn is survived by his wife, Estelle;

three sons, including Nicholas '76; and seven grandchildren.

John P. Mayberry *55

John Mayberry, professor emeritus of mathematics at Brock University in Ontario, Canada, died Sept. 8, 2014, after gradually succumbing to Alzheimer's disease. He was 85.

Born in Connecticut, Mayberry grew up in Ontario, and graduated from the University of Toronto in 1950. In 1955, he earned a Ph.D. in mathematics from Princeton. During his career, Mayberry wrote many articles, chapters, and books at the highest level of theoretical inquiry.

From 1958 to 1961, he was an operations analyst with the Air Force in Tokyo. At the Pentagon in Washington, D.C., he was chief of its research group until 1967. Upon leaving that year for consulting work, Mayberry received the Air Force's Decoration for Exceptional Civilian Service for devising "solutions to the most difficult problems in applied mathematics and computation."

In 1971, Mayberry joined the mathematics department at Brock University. He taught thousands of students, chaired his department, sat in the senate, and was an active member of the community until retiring in 1995. He was an APGA board member, graduate regional chair, and Princeton Schools Committee interviewer.

He is survived by Kerstin, his wife of 60 years; three children; and four grandchildren.

Cetin Soydemir *67

Cetin Soydemir, a geotechnical engineer, died suddenly Sept. 22, 2014, at the age of 79.

Born in Turkey, Soydemir received a bachelor's degree in civil engineering there in 1957 from Robert College. He came to the United States and earned two master's degrees in engineering from Harvard in 1958 and 1960. In 1967, he was awarded a Ph.D. in civil engineering from Princeton. The 1974 Princeton Alumni Directory listed him as an associate professor at a Turkish university in Ankara.

Returning to the U.S. in 1977, he began a 24-year career as vice president and senior geotechnical consultant at Haley & Aldrich Inc. in Cambridge, Mass. This noted engineering firm contributed to buildings that are part of the Boston skyline.

After Haley & Aldrich, Soydemir worked for Geotechnical Services Inc. in Goffstown, N.H., until 2009. Then, until his death, he worked daily as a senior geotechnical consultant at Environmental Compliance Service Inc. in Woburn, Mass. He also had taught at UMass, Lowell.

Soydemir was predeceased by his wife, Shirley. He is survived by a son; five grandchildren; and numerous relatives in his native Turkey.

Graduate memorials are prepared by the APGA.

Classifieds

For Rent Europe

PARIS ST GERMAIN & ISL - CALL TODAY!

Superbly-restored centuries-old elegance in St. Germain 7th and Ile St Louis. Sunny. Fireplace. Antiques. Latest bath, kitchen. Maid service. Discounts. Pleasant, attentive help from owner!

415-722-8077
www.passionateforparis.com

Provence: Stunning, updated farmhouse, magnificent Mediterranean/mountain views. Antiques. Lovely kitchen, gardens, pools. 609-924-7520. gam1@comcast.net

Rome: Bright, elegant apartment. Marvelous beamed ceilings. Antiques. Walk to Spanish Steps, Trevi Fountain. 609-683-3813, jetas5@comcast.net

Italy/Tuscany: Ancestral villa with sweeping views. Olive groves, vineyards, gardens. Antiques. Updated kitchen, baths. Pool. 609-683-3813, jetas5@comcast.net

Paris, SW France, Provence, Italy. Apartments, homes, chateaux. www.FrenchHomeRentals.com, FHR@earthlink.net, 503-219-9190.

Provence: Delightful five-bedroom stone farmhouse, facing Roman theater. Pool, WiFi. 860-672-6607. www.Frenchfarmhouse.com

Paris, Left Bank: Elegant apartment off Seine in 6th. Short walk to Louvre, Notre Dame. 609-924-7520, gam1@comcast.net

Paris, Marais: Elegant, 2 bedroom, 2 bath apartment, vibrant Pompidou museum/sidewalk café quarter on 13c pedestrian street, full kitchen, w/d, AC, cable. desaix@verizon.net, 212-473-9472.

Florence Country house on 54 mountain acres. Fantastic views. \$120/day. www.ganzitalianhouse.com E-mail: gganz@comcast.net

Rome Historic Center: 2-4 bedrooms. Elegant and spacious. All modern conveniences, including Wi-Fi. 503.227.1600; tkim@stollberne.com

France, Paris-Marais: Exquisite, sunny, quiet one-bedroom apartment behind Place des Vosges. King-size bed, living/dining room, six chairs, full kitchen, washer, dryer, weekly maid service, WiFi, \$1350 weekly. max@gwu.edu

Paris: Ile St. Louis, elegant top-floor apartment, elevator, updated, well-appointed, gorgeous view. Sleeps 4, maid 3x week. WiFi, TV etc. Inquiries triff@mindspring.com, 678-232-8444.

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

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

Paris, large, elegant studio near the Arc de Triomphe. Weekly \$1,000. WiFi. ideces@princeton.edu

Berlin Countryside Manor: 6BR, 6.5BA. Complete restoration 2014. Biking, walking, swimming, cultural excursions. Jolie von Arnim '95, www.theoutpost.de/english-website/

Rome, Italy: Breathtakingly beautiful art-filled apartment on via Gregoriana near Spanish steps. 2 bedrooms in a 17th century palazzo. Mariaceliswirth@yahoo.com, 212-360-6321.

Going to Italy?

Let a Stanford alum who lives there guide and drive you. He'll follow your lead if you wish or he'll surprise you with discoveries he's made - over nearly 20 years - off "the beaten track." Or both! Your wishes are his commands.

www.follow-your-nose.com

Provence: make your dream reality www.provencemagique.com, provencemagique@gmail.com

Paris Luxembourg, Port Royal and Saint Jacques, full of light, large one bedroom apartment, 75m.sq., completely redesigned, elegant furnishing, antiques. 950 euros/week, gregoire.mallard@graduateinstitute.ch

Central America

Costa Rica Luxury Villas/Condos. Ocean Views, Beach Club, Concierge, Golf, Spa, Adventures! Jane@PapagayoLuxury.com, 305-600-0766, www.PapagayoLuxury.com

Mexico

San Miguel, Mexico: Quintessential colonial, 3 bedrooms, 4 baths, kitchen, courtyard, gas fireplaces, rooftop view. Four blocks to the Jardin. Includes cook/cleaning. kdanders12@gmail.com, +1 (202) 903-8143. k'58,'62.

United States Northeast

Waitsfield, VT: 6BR, 3BA, fireplace. Spectacular golf, riding, tennis, biking, hiking. MadRiver swimming. 2 day minimum. 978-922-6903, '51.

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

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

Martha's Vineyard, Edgartown: heated pool, central air, 1.5 landscaped acres, 5BR/4BA, sleeps 10. Jo Rein '90, joannarein68@yahoo.com, 914-834-6948.

Maine: Acadia National Park; Bar Harbor/Ellsworth area. Lakefront cottage, kayaks, canoe, rowboat. \$750/wk. 207-671-2726. Sandraquine@yahoo.com, www.freewebs.com/Quinecottage

Cape Cod: Waterfront estate (sleeps 20) in charming Osterville near many public golf courses. Boathouse, dock, hot tub, kayaks, sunsets. Perfect for family reunions, fall excursions. pesimons@aol.com, s'70.

Mountain Lodge on Lehigh River, PA: Waterfalls, fishing, swimming, tennis. Sleeps 13, \$1,400/week, June-October. kgordonmd@aol.com, 617-519-6114.

Chilmark, Martha's Vineyard: Idyllic retreat with rolling lawn & stone walls. Beautiful 4 br/2.5 bath, 2 fireplaces. Rosenberg '83. rlrnmf@me.com, 561-310-9585.

Nantucket: Luxurious home in prime location with harbor view and short walk to the beach. Two week rental, August 17-31, 2015. Five bedrooms, 4.5 baths, large outdoor terraces, office, maid quarters. Call 212-953-6598 for details. p'96,'07.

United States West

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

Adventure

Sail. Antarctica. Fjords – Sail the waters of Darwin and Scott. Amazing wildlife. Adventure of a lifetime. Owned and operated by Princeton Alumna. Quijote Expeditions. www.syquijote.com

Real Estate For Sale

Private Communities Registry: Take a self-guided tour of the top vacation, retirement and golf communities. Visit: www.PrivateCommunities.com

Arizona: Scottsdale, Paradise Valley, Phoenix and Carefree. Houses, condos and lots. Rox Stewart '63, Russ Lyon Sotheby's International Realty. 602-316-6504. E-mail: rox.stewart@russlyon.com

Bahamas, Man O War, Abaco. Classic Bahamian Cottage and dock house on three acres, sea-to-sea. Large dock, three inner harbor moorings. captmuffet@aol.com for more info and photos. C Dehart '13.

Books

Calling All Princeton Authors!

Promote your book in the special Summer Reading Section
Contact Colleen Finnegan
cfinnega@princeton.edu • 609-258-4886

Collectors Items

Nassau Hall postage stamp sheets. 1956. Mint condition. e.l.landwehr@gmail.com, '61.

Writing Workshop

August Fiction Workshop in France. Join Ann Tashi Slater '84 (New Yorker, Paris Review, HuffPost) in a Burgundy village near Paris. www.laportepainte.com; www.anntashislater.com

Educational Services

College/Graduate School Consultant and Writing Specialist. Guidance

throughout the college and graduate school admissions process. Teaching in general writing skills (7th grade and up). Contact Allison Baer, Ph.D. (Princeton '96, Columbia '03) at 212-874-2424 or visit www.allisonbaerconsulting.com

Investment Opportunities

SEEKING INVESTORS FOR REAL ESTATE DEVELOPMENT

RN INVESTMENT GROUP Investment VISA EB-5 for permanent resident
(323) 898-8603 | RNinvestment.com

Personals

Complimentary Memberships for Men seeking a meaningful relationship. Manhattan-based matchmaker. 212-877-5151; fay@meaningfulconnections.com, www.meaningfulconnections.com

BluesMatch.com — Where Oxbridge and the Ivy League collide. Over a decade of successful matchmaking.

Surrogacy

Alumnus seeks attractive brunette egg donor/surrogate to start family, jmcjr15@gmail.com

Positions Available

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

Personal Assistant: Highly intelligent, resourceful individual with exceptional communication skills and organizational ability needed to support a busy executive. Primary responsibilities include coordinating a complex schedule, assisting with travel, and providing general office help in a fast-paced, dynamic environment. An active

approach to problem-solving is essential. Prior experience assisting a high-level executive is a plus. We offer a casual atmosphere in a beautiful space, working as part of an extraordinary group of gifted, interesting individuals. This is a full-time position in New York with excellent compensation and benefits, as well as significant upside potential and management possibilities. Please e-mail your resume to hlparecruit@gmail.com. Please note that, due to the high number of respondents, we will unfortunately be unable to reply to every inquiry.

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

Technology Jobs



LEBRON has an Agent,
now elite Developers &
Tech Architects can too!
www.TheTechTalentAgency.com

Wanted to Buy

Vintage Princeton Clothing wanted. 1970s and earlier. Beer jackets, sweaters, sweatshirts etc. 609-499-2401, beerjacket77@gmail.com

Wine

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



Cheerleaders — along with the Princeton Tiger and “Princeton Charlie” — in 1950.

Sis Boom Ah!

W. Barksdale Maynard '88

Near midnight on April 19, 1861, the Seventh New York Regiment came through Princeton by train (the tracks ran near Lake Carnegie), and undergraduates heard the soldiers' dramatic “rocket” cheer, “ssss-boom-ahhh!”

Thus, it is said, we learned our college cheer, still used today. Nineteenth-century students gave the “Tiger-skyrocket” as a stately “Hurrah! Hurrah! Hurrah! Tiger! Ssss-boom-ahhh!” — the last syllables imitating a crowd's gasping admiration of a starburst.

In fact the cheer was merely reintroduced to campus in 1861. The “rocket” — often preceded by the long-customary “three cheers and a tiger” — was used here already, perhaps inspired

by fireworks displays when the Atlantic Cable — the first transatlantic telegraph cable — was celebrated in 1858. Nationwide, militia groups popularized the rocket cheer by 1860.

In the 1890s we devised the “locomotive,” which speeds up as it goes along and today is rendered, “Rah rah rah! Tiger, tiger, tiger! Sis, sis, sis, boom, boom, boom, ah!” This gave more prominence to tigers, our mascot since the mid-1880s.

Cheerleading is said to have begun in 1898 at the University of Minnesota; actually, Princeton invented it. Informal Tiger “cheerleaders” shouted at the 1885 Yale football match, and “regular cheerleaders” were appointed in 1897. Copying

Old Nassau, every college had its lusty cheers by the mid-1890s.

One hundred twenty years ago this summer, track star Henry “Spider” McNulty 1895 was a counselor at the new Camp Pasquaney in New Hampshire, where he taught the boys Princeton songs and the locomotive cheer. Pasquaney survives today as the nation's oldest camp and continues to use his cheer, now called a “railroad”: “Hip, hip! Ray, ray, ray! Tie, tie, tie! Sis sis sis! Boom boom boom bah!” Even after more than a century, you still can hear a faint echo of tigers and skyrockets. ♦

 **READ MORE:**
Tom Meeker '56 on
teaching the locomotive, at
paw.princeton.edu

we DEDICATE *this* NUMBER *to* YOU

This one goes out to all our new **1746 Society members**, whose trusts, bequests, and other long-range gifts make a Princeton education possible for future generations. We sing your praises!



Undergraduate Classes

Mrs. Rufus Barringer W45
William B. Chamberlin III '47
Francis F. Rosenbaum Jr. '48
Albert S. Richardson Jr. '49
James McB. Garvey Jr. '50
Hamilton W. McKay Jr. '51
John Blessing III '52
John Putnam Brodsky '52
George Gillespie Jr. '52
Howard H. McClure Jr. '53
William C. Ughetta '54
A. Reynolds Gordon '55
John P. Roos '55
John K. Doyle '56
Robert K. Hornby '58
David E. Irving '58
Kathleen S. Leslie S58
Peter M. Leslie '58
Mrs. Thomas R. Shearer Jr. W58
Frederick Holden Sillman '58
C. Stuart White Jr. '59
Edward Z. Wronsky Jr. '59
George W. Schnetzer III '60

Marvin Swartz '63
Judith Anne Berger W64
Victor Lyman '65
James H. Maddox Jr. '65
Carol Munger Ober S65
Daniel P. French '66
Bruce Furie '66
Lawrence Lucchino '67
Peter M. Howley '68
Thomas R. Pirelli '69
Allen F. Steere '70
William P. Trotter '70
Leonard S. Coleman Jr. '71
John T. Steen Jr. '71
Alan M. Weinstein '71
Hank Bjorklund '72
Robert W. D'Acquisto '72
Raymond F. DuBois Jr. '72
Michael E. Sargent '72
Richard F. Tomlinson Jr. '72
Victoria Baum Bjorklund '73
David A. Diamond '74
Jean M. Beasley '75
Janet Morrison Clarke '75
Roy R. Loya '75

Kenneth I. Moch '76
Ricki R. Rogers '77
Elizabeth A. Raymond '78
Lisa C. Bennett '79
Sharon Keld '80
Hilary M. Meserole '80
David R. Boles '81
Shira D. Goodman '83
Henry Yu '84
Norman B. Champ III '85
Jena Kirsch Joyce '85
Charles T. Robbins '85
Curtis A. Glovier '86
Sophie Schindler Glovier '87
James H. Simmons III '88
Cindy Horowitz Wenig '88
Paul A. Bondor '90
Kamela D. Coleman '90
Mary W. Foulk '91
Christopher E. Olofson '92
Brett T. Mackiewicz '96
Jennifer L. Villa Tennity '97
Ryan E. Montgomery '98
Deborah Yu '98
Stephen L. Feyer '03

Heather M. Crane '07
Anonymous (7)

Graduate School

S. Fred Singer *48
Paul F. Deisler Jr. *49 *52
S. Ralph Parris *58
Gerald Folland *71
Cheryl C. McQueen *77
Ralph Mostillo *78
Robert J. Clemens *83
Zhehui Jeff Wang *98

Friends and Faculty

Maria Astorga
James G. Davis P13
Shannon M. Davis P13
Mrs. Joseph Lauricella
Joseph Lauricella
Nancy Weiss Malkiel S*64
Morley G. Melden
Mrs. Edward Nelson
Gerald J. Pollack P87
Paul C. Raeder

P/Parent; S/spouse; W/widow

Learn more about how you can become a member of the 1746 Society (and hear Shere Kahn, pictured above, sing) at: giving.princeton.edu/giftplanning or by contacting the Office of Gift Planning: 609.258.6318 or 1746soc@princeton.edu

Princeton University also gratefully acknowledges 1746 Society members who passed away in 2014.

For a list of their names, see giving.princeton.edu/1746-society