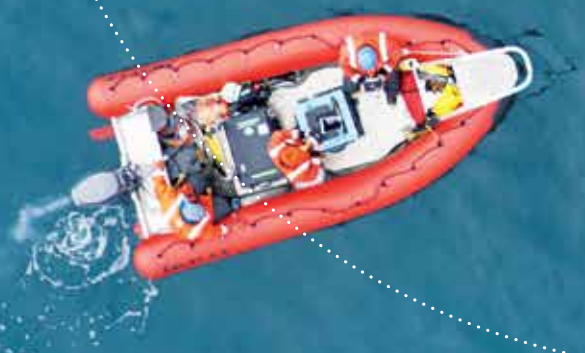
DUKE

MAGAZINE

SPRING 2017

At the Marine Lab,
and other labs
across campus,
DRONES and **ROBOTS**
are taking research
to new heights.



What's going on up there?

DUKE forward

Strengthen Duke Chemistry faculty-student bonds

Carol Ensinger '82, Ph.D.'88, never forgot that her chemistry education flourished under the mentorship of the late Duke professor emeritus of chemistry Pelham Wilder Jr. "Pelham believed in me," said Ensinger. "He was the key to my success at Duke and beyond." Named after her professor, mentor, and friend, Ensinger made a bequest in her will to endow a professorship in the chemistry department. Her gift will enable chemistry faculty to continue to deliver an impactful classroom experience like she had. "I hope my gift will strengthen chemistry at Duke and foster meaningful connections between students and faculty."

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inside

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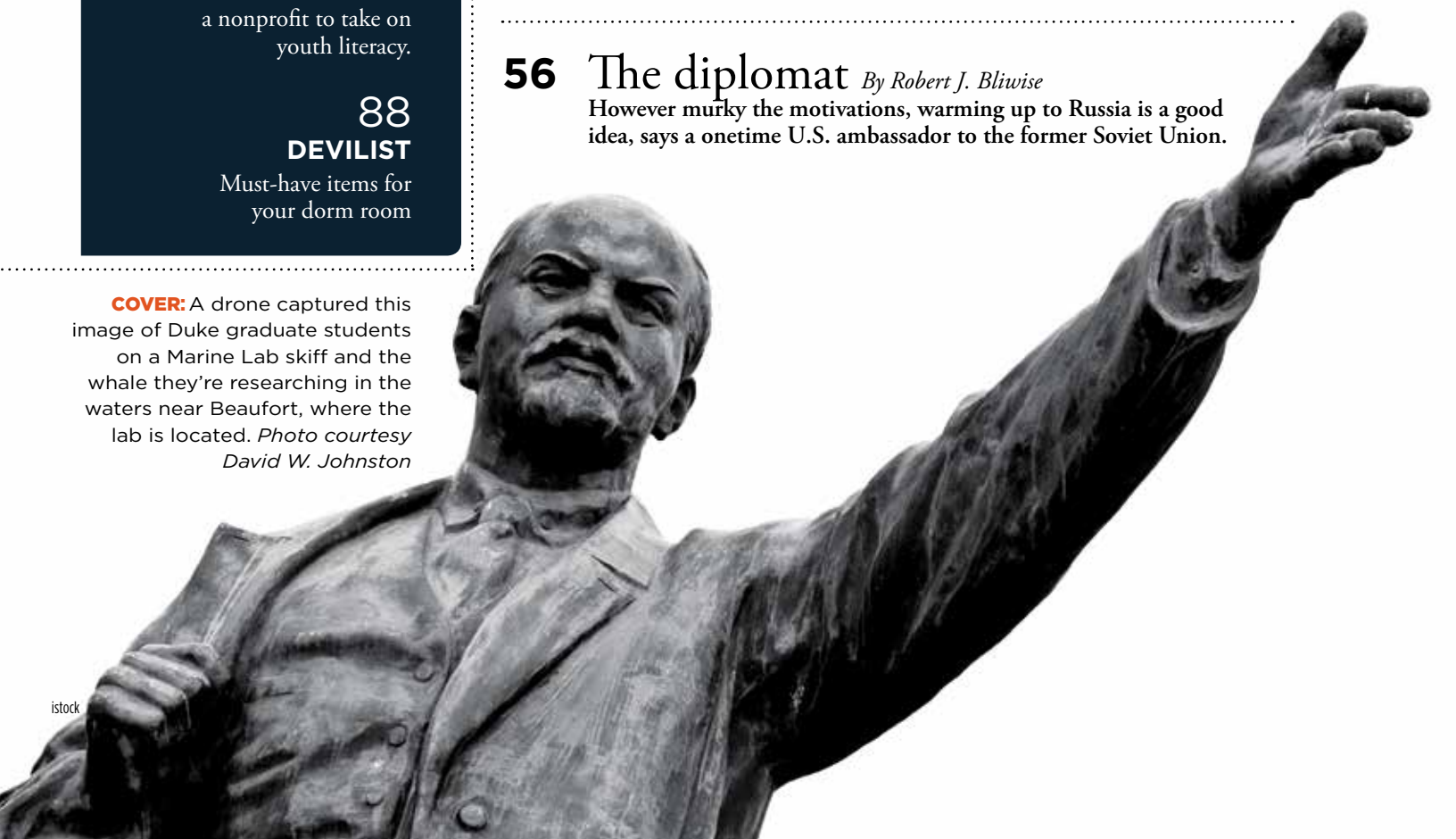
Kris Hauser

FEATURES:

COVER: A drone captured this image of Duke graduate students on a Marine Lab skiff and the whale they're researching in the waters near Beaufort, where the lab is located. *Photo courtesy David W. Johnston*



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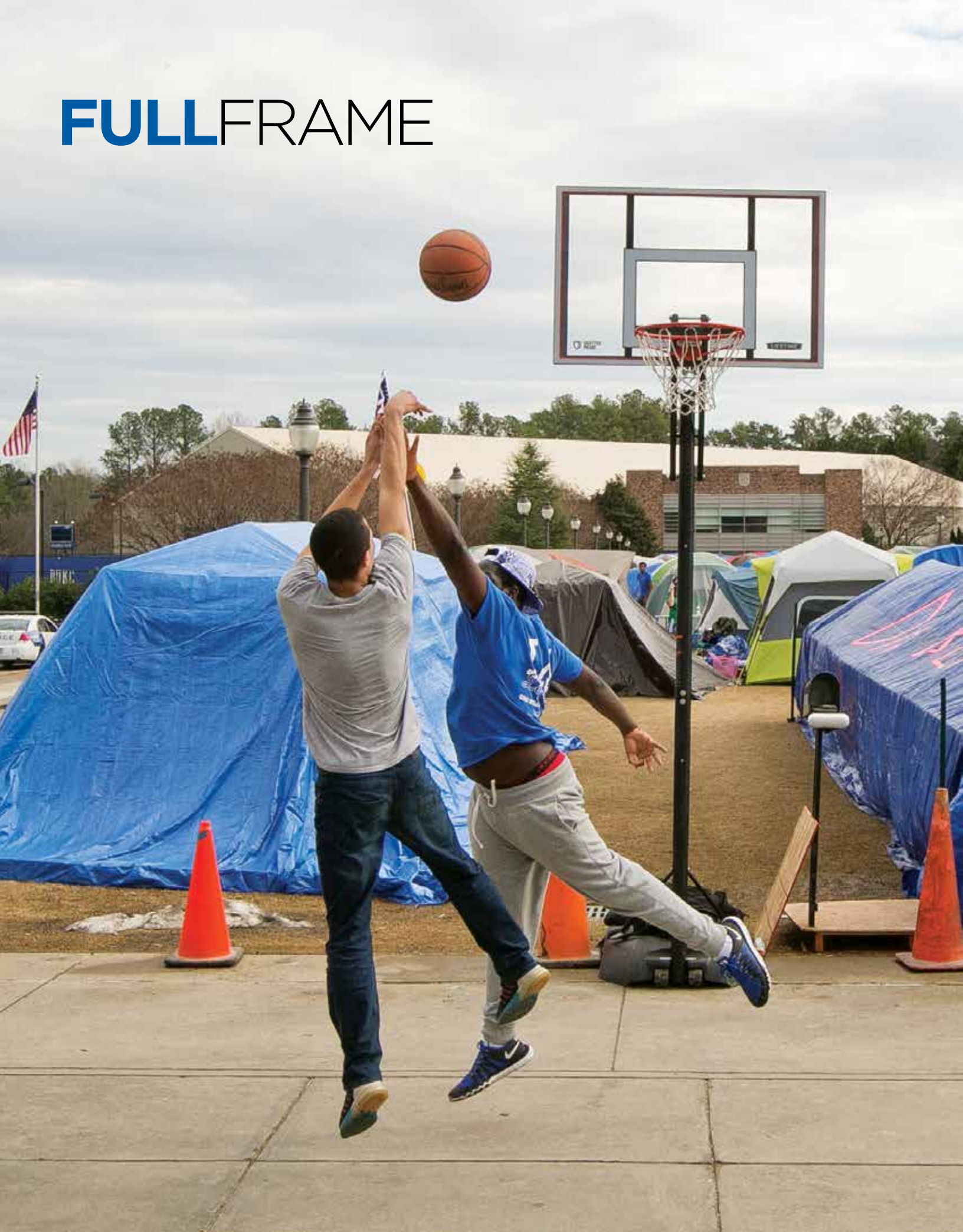


FEAR NOT, DUKE FANS: The fervor that has characterized its student section is still present. Even before the start of the spring semester, undergraduates looking to score tickets to the game between Duke and UNC on February 9 had announced their intensity. While only seventy spots were saved for the most fanatic tenting groups (classified as "black" tenters, followed by "blue" tenters), more than 160 parties registered for the opportunity to brave the cold in the three weeks leading up to the contest—with more than a hundred signing up in the first twelve hours of registration.

As demand far outstripped supply, the head line monitors adjusted the long-standing policy of waitlists to incorporate a new ranking system. The tent groups were asked to answer a round of Duke basketball trivia questions related to the current season; the most knowledgeable groups earned spots at the front of the line. *Photo by Duke Photography*

Forum

UNDER THE GARGOYLES

When the White House imposed a ban on travelers from seven Muslim-majority countries in late January, Duke was caught in a winter whirlwind. The federal courts quickly moved to block the ban. But just what a future border-control policy might look like is an open question, and it's one that has stirred anxiety across the higher-education landscape.

In early February, Duke president Richard H. Brodhead was among the forty-eight university leaders who sent a message to President Trump. The letter urged him "to rectify or rescind the recent executive order," which, if left in place, "threatens both American higher education and the defining principles of our country."

The letter added that American higher education historically has benefited from embracing immigrants from around the world. "Their innovations and scholarship have enhanced American learning, added to our prosperity, and enriched our culture…. America's educational, scientific, economic, and artistic leadership depends upon our continued ability to attract the extraordinary people who for many generations have come to this country in search of freedom and a better life."

"America's educational, scientific, economic, and artistic leadership depends upon our continued ability to attract the extraordinary people who for many generations have come to this country in search of freedom and a better life."

Later that month, Duke joined sixteen other universities in filing an amicus brief opposing the immigration order. That's a pretty dramatic gesture, but it's not without precedent for Duke. Duke joined a group of peer universities about four years ago in an amicus brief. What drew them together was *Fisher v. University of Texas,* an affirmative-action case before the Supreme Court. The argument then was that universities have a compelling educational interest in building a diverse student body and that consideration of race and ethnicity as factors in admission is a legitimate and necessary way to achieve such a goal.

The latest brief reinforced themes, or accented defining values, expressed in the letter from university leaders. Each of the universities "has a global mission, and each derives immeasurable benefit from the contributions of diverse students, faculty, and scholars from around the world." The universities said they believe that "safety and security concerns can be addressed in a manner that is consistent with the values America has always stood for, including the free flow of ideas and people across borders and the welcoming of immigrants to our universities."

Outside the realm of collective statements and legal arguments, one perspective was offered by Negar Mottahedeh, a Duke professor of film and media studies who, for the past fifteen years, has taught in the Program in Literature. Mottahedeh is a Norwegian who was born in Iran to Iranian parents; most of her work is focused on Iran. In an essay for the online *Observer*, she wrote that the ban on immigrants isn't only a measure that targets "bad people." Rather, "[i]t is an executive order that keeps a bunch of really smart, exceptionally talented and much-needed members of the professional and labor classes grounded."

The work she does, she added, takes her all over the world for academic conferences, film festivals, and research collaborations with colleagues. But on a research sabbatical, she could not, when the ban was still in force, go anywhere: "Not to the BP archives at Warwick University in England to continue the work that I have started on petrocultures and film, not to Norway to sit on a festival panel on film and censorship in the northern city of Tromsø, and not to Spain to be with my dad, that eighty-year-old sports fiend, who just recently got hit by an eighteen-wheeler while biking near his home after work."

Mottahedeh's story is just one illustration of how a policy decision can have personal resonance. As she put it, "Going anywhere for work or family means not knowing I can come back to pursue my dreams or to serve my profession doing what I adore more than anything in the world."

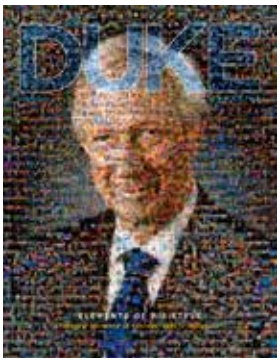
—Robert J. Bliwise, editor

Duke Photography

WE WANT YOU! (SHHHH!)

The theme for our 2017 special issue is "secrets." Whether that means sharing a guilty pleasure, revealing a hidden crush, solving a mystery, or exposing a wrong, we're looking for essays that take the theme in dynamic, personal, illuminating, and surprising directions. If you're up for the challenge, send your essay ideas to **adrienne.martin@daa.duke.edu** by May 1.

LETTERS & COMMENTS



Credit where it's due

I enjoyed your recent photographic mosaic cover [Winter 2016].

I began working along those lines back in 1992, when I developed software to spread images across computer animated flipping cards for a visual-effects shot set in a stadium. Some credit that work to leading me to invent the first photographic mosaic portraits in 1993 at Manhattan's R/Greenberg Associates. And I was working there because I had been hired after interning there as part of my Duke in New York art studies back in 1984.

Joseph Francis '85
Los Angeles

Uncredited?

I read with great interest the article "As Durham Rises" in the Winter issue. I was disappointed that the article contained no reference to the vision/role of Tallman Trask III, executive vice president of Duke, and Duke University, in making possible the rise of Durham.

I also believe the article would have been helped by a map that highlighted where the various projects were taking place in downtown Durham.

I always enjoy *Duke Magazine* and congratulate you for the consistently fine issues.

A. Morris Williams Jr. '62, A.M. '63
Gladwyne, Pennsylvania

Editor's note: The story refers to Duke as "a key player" in the renaissance of downtown Durham. It quotes Scott Selig, associate vice president for real estate, who works in Tallman Trask's division.

Credit where it's due, part two

The "rediscovery" ["The Creation and Restoration of Abele Quad," Fall 2016] came from the brief mention of Julian Abele on a PBS show that my wife, Julie, was watching when I was a second-year graduate student in 1989. She recommended that a portrait be painted and hung. I went to [President] H. Keith H. Brodie, and he quickly gave me a $10,000 budget. The [Black Graduate and Professional Students Association] was planning a banquet. When I told them about Abele, they elected to name the event

CORRECTIONS: In the Winter 2016 issue, in Devilist, a picture of Brian Davis '92 was captioned as being a picture of Antonio Lang '94. Also, a caption on page 40 of the story "As Durham Rises" misidentified Durham's Central Park.

www.DUKEMAGAZINE.duke.edu

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Carolyn Chang

the Julian Abele Banquet. Julie directed the painting, and it was unveiled in the spring of 1990.

I am pleased to see that the Abele Quad goes from the residence halls through the academic arena and to the base of the chapel but not beyond.

Andrew D. Jones Jr. '91
Tallahassee, Florida

Epworth's fate

A couple of letters in recent issues have referred to the presumed plan to demolish Epworth. We've been thinking through residence-hall futures for some time. Within the next decade three East Campus dorms will likely become unsuitable as undergraduate housing—Epworth, Jarvis, and East (formerly Aycock), all of which are more than 105 years old and were not that well-built to begin with. They're all Trinity College buildings. But that doesn't mean they will all be demolished, and I don't think that Epworth will. As the building that welcomed Duke to Durham, it has historical significance. So even if it doesn't remain a residence hall, it can be economically renovated for other uses. We've started discussing what those might be. But any choices are years away.

Tallman Trask III
Executive Vice President, Duke University

Editor's note: The Fall issue will include a story on the life and times of Epworth.

Truth-telling

In his article "The Brodhead Legacy" [Winter 2016], Robert J. Bliwise really gives President Brodhead a pass when he discusses the false accusations against the lacrosse team in 2006. Members of the lacrosse team were given very little support by their president, who blames the whole problem on the district attorney. Yet it was just when the legal system malfunctioned that support from the university was most needed. Brodhead also justifies suspending the accused players as a campus-safety-related issue. If an ethnic or sexual minority member were to be threatened, does anyone believe that they would be suspended?

Now I understand the desire to give the beloved outgoing president a rosy review on his way out the door, except for two things: One, academia prides itself, and rightly so, on rigorous standards of truth, including telling the whole truth; and two, knee-jerk political-correctness decisions have caused the backlash that just elected Donald Trump president. So a more nuanced article would have been more appropriate.

Richard N. Bergesen '59
Centerport, New York

Comments from our Winter 2016 post-issue survey:

"I always look forward to reading the magazine. I like the balance of articles that are in-depth on either a specific subject or Duke issue, but also the shorter snippets about a particular class, event, piece from the library or art collection, etc. Overall, really excellent publication and very professional."

"I liked it better when you had more alumni notes so I could look for people I knew at Duke."

"Awesome magazine—love it!"

SEND LETTERS TO: Box 90572, Durham, N.C. 27708 or e-mail dukemag@duke.edu. Please limit letters to 300 words and include your full name, address, and class year or Duke affiliation. We reserve the right to edit for length and clarity. Owing to space constraints, we are unable to print all letters received. Published letters represent the range of responses received. For additional letters: **www.dukemagazine. duke.edu**.

SHADOW AND ACT: Dancers Shireen Dickson, left, and Brittany Williams perform at the Nasher as part of a response to an exhibit by artist Kara Walker. The performance was part of reVERSE-gesture-reVIEWed, a collaboration with Thomas F. DeFrantz, professor and chair of African & African American studies, and SLIPPAGE, a project that explores performance, technology, and culture.
Photo by Megan Mendenhall

THE Quad

NOTEWORTHY FROM AROUND CAMPUS

Live and learn

House courses allow students to teach their peers about pressing topics, in an accessible format.

There are lecture halls, and then there's where juniors Matthew King and Amy Kramer taught their house course "American Policy Through *The West Wing*." The leather couches and purple lounge chairs facing a ninety-inch-screen TV in the Keohane 4E Atrium make for prime real estate during basketball watch parties. But in the fall, every Monday night for an hour and a half, the space rang with Aaron Sorkin quotes and loose academic discourse.

"The portrayal of public servants and political staff [in *The West Wing*] is so much more positive and idealistic than what we're seeing today," says King, referencing newer, more cynical shows like *Veep* or *House of Cards* as well as real-life events. "It's almost therapeutic for students to see that and to see what government maybe can be like."

A house course, at its best, is an educational magic bullet. For students, it's either more digestible or more practical fare than some Ivory Tower offerings: Beyond the *West Wing* course (which is in its first iteration), a class exploring "Harry Potter and Christian Thought" also was offered this fall, as was the popular "Tools for Financial Coaching."

For administrators, the half-credit courses can bolster insightful discussion, which research has shown happens more easily in a less formal setting. Moreover, locating the classes in residential halls helps tear down any notion that learning stops outside the academic quad.

"The idea is that it's a catalyst of intellectual activity within the dorm."

"The idea is that it's a catalyst of intellectual activity within the dorm," says Shane Goodridge, assistant dean of Trinity College and director of courses. "You have residential life with a spark of intellectual activity, so that students are talking and discussing things within the house courses that are linked back informally to the classroom and the traditional setting here."

House courses have been taught on campus since the fall of 1969, but, unsurprisingly, a few things have changed. Originally, the seminars were taught by faculty to indulge quirky fields of knowledge outside the core curriculum; now students teach with a faculty member advising. (For King and Kramer, that was Peter Feaver, professor of political science and public policy and director of the Duke Program in American Grand Strategy, a group to which both student-instructors belong.) More notably, the class offerings shift with the winds of the era: A 1974 *Chronicle* article details courses like "Principles of Internal Combustion Engines" and "History of Psychical Research and Parapsychology."

King and Kramer's house course was especially timely. "Typically Americans don't vote because of foreign policy," said Kramer, a few weeks prior to the November election. "ISIS is a dinner-table conversation now."

The seeds of the course were planted in the summer of 2015, when King and Kramer were working in Mississippi as part of the Robertson Scholars Program. Kramer was binge-watching *The West Wing* and fortuitously encountered a syllabus from a University of Georgia class that used the show as a framing device.

"I thought, 'This would be the best course—imagine if we could teach about foreign policy or current events,' " Kramer said. "I didn't have really a game plan; I just loved the show so much, and I thought other people love it, too, and there's definitely potential here."

The duo then pitched the course idea for approval. Guidelines require the curriculum to include at least fifty pages of reading each week and 1,500 words of writing over the semester, but otherwise course requirements are pretty wide-open.

Kramer and King had to navigate an interesting dynamic—they're both well-versed in international relations, sure, but they don't have quite the authority of professors. During one evening's main lecture, King talked about Africa, his regional specialty, pitching it as a collaborative exercise: He was working on an article for *Foreign Interest* magazine, and his lecture was a dry run of some of his findings. "You guys are my first sort of sounding board," he said.

"Amy and Matt, just having done a ton of things, they're just talking about their own experiences and research," said Gautam Hathi, a senior majoring in computer science who took *The West Wing* course. "They've traveled a lot, so they're talking about that, and they're directly connecting things in ways that students can relate to, which is interesting."

It's easier for students to openly engage with controversial issues in a house course, where, being close to a friend's dorm or their own, they can munch on popcorn and put their feet up. But that engagement and honest discussion seemed especially important in this house course: Beyond providing the students with exposure to foreign affairs, King and Kramer were attempting to foster an environment where political ideas can be exchanged, comprehended, and weighed.

"It's difficult to sort of break through the basic equations where it's refugees equal 'good' or refuges equal 'bad,' " King said, discussing a class that featured intense debate about the Syrian refugee crisis. "What Amy and I try to do in the lecture is raise some of the questions and to give people a framework to approach issues in which they can engage with them several levels down."

"It's not just a sort of throwaway, easy course that won't impact people's lives," he said. "Our teaching from day one could have a real impact." ***—Lucas Hubbard***

KEOHANE QUAD

When junior **Meagan Lew** met her future roommate, **Whitney Hazard**, in Boston, she quickly formed a glowing first impression: "I thought she was normal enough to live with." Three years later, they're still going strong, but—according to Whitney—"Meg's since realized that I'm not normal at all."

Both Boston natives (Whitney: "Well, I'm technically from right outside of the city. Meg likes to tease me when I say I'm from Boston"), the duo initially arranged to hang out in Harvard Square after a mutual friend learned that they both planned to attend Duke. From there, everything just fit—and now, after sharing a room for three years, they refer to each other as sisters.

Despite their close relationship, it's hard to catch Meagan and Whitney in the same place. One can often spot Meagan with her teammates on the varsity rowing team, while Whitney prefers to hang out with friends from her clubs and Gamma Phi Beta. These diverging social circles mean opposite sleep schedules as well: Meagan wakes up early for practice each day, but Whitney stays up later and sleeps in.

Sleeping inclinations aside, the roommates agree that they're similar in almost every other way (and even do each other's laundry!). The one thing they can't agree on? Television. "Meg always makes fun of me for my television choices. I love reality TV," Whitney says. They reach common ground, however, when it comes to shows by Shonda Rhimes, especially *Scandal* and *Grey's Anatomy*. And, when premedical student Meagan begins her own real-life *Grey's* journey, her roommate still won't let her go. "I'm trying to convince Meg to go to medical school wherever I move after graduation," Whitney says.

—Erin Brown

Photo by Chris Hildreth

WHITNEY, right, had never celebrated her birthday without at least a sprinkle of snow on the ground before coming to Duke. After Whitney mentioned this during their first year, **MEAGAN**, left, always makes cut-out snowflakes and decorates their room for Whitney's December birthday.

ACCOLADES

Two Duke students, seniors **Justin Bryant** and **Julian Keeley**, were named Schwarzman Scholars. The scholars, selected based on their leadership, entrepreneurial attitude, and worldly curiosity, are slated to earn a one-year master's at Tsinghua University in Beijing, China. **David Robertson '15** also was named among the 125 scholars in this class.

3 faculty members were named by the National Academy of Inventors (NAI) to its 2016 class of fellows: **David Smith**, the James B. Duke Professor and chair of electrical and computer engineering and director of the Center for Metamaterials and Integrated Plasmonics; **Jennifer L. West**, the Fitzpatrick Family University Professor of engineering and associate dean for Ph.D. education; and **Paul Modrich**, the James B. Duke Professor in the department of biochemistry in Duke's medical school and 2015 Nobel laureate in chemistry. The NAI, which was founded in 2010 to highlight academic innovation and enable further growth in the future, will induct its new class of fellows on April 6 at the John F. Kennedy Presidential Library & Museum in Boston.

Terrie E. Moffitt, the Nannerl O. Keohane University Professor of psychology and neuroscience, and psychiatry and behavioral sciences, and **Avshalom Caspi**, the Edward M. Arnett Professor of psychology and neuroscience, and psychiatry and behavioral sciences, received the 2016 American Psychological Association Award for Distinguished Scientific Contributions. The duo, who collaborate to study mental health and human development, received the award for research that has "fundamentally transformed our understanding of why some people suffer disproportionately from mental-health problems, commit crimes, or grow up to have poor self-control."

BOOKBAG

AAAS/CULANTH 333S: *The Wire*

THE CATALYST: Television isn't a standard jumping-off point for an academic course. But *The Wire*, the acclaimed HBO series that ran from 2002 through 2008 and that *Entertainment Weekly* ranked as the best-ever TV show, isn't standard television. Its layered, engrossing depiction of Baltimore—informed by creator and writer David Simon's work as a police reporter for *The Baltimore Sun*—appealed to Anne-Maria Makhulu, an associate professor of cultural anthropology and African & African American studies. After hearing about the show "through colleagues who were raving about it," she consumed the entire series in a five-month span. "It struck me quickly that it was extremely teachable," says Makhulu, who this spring is teaching the fifth iteration of the course (eponymous with the show). "It seemed like really good urban anthropology. It tells a really compelling story about American cities in decline, about large structural forces of de-industrialization, and outsourcing shipping jobs and manufacturing overseas."

THE GIST: The overarching question of both the show and the course centers on the metropolis: Why do cities develop as they do? To answer that, one must examine supporting questions that are raised throughout the show's five seasons: questions about race, class, and identity; about public housing and education; and about institutional incentives and disincentives. In short, the course explores the myriad problems that have befallen the American city throughout history, while also analyzing the social and cultural underpinnings of urban issues. "It can be great talking about why American cities *physically* look like they do, but also about setting to rights some of the literature that suggests there's something inherent to the inner city in the way of people's poor choices and their inability to climb out of poverty," Makhulu says.

ASSIGNMENT LIST: In addition to covering all sixty episodes of the show, Makhulu pulls in books like Hamilton Carroll's *Affirmative Reaction to* explore the development and perceived erosion of white masculinity, and writings that explore human cultural geography to help explain "why Baltimore has tens of thousands of derelict buildings and shuttered warehouses." The works of William Julius Wilson, Thomas Sugrue, and Sudhir Venkatesh help elucidate elements of urban poverty. In-class discussions consider these issues, as well as questions related to life in post-9/11 America.

THE TWIST: When dealing with a show as complex and counterintuitive as *The Wire,* even the basic question of right and wrong requires a bit of recalibrating. As the show's first season focuses on rival drug dealers in housing projects and rule-skirting police investigators, the eighteen-person seminar quickly learns such a distinction is tricky. "Very early on, we start off thinking about what are the fuzzy boundaries between illegal and legal activity," Makhulu says, offering the counter-example of a babysitter who simply doesn't file her earnings in April. "Is it really just not paying taxes, or is it you're committing a crime of some sort? We try to chart out what that looks like."

—Lucas Hubbard

This was not a recording

The Center for Documentary Studies hosts a night for fans of podcasts.

Strings of bare bulbs softly illuminate a darkened Motorco Music Hall in Durham. Rows of benches and folding chairs fill the room, and two enormous speakers flank a stage with no piano, no instruments, just more chairs, microphones, and a single computer. This won't be singing and dancing—this will be listening.

"Are You Listening?" is in fact the name of the program: Four Triangle podcasters are about to present live versions of podcasts, taking what they make in the studio out in front of people. (Among the podcasts is "The Civilist," by Steven Petrow '78.)

Such a feat seems impossible, a problem John Biewen, audio program director of the Center for Documentary Studies (CDS) and the evening's host, admits when the lights go down and he steps up to the mic. "I didn't want to come onstage and press 'Play,' " he says, echoing what he said previously when he discussed how you take a podcast, created over days or weeks, with sound compilation and editing and production, and present it live in front of people. "You can *record* a podcast live," he said. "You can't *do* a podcast live."

Podcasts, of course, are yet another example of a fragmenting media ecosystem in which more and more people create output for mostly smaller and smaller audiences. Biewen is a prime example. He spent much of his career making radio broadcasts for places like NPR, where his short pieces would reach millions of listeners. His "Scene on Radio," which he produces at CDS, has an audience he says is in the thousands. "Not the hundred thousands or millions, but not in the dozens or hundreds." Biewen says on iTunes alone there are more than 300,000 podcasts competing with his and with those of the three other podcasters who joined him onstage.

As Biewen says, he doesn't press "play"; instead, he teaches audience members en masse to create sounds of hubbub and protest guided by his hand signals, enlists the support of the other podcasters, and has them read a script that expertly skewers your standard NPR three-minute feature. Then, more seriously, he tells a story. "Scene on Radio" had been working already on a series about race, "a topic that has become painfully urgent," he says, and he delivers a story about a confrontation between his younger self and a black teen over a bicycle. The audience loves it. When the next pair of podcasters comes up, they're wearing dresses with gold spangles, and it's evident that everyone has figured out ways to engage with a live audience rather than just pushing "play."

"It really is just designed to meet our audiences in person," Biewen has said of the event, "and do something fun to help stir them up." ■

"You can *record* a podcast live. You can't *do* a podcast live."

Go to dukemagazine.duke.edu *to watch "Make-Your-Own NPR Story," a video by senior writer Scott Huler.*

What's the difference between men and women?

It's a good conceit for a standup comedian, but Duke biology professor Susan Alberts actually has researched one disparity that has proved historically persistent: life expectancy. In her research, Alberts—along with a team of international scientists—analyzed birth and death records dating back to the eighteenth century, as well as data for six species of wild primates. She found that even as medical advances have improved life expectancy for males and females, women still outlive their male counterparts by three to four years. Analysis of the wild primates delivered similar findings, hinting that the difference might be biological (stemming from the presence of a second X chromosome in females) or societal (a tendency for females to engage in less risky behavior).

DEVIL KNOWS

Q&A

HOW TO BUDGET. As Duke's vice president for finance and treasurer, Tim Walsh oversees an array of financial and operational functions, ranging from accounting, procurement, and real estate to merchandise and licensing.

How big is Duke's budget, and how tuition-dependent is Duke?

On the campus side, it's about $2.5 billion. That includes research, at about a billion dollars. The health system is about another $2.5 to $3 billion. In terms of tuition dependence, Duke is pretty consistent with peer institutions. Depending on the year, net tuition represents 16 to 18 percent of the university's total revenue.

Is there a common misperception around Duke's financial model?

Probably the idea that the university has excess money, a misperception driven by the "sticker price" of our tuition and the size of our endowment. It costs far more to educate our students than that sticker price. People also think we make money on our research, but we spend more on the research enterprise than we get as reimbursement from the sponsors of the research. Our model survives on fundraising; DUMAC [Duke's independent investment management company]; and the health system, which generates resources that it then plows back into advancements in patient care.

Individual stock portfolios have been doing well, but Duke's endowment earnings have taken a hit recently—and not Duke's alone. What explains that?

The reality is that the strength of the economic environment is inconsistent. Wall Street represents just one aspect of a complex economic environment, major segments of which are still struggling. DUMAC maintains a fully diversified investment portfolio for Duke. Even though recently our returns have lagged relative to returns seen in the U.S. stock market, we've had great success over the past twenty years across our more diversified investment base.

Duke is thought to be pretty decentralized. How does that play out in budgeting?

Over 98 percent of Duke's budget is controlled by individual units, not by the central executive body of the university. We want the deans and department heads and program leaders to be able to make most of the resource-allocation decisions, since they are best positioned to do so in their fields of expertise. It's no coincidence that the very best universities in the world tend to be decentralized. Centralized decision-making can be efficient, but that doesn't mean you're ultimately placing money in the right spots.

You led Duke through a cost-cutting exercise during the global financial meltdown. Have the lessons stuck?

Yes, that culture of cost-consciousness has survived out of necessity for virtually all of our schools. I'll give you two examples. We continue to watch administrative staffing very aggressively, even as faculty numbers expand in some areas with program investments. And in the past, we often had decentralized units creating their own purchasing deals with outside vendors. Now we have a purchasing model that leverages technology to ensure that those units take advantage of our institutional scale and contracts to find the best prices that Duke can possibly achieve.

What concerns you as you look ahead?

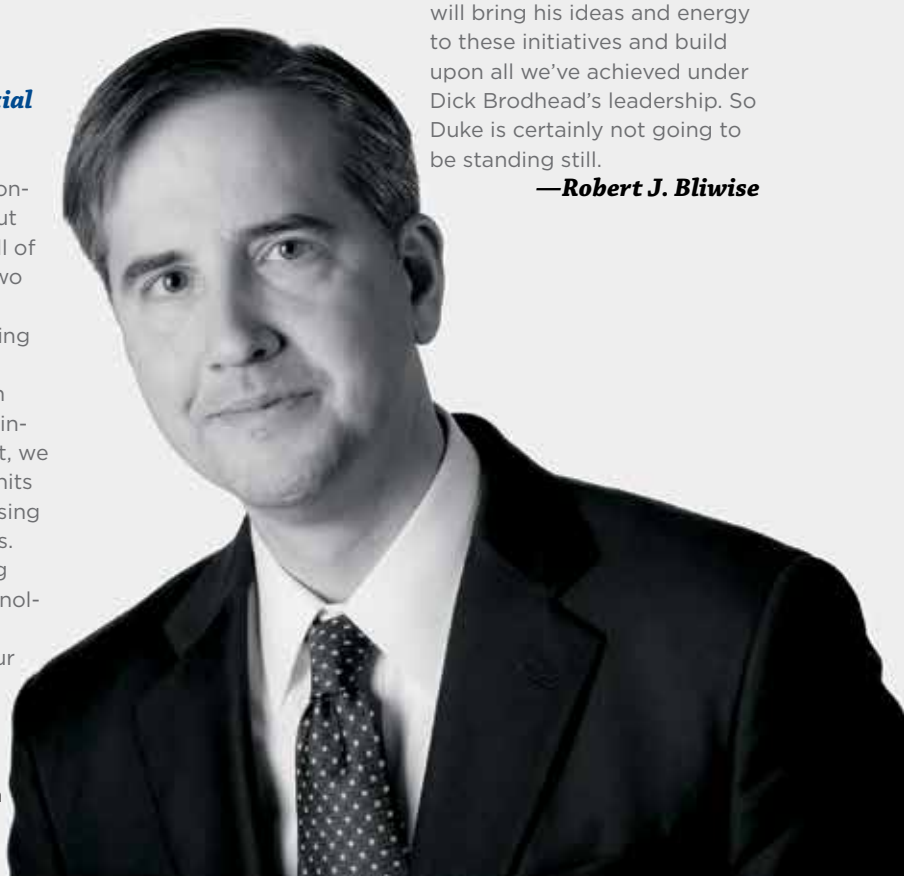
The outlook for investment income, which has been such a huge driver of our growth over the past twenty years, is the most concerning. Everyone sees a period of low growth at least for the next three to five years. In that context, we will certainly need to be more deliberate about our priorities, as we simply can't afford to do everything. The university's financial model will remain pressured on other fronts, including research funding for our faculty and affordability for our students.

The health system and the university—particularly the medical school—have a mutually dependent relationship, and there are very real threats to the financial model of the health system as well. We have a giant medical infrastructure. Together the health system and the medical school represent 75 percent of all the financial activity of Duke each year, so the continued success of those units is also of paramount importance.

Are we still going to see construction cranes as a consistent part of the campus scene?

It won't be as chaotic as when we had construction at the same time with the library, West Union, and the chapel. But we have an undergraduate housing initiative, which includes new residence halls on both East and West Campus and the back-to-back renovations of Crowell and Craven quads. We have an academic planning process that, among other things, is putting an emphasis on building up the sciences. And we have the arrival of our new president, who will bring his ideas and energy to these initiatives and build upon all we've achieved under Dick Brodhead's leadership. So Duke is certainly not going to be standing still.

—Robert J. Bliwise



Chris Hildreth

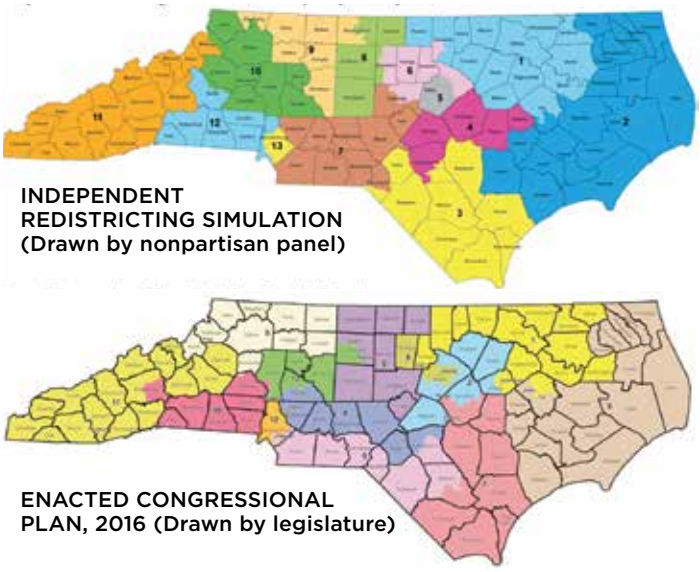
Putting fairness on the map

Sanford team develops a way to measure whether redrawn legislative districts are equitable.

The North Carolina General Assembly has been ordered by the courts to redistrict many of its state legislative districts for a special election in 2017, though the matter has returned to the courts—this time, the U.S. Supreme Court—and remains uncertain. Meanwhile, in Wisconsin, a redistricting case decrying partisan gerrymandering appears headed for the Supreme Court as well.

For insight, turn your attention to the Sanford School, whose "Quantifying Gerrymandering" program has addressed gerrymandering in two significant ways.

In April last year, a group of ten retired state Supreme Court justices (five Democrats, five Republicans) began working at the request of the program to create an unofficial, nonpartisan map for North Carolina's congressional districts. In August, the judges released their unofficial map, which yielded six districts that looked safely Republican, four that looked safely Democratic, and three that could go either way. What's been lacking, though, and what the Sanford project aims to address, is a way to quantify how representative and how gerrymandered North Carolina districts truly are. Jonathan Mattingly, professor of math and statistics, says he might be getting close to just that.



INDEPENDENT REDISTRICTING SIMULATION (Drawn by nonpartisan panel)

ENACTED CONGRESSIONAL PLAN, 2016 (Drawn by legislature)

"I don't think I have a scale yet," he says—he can't quite take a map or district and give it a straightforward gerrymandering rank. "But I'm getting close, and I hope this will open a discussion."

He's speaking of a team of undergraduate and graduate students he led that started by examining North Carolina's 2012 congressional elections. In that election, Democrats garnered more total votes but ended up carrying only four of thirteen congressional districts—and a minority party carrying 69 percent of the representation is sort of a poster child for gerrymandering. Courts found those 2012 districts unconstitutional; redrawn districts in 2016 turned a better voting result for Republicans (53 percent of votes cast) into a similarly outsized result. Mattingly and his team got on the case.

As they explained in late November 2016, the team came up with an algorithm that drew random districts, counted the votes (according to the 2012 and 2016 maps and the unofficial map drawn by the judges), determined winners, and then started again, repeating thousands and thousands of times. They then came up with probability densities showing how many districts would likely be noncompetitive—highly Democratic or Republican—and how many would be in play. The results his team shared in a Sanford School classroom showed that by far the most likely results were for Democrats to take six or seven of the thirteen seats, and in fact, the unofficial map the judges drew would have yielded six seats for the Democrats. The probability for the results to have yielded the actual 4-9 result naturally was vanishingly small: "You really had to do something incredibly intentional to get these districts," Mattingly says.

The point, Mattingly says, is not that his team created a way to fairly redistrict. The point is that his probability distributions help measure redistricting fairness. "It gives you a sense of how many districts you would expect to be competitive." Given population distribution, you wouldn't expect North Carolina to have thirteen competitive districts; certain districts will be highly urban or rural, and they'll lean one political direction or another. "But let's say there are four or five that should be competitive," he says, which his results expect. "If you have a redistricting that says you have less than that, you have a problem."

The team ended up with ways to measure competitiveness (the degree to which districts have been gerrymandered) and fairness (the degree to which the redistricting is representative). It requires complex formulas, to be sure, but it's a start, and he says there are a lot of similarities between the formula used in the Wisconsin case and the ones his team developed. Justice Anthony Kennedy of the Supreme Court famously opined that though gerrymandering looks unconstitutional, "we have no basis on which to define clear, manageable, and politically neutral standards." Mattingly's work may change that. ■

This business isn't pretty

Aiming to stem the tide of wasted food, seniors sell a biweekly delivered box of "ugly" produce.

Okay, so you've launched a start-up. Your product is ugly, and your distribution strategy involves basically ringing people's doorbells and running off. Oh, and you want to change the world. Easy, right?

Meet Ungraded Produce. Created by seniors Anya Ranganathan and Courtney Bell, in the fall of 2016, the start-up has finished its first season of turning fruits and vegetables people wouldn't normally buy into a biweekly delivered produce box that satisfied customers. And satisfied the bottom line, too, mind you. "We make a profit on every box that we sell," says Ranganathan.

Americans throw out about 133,000,000,000 pounds of food per year.

It all started two years ago, when Bell, an environmental sciences major, spent a summer interning for Quicken Loans in Detroit, which was not quite in her wheelhouse. "I was feeling down on myself," she says. Bell didn't think she was serving her interests.

"Then I get a text from Anya one day, and she has this idea," she says. Ranganathan was in Durham, interning with the mayor's office when, through the Poverty Reduction Initiative, she learned of people living in neighborhoods that didn't have access to high-quality and affordable produce.

Ranganathan's mother, through her work as a consultant, had encountered Intermarche, France's third-largest grocery store chain. In 2014, as part of a European Union effort against food waste, Intermarche created "Inglorious Fruits and Vegetables," through which they sold unsightly but perfectly edible produce at a 30 percent discount. The campaign went viral and became enormously successful. Based on that, Ranganathan says, "the idea came up that we could aggregate misshapen produce from North Carolina farms and deliver it to customers' doorsteps."

And wham, things began to happen. Ranganathan started talking with farmers, grocers, and community leaders. She learned about the produce grading system,

DISH

which the Ungraded Produce website describes as "a set of quality standards largely based on cosmetic features rather than taste or nutritional content." If produce is insect-damaged, bruised, or old, the two are all for regulations. But they don't think people need protection from produce that looks funny. "Grocery stores might reject an apple for being too large or too small," Ranganathan says. And thus plenty of perfectly good, edible, yet unsightly produce enters the waste stream. According to the U.S. Department of Agriculture, it contributes to a large problem: Americans throw out about 133 billion pounds of food per year.

"I think our name almost pokes fun at the system," Bell says. "Our slogan is, 'All shapes are welcome.' " The funny-looking produce Bell and Ranganathan buy from local farms costs less than the stuff the farms sell to grocery stores, and customers get the savings. Their biweekly box of four to seven fruits and vegetables costs just $13 per box, and their customer list expanded once word got around.

Most of the customers come from the Duke community, but Ungraded Produce highlights more than Duke customers. As they developed their idea, the two reached out to Duke's law school with a couple of questions. "They just said, 'We want to take you on,' " Bell says; and the law school's Start-up Ventures Clinic began helping them figure things out. Then they received a $5,000 Environmental Innovation and Entrepreneurship Grant from the Nicholas School of the Environment. "I remember our first lawyer kinda looked at me and said, 'I had no idea you guys were undergrads,' " Ranganathan recalls. Says Bell, "People just treated us with so much respect and gave us so much support."

The two are enjoying and expanding their start-up. Ranganathan has a job lined up for next year, but Bell expects to try to make a go of it as a small business, and not just because she wants to help prevent food waste. "It's a campaign larger than produce," Bell says. "We want to make ugly produce sexy."

For the moment, they're just thrilled to see their work turning food waste into food, especially since they know many of their customers. "It's cool to go to my friend's apartment," Bell says, "and see she made a stuffed acorn squash." ***—Scott Huler***

Heat in winter

Archibald Motley's painting "Hot Rhythm" has been donated to the Nasher.

The 1961 oil on canvas "Hot Rhythm," a depiction of the bustling Jazz Age in Chicago's South Side, was given to the Nasher Museum of Art in early January. Mara Motley and Valerie Gerrard Browne donated the painting in honor of Richard J. Powell, Duke's John Spencer Bassett Professor of art and art history, and C.T. Woods-Powell. In 2014, Powell curated "Archibald Motley: Jazz Age Modernist," an exhibition that began at the Nasher before traveling to museums in four other states, including the Whitney Museum of American Art in New York.

Marriage as a form of health care?

Whether an individual survives a stroke depends on many factors. Perhaps surprisingly, though, marital status may be one of them. Even after adjusting for many items correlated with being married (higher income, stronger support system), Duke researchers, led by sociologist Matthew E. Dupre, found in a study of 2,351 individuals across two decades that both men and women who were continuously married had the lowest risk of death from a stroke. In descending order, those with multiple divorces had a 50 percent higher risk, those who never married had a 34 percent uptick, and those widowed multiple times had a 25 percent higher risk. (Being divorced or widowed only once showed no risk increase.)

DEVIL KNOWS

A ride with varied views

In the **American Grand Strategy program**, students, faculty, and alumni learn history by portraying the players who made it.

Things got interesting early on in the Vietnam Staff Ride taken by the Duke Program in American Grand Strategy (AGS) in early January. Sparks flew on the very first evening when Ho Chi Minh and Le Duan exchanged harsh words. "He pointed out that he had been part of the Vietnam independence movement before it began the purging of noncommunist members and reproached me about the use of violence," Ho said. "I reminded him that the history of independence movements was a history that had violence at every stage.

"I quoted Thomas Jefferson."

And no, the fact that both Le Duan and Ho Chi Minh have been dead for decades did not limit the conversation, which took place over dinner in Ho Chi Minh City. Ho, in this case, was represented by Duke President Richard H. Brodhead, whereas Le Duan was played by sophomore Hillary Song. They were participating in a traditional part of the Staff Ride program, a project of professor of political science and public policy Peter Feaver, director of the AGS program.

Matthew King

VISITATION: Students of the Duke Program in American Grand Strategy got to explore the old quarter in the Hoan Kiem district of Hanoi.

Staff rides, Feaver explains, are a military technique that began in the nineteenth century, when Prussian generals would take staff out on horseback to discuss possible battle strategies for specific sites—the method helped remind staff that in war things like geography counted. In subsequent years the U.S. Army began conducting staff rides, though it added a wrinkle: The staff would ride a site on which a battle had once taken place, such as Gettysburg. The members of the staff would view the battle from its own perspectives and then try to explain and better understand what had happened and why, how key people—General Lee or General Meade at Gettysburg, say—made decisions, and how things turned out.

What makes a staff ride different from a battlefield tour, though, is in staff rides the participants tell the story. On Feaver's rides (conducted in buses and on foot rather than on horseback), each participant—student, faculty member, alumnus or alumna—is assigned a member of the action and must study the history of the event and then explain it from that person's perspective.

What makes a staff ride different from a battlefield tour, though, is in staff rides, the participants tell the story.

Feaver quotes President John F. Kennedy, who grew angry when an errant U-2 flight nearly brought the world to nuclear war, saying, "There's always some [S.O.B.] who doesn't get the word." The fun of the staff rides, says Feaver, comes "when the student presenting happens to be that S.O.B. who didn't get the word."

With a light pedal on tactics and operations and a stronger interest in the grand, worldwide strategy of the program's name, Feaver's program took around forty people to Vietnam and had them face up to all kinds of situations where people did and did not get messages that profoundly affected the war, from Secretary of Defense Robert McNamara and Vietnamese military leader Cao Van Vien to convicted war criminal Lieutenant William Calley Jr. and Secretary of State Henry Kissinger. Some presentations took place where events occurred but for the sake of propriety others did not—for example, the student playing Lieutenant Calley presented his brief about My Lai on the bus, not at the massacre site.

Participants included veterans of the Vietnam War, some of whom revisited the country for the first time. Veterans of the wars in Iraq and Afghanistan suggested similarities between wars fought far away and not always supported at home but noted differences as well. Advances in reconnaissance mean that "it's less likely that American forces would be flying as blind as they did then," Feaver says. But communication remains essential: Feaver noted that the 1968 Tet Offensive in Vietnam led to tactical combat wins for the Americans and South Vietnamese, but on a higher, strategic, level, "it broke the back of the American will for the war."

On the night before departure, Feaver, as John Wayne, exchanged barbs with Jane Fonda, played by Cynthia Brodhead. "I don't think it was thought that we would reach reconciliations," said President Brodhead of his wife's role. "But one of the things it teaches you is that every point of view can be inhabited with conviction."

—Scott Huler

Send to the spam folder

Questionable e-mails put Duke professors on edge.

Multiple Duke professors reported receiving e-mails from a purported student who was requesting reading lists for their courses. The individual, whose name "Gary Joe" doesn't belong to a current student, sent the e-mail from a non-Duke account. The incident occurred roughly a month after the creation of a website called *Professor Watchlist,* devoted to highlighting leftist, "anti-American" teachings throughout academia. At Duke, professors in both the department of cultural anthropology and the Gender, Sexuality, and Feminist Studies program, as well as a doctoral candidate teaching a course in the divinity school, received the request. Similar e-mails were reported by professors at the University of Michigan and the University of Denver.

An international opportunity

A senior wins a prestigious Gates Cambridge scholarship.

In February, Duke senior Jessica Van Meir was named a Gates Cambridge Scholar, one of thirty-six U.S. recipients to be chosen from approximately 800 applicants. The program, which started in 2000 with a $210 million grant from the Bill and Melinda Gates Foundation, covers students' tuition and living expenses as they undertake a full-time, postgraduate degree at the University of Cambridge in a subject they choose.

Duke Today

For Van Meir, that likely will mean a master's of philosophy degree in development studies. The Atlanta native has previous, relevant international experience: She interned in Ecuador and conducted a DukeEngage independent project in Nairobi, Kenya.

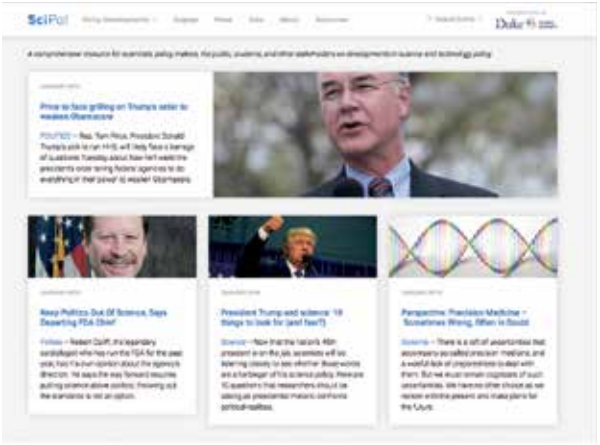
Once at Cambridge, she plans to "further study how states and citizens negotiate space in cities and explore methods for combating poverty in Latin America and sub-Saharan Africa." Long term, she hopes to find a role in government that allows her to work on international human rights issues.

Just the facts

A new online resource aims to provide unbiased science policy updates.

On December 1, the Twitter account of the U.S. House of Representatives Committee on Science, Space, and Technology tweeted a link to a piece of climate-change denial. Other politicians reacted quickly: U.S. Rep. Don Beyer (D-Va.) said, "We need to bring *Science* back to the Science Committee." While many scientists responded, too, the point was clear: Science is now politicized.

Into this charged arena comes SciPol (http://sciencepolicy.duke.edu/), Duke's new science policy tracking program, an online resource providing unbiased policy updates on changing and evolving science. Active since this past October, SciPol, a program of the Duke Initiative for Science & Society, aims to help nonprofits, people in government and industry, media members, students, and citizens thoroughly understand science policy. The site tracks policy actions by government agencies or other policy actors, providing links to news stories and research. Then, says director Aubrey Incorvaia, "we write policy briefs that expound on the underlying science." The briefs are downloadable and include links to further research and other sources.



"We have a section called 'Endorsement and Opposition,' " Incorvaia says, that summarizes claims being made for and against a policy, who is making them, and on what those claims are based. "Our goal is to be unbiased, nonpartisan, and objective."

That is, SciPol is not Politifact for science claims—it's meant to be a thorough explication of emerging policy, including all relevant information. What's more, undergraduate students help write the policy briefs; Ph.D. candidates edit them. Thus, Incorvaia notes, even as Duke pursues its goal of "trying to make a community around these policy issues," it doesn't lose track of its job as an educator. "This is a pedagogical experience—we're exposing students to this world."

The site is growing slowly, and its focus is more deep than broad. Building on the expertise of Science & Society director and law professor Nita Farahany, its first focus is on genetics, genomics, and neuroscience, though it plans soon to expand into nanotechnology, robotics, and artificial intelligence. ■

Putting their heads together

Duke joins with the NFL to tackle brain injuries.

Head injuries remain one of football's most serious problems. The National Football League, looking to address that issue, has turned to Duke. Joining with the Duke Clinical & Translational Science Institute (CTSI), the NFL has created HeadHealthTECH Challenges. The new enterprise will award money to research-and-development teams worldwide working to come up with solutions—better materials, better equipment, and better practices and techniques during play. Duke CTSI is managing the first round of proposals already.

Safety in football has been an issue since the sport's beginning. As early as 1905, after nineteen collegiate players died in the prior season, President Theodore Roosevelt invited college football coaches to the White House to try to brainstorm ways to make the sport safer. Duke, then still Trinity College, had dropped football for that reason in 1894 and didn't pick it back up again until 1920.

Current safety concerns focus mostly on head injuries—chronic traumatic encephalopathy (CTE), brain damage from repeated head trauma, has been observed in more than 79 percent of players examined after death. (CTE is diagnosed only in autopsy.) A study of living players found that more than 40 percent of retired National Football League players showed signs of brain injury.

"Duke is the ideal nexus and perhaps the only place in the country where you could get all those capabilities in one place."

Barry Myers, professor of biomedical engineering and director of research at Duke CTSI, is an expert in head and neck injury biomechanics. He says the NFL's interest in Duke focused on more than just research excellence. Improved head and brain safety in football may come through better-designed helmets, pads, and other equipment, improved materials, and reforms to actual play. Turning scientific discoveries into product and practice is a complex art of its own, though one at which Myers says CTSI excels. "We're not just giving out grants," he says: CTSI is helping researchers overcome barriers, helping them learn things they don't know. "If you're a materials expert, you can cook up the best materials ever seen, but if I ask you to make a helmet prototype, you have no idea." Myers consults with the NFL Players Association and has worked with the NFL before on helmets.

"Duke is an interesting confluence," Myers says of Duke's legacy of work in biomechanics and Duke Clinical Research Institute's deep experience in project management and research transition. "Try to imagine a Venn diagram with those three circles. Duke is the ideal nexus and perhaps the only place in the country where you could get all those capabilities in one place." The first set of grant winners will be announced sometime in the spring. ■

Duke Athletics

HEADS UP: Safety in football isn't a new issue. Duke dropped football for nearly three decades for that reason.

Shining a light on death

As technology and medicine advance, the most basic of biological phenomena can be revisited, questioned, and altered. Haider Warraich, a cardiology fellow at Duke University Medical Center, is particularly interested in the endgame—death—and his new book, **Modern Death: How Medicine Changed the End of Life** (St. Martin's Press), *explores the process of dying and its symbolic importance. Here he shares the impetus behind his interest.*

THE PATIENT WAS A LANKY YOUNG MAN, his feet dangling from the gurney, with his father and his fiancée standing beside him. He had overdosed on heroin and now had a breathing machine helping him breathe. He was in a state somewhere between life and death. I was the youngest person in the room, a physician in training, but everyone looked to me for the answers.

Many of the encounters that leave an indelible mark on physicians end with the patient passing away. Almost on a daily basis, I find myself talking to patients and family members with little if any idea about what the end of life looks like.

Similarly, while I had been trained to do everything I could to avert death, and I knew all the boxes I needed to check when death was imminent for a patient, and even though I was exposed to death all the time, at that moment I was struck by how little I knew about the greater context of how death and dying have evolved. They've changed so much in such a brief time that we have barely had a chance to absorb these changes as a species.

RECENTLY PUBLISHED

In *Justice by Another Name* (RaneCoat Press), E.C. Hanes '67 continues his novelizing of North Carolina fodder, this time exploring the controversial hog industry and small-town politics in the eastern part of the state.

Scott Savitt '85 began his time in Beijing as an exchange student; at the turn of the century, he had been arrested and deported. In *Crashing the Party: An American Reporter in China* (Soft Skull Press), Savitt details the story of those intervening years, during which he had a front-row seat for the events of Tiananmen Square and the larger democratic movement in China.

Caroline E. Light '91, in *Stand Your Ground: A History of America's Love Affair with Lethal Self-Defense* (Beacon Press), delineates the factors underlying the modern concept of "do-it-yourself" security: historical ideas of race and gender that span from the Colonial era to the Civil War, from Reconstruction to Trayvon Martin.

The 1955 story of Emmett Till, a fourteen-year-old who was lynched for his interaction with a white female storekeeper, is an archetypal case of racial injustice. In *The Blood of Emmett Till* (Simon & Schuster), Timothy Tyson Ph.D. '94, a senior research scholar at Duke's Center for Documentary Studies, explores the history behind the fateful encounter, the lynching and subsequent trial, and how it relates to modern-day movements.

Health care is expensive. Discovering and designing new drugs is especially so, with an estimated cost ballooning above $1 billion each. In *A Prescription for Change: The Looming Crisis in Drug Development* (UNC Press), Michael Kinch Ph.D. '93 explores the evolution of the pharmaceutical and biotechnology industries and outlines how the industries' productivity might be sustained in the face of both rising costs and public pressure.

What's your nightstand reading, Brad Snyder?

Snyder '94, a law professor at the University of Wisconsin and the recent author of *The House of Truth: A Washington Political Salon and the Foundations of American Liberalism* (Oxford University Press), is appreciative of nonfiction and historical fiction alike.

My late mentor Raymond Gavins and other Duke historians taught me how to research and write history and gave me an enduring appreciation for narrative, especially about the African-American struggle for equality. As much as I loved Colson Whitehead's *Underground Railroad*, I was even more captivated by James McBride's novel *The Good Lord Bird*. McBride's book is Faulknerian in the way it bends time and combines ideas about race, gender, and slavery with a sly sense of humor.

Another great book reads like fiction but was a true story: Gilbert King's *Devil in the Grove*. King explores the case of four young black men accused of raping a seventeen-year-old white woman in 1949 in Groveland, Florida. Thurgood Marshall, then a lawyer, took the case to the Supreme Court of the United States, which ordered a new trial. The Court, however, was no match for the Southern justice of that era and for the town's racist sheriff. *Devil in the Grove* confirms why in 1977 the Court outlawed the death penalty for rape.

Finally, I read the manuscript of a forthcoming book likely to be of interest during the next Supreme Court nomination hearings: Laura Kalman's *The Long Reach of the Sixties: LBJ, Nixon, and the Making of the Contemporary Supreme Court*. Kalman explores Johnson's and Nixon's Supreme Court nomination process and argues that more nominees should come from outside the judiciary.

CHATTER

"It is ultimately up to you to decide how much of a safe space to cultivate in your social-media accounts. But indiscriminately blocking or hiding the voices of those you don't agree with does not silence them; it only deafens you."

- **ROSA LI**, a doctoral candidate in neuroscience, on how to navigate Facebook and other social media, especially with those across the political divide

"There's a strong tendency to think that familiar species (such as giraffes, chimps, etc.) must be okay because they are familiar and we see them in zoos. This is dangerous."

-**STUART PIMM**, conservation ecologist, on new research highlighting giraffes' declining population and risk of extinction

"We have a better chance of seeing a dinosaur walking around in downtown Raleigh than we do to see an organized change of electoral votes that would result in a different outcome."

-**JOHN ALDRICH**, political scientist, speaking in early December on the likelihood of the Electoral College voting in someone other than President-Elect Trump

"A Jedi virus could have a broad range—like the influenza virus—so that little green Yodas can get it [the Force] as well as humans."

-**ERIC SPANA**, biologist, on the scientific explanation for the mystical *Star Wars* power

"Social adversity gets under the skin. If we can help people improve their social standing and reduce some of these hierarchies, we may be able to improve people's health and well-being."

-**NOAH SNYDER-MACKLER**, evolutionary anthropologist, on a study he coauthored showing how ostracized rhesus monkeys had more immune problems than those of higher social status

"Schools use aptitude tests to sort kids into 'gifted and talented' programs. Early problems with attention or behavioral control can track kids in the opposite direction. Maybe the genome can help us understand where these social rules go wrong, when we're limiting human potential, and who we've inappropriately left behind."

-**DANIEL BELSKY**, assistant professor of medicine, referring to his longitudinal study suggesting a (modest) genetic factor for adult success

Deepening a commitment to all students

The university adds new policies and joins a new alliance to ensure diversity.

In its efforts to keep its student body diverse, inclusive, and safe, Duke recently has adjusted policies and joined an alliance of universities dedicated to those goals.

First, this past October, the university adopted a statement on diversity inclusion and added to its Equal Employment Opportunity and Affirmative Action policies the term "gender expression." The statement's key point is simple: "It is essential that all members of the community feel secure and welcome, that the contributions of all individuals are respected, and that all voices are heard." Duke has spoken out against North Carolina's controversial HB2, which required people to use the public bathroom that corresponds to the gender listed on their birth certificate, from the time it was passed; the addition of the term to EEOC and Affirmative Action policies solidifies that stance.

Second, in December Duke announced it would remove "capacity to pay" from the admissions process for undocumented students. Traditionally, undocumented students have been treated as international students; now they'll be evaluated on the same need-blind basis as students with legal status in American high schools. What's more, undocumented students need not qualify for Deferred Action for Childhood Arrivals or DACA, the 2012 policy providing protection from deportation to people without legal status who arrived in the United States before their sixteenth birthday and before 2007.

Finally, also in December, Duke announced that it is one of the thirty founding institutions of the American Talent Initiative, a new alliance whose goal is to increase opportunity for talented low- and moderate-income students, who have a lower likelihood of getting a college degree than wealthier peers.

ATI brings together private institutions like Duke, Yale, and Davidson, and public ones like UNC and the University of Michigan, with support from nonprofits like Bloomberg Philanthropies and the Aspen Institute. Its goal is to attract, enroll, and graduate 50,000 more lower-income students to the 270 colleges and universities in the nation that graduate at least 70 percent of their students in six years. Duke is one of the subset of thirty of those universities that has committed to using recruiting diversity, need-based financial aid, and academic support to support those goals. ■

The New Diversity Inclusion Statement

Duke aspires to create a community built on collaboration, innovation, creativity, and belonging. Our collective success depends on the robust exchange of ideas—an exchange that is best when the rich diversity of our perspectives, backgrounds, and experiences flourishes. To achieve this exchange, it is essential that all members of the community feel secure and welcome, that the contributions of all individuals are respected, and that all voices are heard. All members of our community have a responsibility to uphold these values.

A mystery solved

The death of four lemurs was caused by a familiar fruit.

It turns out to have been avocados.

The four aye-ayes who died unexpectedly in late October at the Duke Lemur Center appear to have been killed by a natural toxin in the skin and leaves of avocados. Persin, a natural antifungal on avocado skin and leaves that is known to affect horses, goats, cattle, and some birds, had never before been identified as a danger to aye-ayes.

Avocados are included in the aye-aye diet as a source of fat. The center had thirteen aye-ayes (it houses around 230 animals from twenty-one species), and all thirteen had eaten from the same food box on October 24. Within thirty-six hours, four were dead and one had fallen ill. That one—Grendel, age six and a half—has recovered fully. The four who died were named Morticia, Merlin, Angelique, and Norman Bates. Morticia was a wild-caught aye-aye who had had seven babies; Angelique was her granddaughter (and Merlin and Morticia's daughter) and the first aye-aye born to two captive aye-ayes in the world.

The Centers for Disease Control and Prevention in Atlanta is still testing, but the avocado toxin seems to be the only answer. Because the animals died of cardiac effects of a toxin, veterinarians tested for various toxins and found that Persin fit the evidence. When they checked into other cases of sudden unexplained aye-aye deaths across the country, they found that all the affected animals had eaten avocados. Lemur Center veterinarians Cathy Williams and Bobby Schopler sent warnings to their colleagues all over the world, first on November 2 and again on December 12. "The only good to come from this tragedy is that we now know to be wary of avocados," said Lemur Center director Anne Yoder. "Hopefully our recommendation can prevent this from ever happening again."

Finally, in a reminder that the cycle never stops, since January the center has welcomed three new babies: Furia and Gothicus, both Coquerel's sifakas, and Warble, a pigmy slow loris. All three are doing well. ■

The four who died were named Merlin, Morticia, Angelique, and Norman Bates.

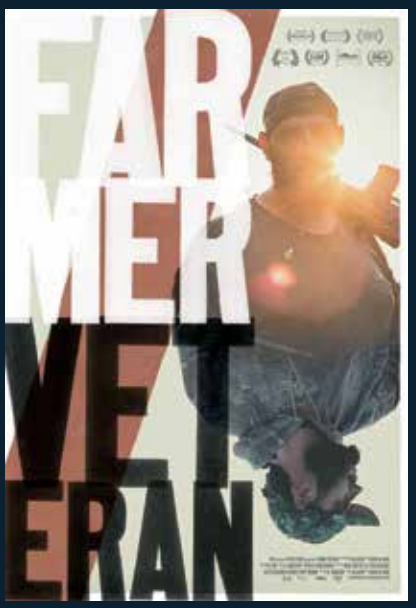
What happens when guns are seized temporarily?

With voters in Washington State recently passing a law allowing police to temporarily remove guns from potentially violent or suicidal people, Duke researchers reviewed a slew of cases based on a similar law passed in Connecticut in 1999. Based on 762 instances, they calculated that for every ten to twenty temporary gun seizures, one suicide was prevented. Said lead author Jeffrey Swanson, professor in psychiatry and behavioral sciences at the School of Medicine: "Using information that we have from other studies about the means used in suicide in the U.S. population, and the connections between gun ownership and suicide, we can estimate that the gun-removal policy in Connecticut did save many lives. In effect, it offered a second chance at life for people in deep despair, and even a path to recovery when they got help as a result." Researchers currently are tracking similar policies in Indiana and California.

DEVIL KNOWS

Directing Devils

Forget Sundance and Cannes. Duke could hold its own film festival using the work of these acclaimed graduate student directors.



Jeremy Lange: When he was working as a magazine photographer in 2006, Lange realized he didn't know what was going on in the Middle East. "I realized I didn't know anyone fighting in the wars. And I felt really removed from the whole thing. I felt I had a whole duty as a citizen to figure out what was going on," Lange says.

For a few years, he used still photography to document veterans returning to civilian life. In 2011, through a friend he met a veteran named Alex Sutton, who was trying to start a farm while battling post-traumatic stress disorder. "I thought we'd work with him six months and make a five-minute film. And that was four and a half years ago," says Lange, a first-year in the Master's of Fine Arts in Experimental and Documentary Arts program.

"I think at the beginning, he just wanted to have this farm and have this purpose. He thought this farm would help him heal and be agricultural therapy in a way. But being a farmer is really hard. And so is dealing with post-traumatic stress."

The final product, a seventy-minute documentary culled from three years of filming, was named Best Documentary Feature at both the Brooklyn and Charlotte film festivals. And this year, it's scheduled to air on PBS during Memorial Day weekend.

"It's great. If we had made this film and no one got to see it, I'd be wondering if it was worth it or not," says Lange, who codirected the documentary with Alix Blair. "We always hope this film can help people, not just people with PTSD but civilians trying to understand what [military] folks are going through."

The trailer for Farmer/Veteran *is available at* **www.farmervet-eran.com/about-w-preview/**. *Lange's upcoming projects include a documentary on North Carolina and the declining tobacco industry and a short film about DIY skateboard building.*

Lauren Mueller: While Mueller was living outside Los Angeles, she learned of a nearby conservation center for gibbons. Soon, she became well versed in the issues facing gibbons, a species that's little covered in the media but is the most endangered of all primates. (Gibbons are known to primatologists as "lesser apes," but society also views them as "lessers," Mueller says: They're poached for medicine, for food, and for animal tourism, among other reasons.)

In theory, protecting the species is a good idea; however, Mueller steadily became suspicious of "the umbrella of conservation."

"The question is, 'Are they really helping?' " says Mueller, in her second year of the M.F.A. Experimental and Documentary Arts program. "I think that there's good conservation and bad conservation, and there needs to be more conversation around that."

In helping the conversation, she began this project, which is what she calls a "docu-fiction": The documentary footage of the gibbons is sequential and sped-up, but the ending hints at some of the more troubling, long-team psychological effects of keeping in captivity animals that are native to the desert.

"Gibbons are so close to us, and they're so easily imprinted upon, that they start to think they're humans, and they get confused," says Mueller. The film's unusual structure encourages viewers to try to inhabit the gibbon's perspective, rather than just assuming that gibbons think like humans do.

The eleven-minute short recently earned Mueller a KODAK Student Scholarship Gold Award; for her thesis, she has expanded the film to an hour-long feature, layering in different centers in India and Thailand. "People always talk about giving people who are not privileged a voice, and I think that, similarly, animals are projected upon," she says. "I'm also projecting upon them a little bit, but in a way that gives them empowerment."

Mueller's feature film will debut on the evening of March 29 at Durham's Full Frame Theater.

Justin Tierney : A Ph.D. candidate in music composition, Tierney is also a time-lapse filmmaker, which consists of taking a still photo of the same area every few seconds and stacking them such that eight hours of photos becomes twenty seconds of film. The goal, Tierney says, is "to reveal things that we are unable to see in ordinary life."

Tokyo Aglow, the second portion of Tierney's dissertation, "At The Conflux," features a sped-up nighttime in the city set to the backdrop of his original compositions. It recently won Best-in-Show at the LA Time-Lapse Film Festival.

"I wanted to show that despite a chaotic surface, the movement of machinery and people in the city is ordered and predictable when seen in time-lapse."

"I wanted to explore the rhythm of urban Japan and its people," says Tierney. "I wanted to show that despite a chaotic surface, the movement of machinery and people in the city is ordered and predictable when seen in time-lapse."

Tierney's three-part dissertation provides different perspectives on Tokyo, both altitudinal (the first installment is shot from above) and temporal (the final installment documents dawn, rather than night). His fascination with the style began at sixteen when he saw *Koyaanisqatsi*, and the past decade and a half has seen him studying music composition as well as photography and time-lapse filmmaking.

In *Tokyo Aglow*, Tierney's brass, violin, and piano instrumentation underscores the hubbub of the metropolis, the visual and auditory elements playing off one another. "Both arts take place across time," he says. "Unlike a painting, or a photograph, or sculpture, music and film can't be grasped at once."

Tierney is meticulous in crafting every element of the film (which includes hours spent scouting locations in-person and on Google Maps), but it's a limited art. Any camera adjustment will disrupt the shot and render the film unusable, so the final visual is privy to the strangeness of who or what appears on a given day. For instance, three minutes into *Tokyo Aglow*, a man in an Ultraman costume is visible. "I can choose the framing, the camera settings, the time of day, the overall subject, but the details are left to chance," Tierney says. "I never know exactly what will happen while the camera is capturing."

Tokyo Aglow *is available for viewing at* **https://vimeo.com/justintierney/tokyoaglow**. *In terms of future time-lapse subjects, Tierney is eyeing both rural Japan and American cities.*

Separating fact from fraud

A professor gives an expert take on the historical Jesus

Mark Goodacre is something of a Biblical sleuth. A New Testament scholar, he is often tapped to sort out hoax from authentic evidence when someone announces a new "discovery" from the early Christian era.

So when CNN launched a six-part series on the historical Jesus, the network turned to Goodacre to help sort fact from fiction. He served as series adviser for the first season of *Finding Jesus: Faith, Fact, Forgery* in 2015. Recently he returned as lead adviser for the program's second season, scheduled to debut on CNN in early March and continue for six weeks on successive Sunday nights.

Goodacre, a professor of New Testament and Christian origins in Duke's religious studies department, helped plan the series and served as the production's lead fact-checker. He also appears in each episode along with other scholars of early Christianity. "The big worry about any documentary in our area is, 'Will it be sensationalist? Will it represent my field badly?' " Goodacre says. "The nice thing about this series is that it is robust academically, as well as being good TV."

The series blends reenactment with scholarly commentary. Each episode homes in on a key character or location that figured in Jesus' life, examining what contemporary scientific evidence, history, and archaeology reveal about the world of the historical Jesus.

For instance, an episode about Pontius Pilate considers physical evidence about the man who ordered Jesus' crucifixion. In this case, the archaeological record contains rich sources, including coins minted by Pilate, Goodacre says.

"In the popular mind, science and religion are often opposed," Goodacre says. "In this series we take a scientific mindset—an investigative, critical mindset—and apply it to discussion of the New Testament, the historical Jesus and figures around him." He adds, "The series doesn't take a religious stand. Instead, it looks at the historical reality behind the text and the stories."

Three jobs well done

West Campus now has a completed student health center, a new conference space, and more parking.

Three new structures have opened on West Campus as Duke addresses student health, needs for conference space, and the never-ending search for parking.

With the completion of the Student Wellness Center, referred to as "the Well," Duke has finished the last of the projects that have kept the center of West Campus a construction site for years. The center not only finishes the job, it fits right in. The building's vast glass atrium and horizontal design elements make it an instant cousin to its neighbors, the Penn Pavilion and the rebuilt West Union.

Inside the Wellness Center, second and third floor lobbies jut out at different levels into an atrium; golden wood columns line the front window from ground to roof; wooden joists run along the third-floor ceiling. And chairs, couches, and small tables take advantage of the pleasantness of the space, making those lobbies places to study or hang out, not merely to wait for an appointment. Most important, the building combines all aspects of student health: Student Health Services moves there, as do Counseling and Psychological Services (CAPS), DukeReach (for students in severe distress), the DuWell wellness service, and nutrition services. For any issue relating to health or wellness, students now have a single destination.

Next to the Fuqua School of Business, the R. David Thomas Center has been updated and is now the JB Duke Hotel and Thomas Executive Center. Exterior walls in public spaces are now made of glass, with carpets designed to mimic the effect of sun filtering through the outside trees. With marble floors and counters, the occasional table made of petrified wood, fully audio- and AV-capable board- and classrooms, and of course LEED certification (shared by the Wellness Center), the $62 million renovation brings the on-campus center up to the standards of the Washington Duke Inn.

And next to the JB Duke, at Science Drive and Cameron Boulevard, the Science Drive Parking Garage has opened, its seven decks and 800,000 square feet

ALL NEW: The Science Drive parking garage, left, gives cars a place to rest; the Student Wellness Center, below, gives students a central location for all their health and wellness needs; and the JB Duke Hotel, right, gives visitors to the Fuqua School and other schools a first-rate place to stay—and meet—right on campus.

Photos courtesy Duke Facilities

able to hold 2,263 cars. That's a net increase of nearly a thousand spots (if you subtract the ones from the surface parking the garage replaced, plus other spots lost to recent construction).

Along with those coming to games in Cameron or Wallace Wade, both just across Science Drive, the garage should improve the lives of graduate and professional students, especially those at the School of Law and Fuqua—and locals attending conferences at the JB Duke. The deck includes not only 215 short-term spots for campus visitors but also thirty-six spots for accessible vehicles, twenty-eight for motorcycles, and (keep this in mind, late-to-the-gamers) fourteen spots designated for electric vehicles. ■

Brian Mullins Photography

Skin in the Game

Athletes get tattoos for reasons as much personal as motivational.

BY Lucas Hubbard
PHOTOGRAPHY by Chris Hildreth

The tattoo fascinates. It's a ritual that, based on recent archaeological discoveries, likely predates the pyramids. It's a mark that has been associated with both criminal classes and royalty, with the disgraced and the proud. Today, the tattoo has developed into a mark for those operating in creative fields—artists, musicians, and, predominantly, athletes. A 2015 Harris Poll of more than 2,000 U.S. adults revealed a consensus that a visible tattoo was more acceptable for athletes than for any other occupation.

Indeed, it's a mark for Duke student-athletes. Brandon Ingram's lanky, ink-laden arms were on full display in Cameron Indoor Stadium last year, of course; at the neighboring Wilson Aquatic Center, as part of a long-standing team tradition, swimmers and divers rallied for meets by temporarily adorning their bodies with a Sharpie replica of the iconic, stylized "Iron Duke D." (Before the 2017 season, seniors Michael Seaberg and Kaz Takabayashi got the permanent version.) While every tattoo carries a story, it seems that athletes may get something more from the art: a sense of camaraderie, or a motivation to embrace during crucial moments for a mental edge, or even a peace from expressing themselves physically before they step onto the field.

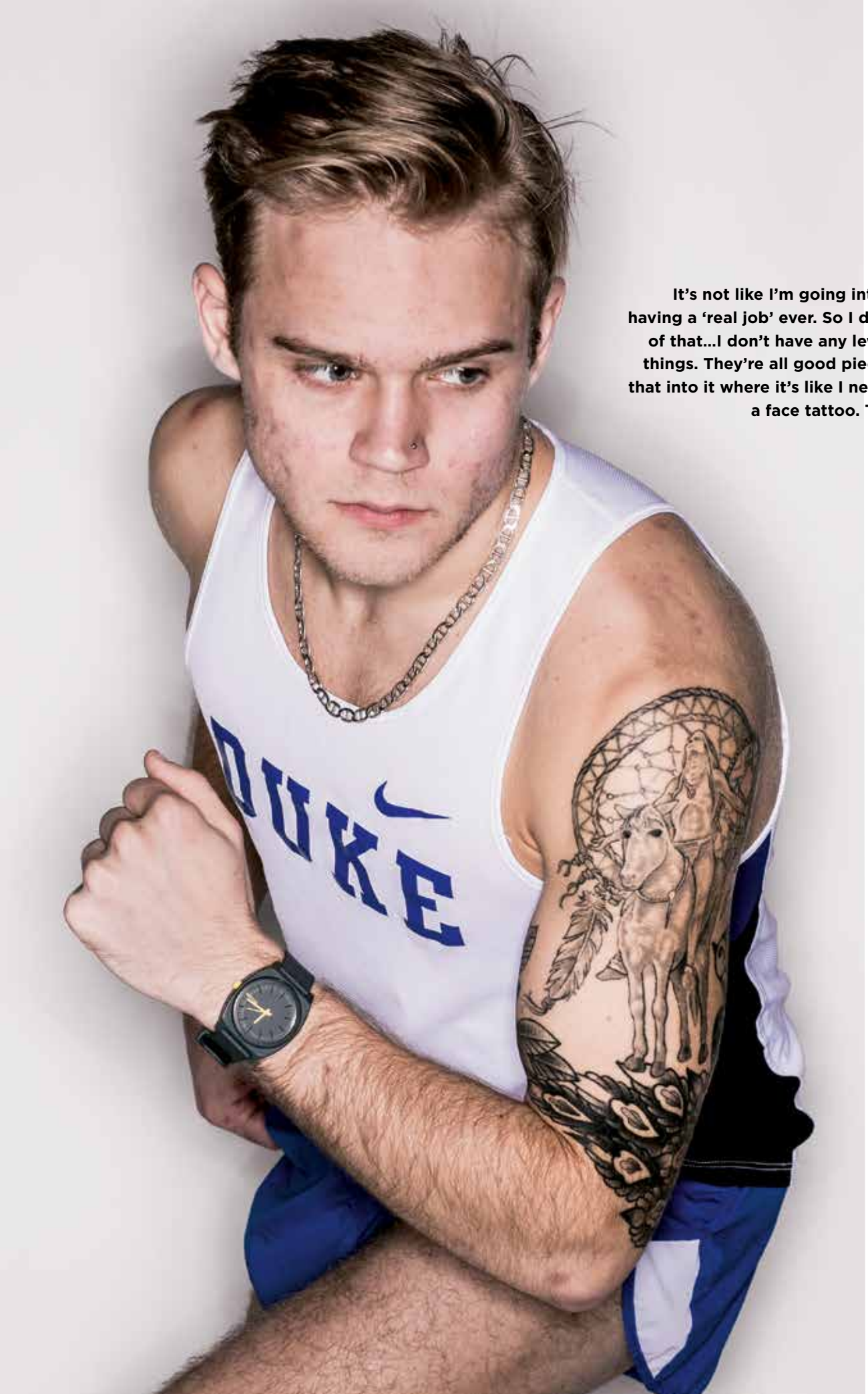
Here, members of the Duke track team explain their modern takes on this ancient practice.

"There's an intimidation factor in track. In high school, you could wear whatever type of socks, so you knew the girls with the neon socks—those were the ones who intimidated you because they were bold enough to stand out. In the same sense, if you have a tattoo, and it's a visible tattoo in your track uniform, that adds a level of intimidation for your competitors.

Jasmine Hill

junior
sprinter

Tattoo: A long text detailing how she aspires to carry herself. She admits readily that it wasn't a drawn-out decision but, rather, representative of the "free-will attitude" that can define people who get tattoos. "I think it's more about the impulse—not just about getting a tattoo, but how you live your life in general."



It's not like I'm going into the NBA and not having a 'real job' ever. So I do have to be aware of that...I don't have any lewd or questionable things. They're all good pieces of art.... I'm not that into it where it's like I need a neck tattoo or a face tattoo. That's kind of crazy.

Kyle Francis

junior
mid-distance runner

Tattoos: A dreamcatcher, is a nod to his grandmother of the Wintu tribe in Northern California; a mandala, on the inside of his bicep, representing the Buddhist idea of self-unity; a peacock on the back of his arm, which both kept the combination cohesive and emphasized humility. "When you think of the peacock, the feathers are up. In mine, the feathers are down—a reminder to stay humble."

It's kind of motivational, and something I learned a lot about at Duke. One of the things about evolution is that life doesn't plan for the future, and it just does what's best at the moment. It's really adaptable, and that's led to all the diversity. Something I learned at Duke is that you need to be ready for anything.... I've changed and learned how to deal with challenges in school and track and life.

Ashton Huey

senior
triple jumper

Tattoo: An outline of the evolutionary tree "from archaebacteria to eukaryotes." (Huey is an evolutionary anthropology major.) He chose the placement tactically, so that it's visible when he's competing but hidden during job interviews.

JR Smith

junior
sprinter
and jumper

Tattoo: The Bible verse James 1:12—"Blessed is the man who remains steadfast under trial, for when he has stood the test, he will receive the crown of life, which God has promised to those who love him."

"In 2008, I was in a car accident, hit by a drunk driver on Halloween, and my older brother passed away from that.... My dad is a pastor, so my faith has always been my resting place, and when things get tough, I go to my faith.

My freshman year here, I had a really bad knee injury, where I ended up tearing my ACL, LCL, PCL, lateral meniscus, and ruptured my hamstring. They told me there was a 75 percent chance of amputation from the knee down. After that I got the tattoo on my chest.... I've been through some hard things in my life.

Robert Rohner

graduate student
multi-events heptathlete and decathlete

Tattoos: A tribute, including a Bible verse and Air Force wings, to his grandfather; a "funky concept" tattoo devoted to his mother, who is "obsessed with frogs," and late uncle, a fan of wildlife, that merges the amphibian with a hawk; a self-tattooed eyeball on his heel (the location chosen, he says, "just so I can cover it up if it looks bad").

"When I'm competing, I can see it [the chest tattoo] out of my singlet. It's definitely extra motivation, because of the meaning that it has—I can think about my granddad flying in Vietnam and the positive influence that he was for me and my family.

I'm very into having meaning behind a tattoo, obviously; that's the only way I can convince myself to put something on my body forever.

My life down the road is no more important than my life now.... If I want [a tattoo] now, I wanna get it now, and when I'm older I won't regret it, because I'll think that's from a time in my life when that is what I wanted.... How can you look at something that you wanted at one time and hate it later on?

Rivers Ridout

sophomore
jumper

Tattoos: The text of Bible verse Philippians 4:13; on his chest, a quote from his mother about kindness and a psalm of life; a pair of wings with the word *altius* (Latin for "higher"—applying to both personal conduct and jumping); a solid black band with four gaps representing his three brothers and himself.

WITH

OR WITHOUT YOU

Duke researchers are using drones, robots, and other autonomous systems to do things people can't do—and teaching them to do things people can.

BY SCOTT HULER

Is it…a balloon? An airship of some sort, tethered to the turf? A children's pool, blown onto its side?

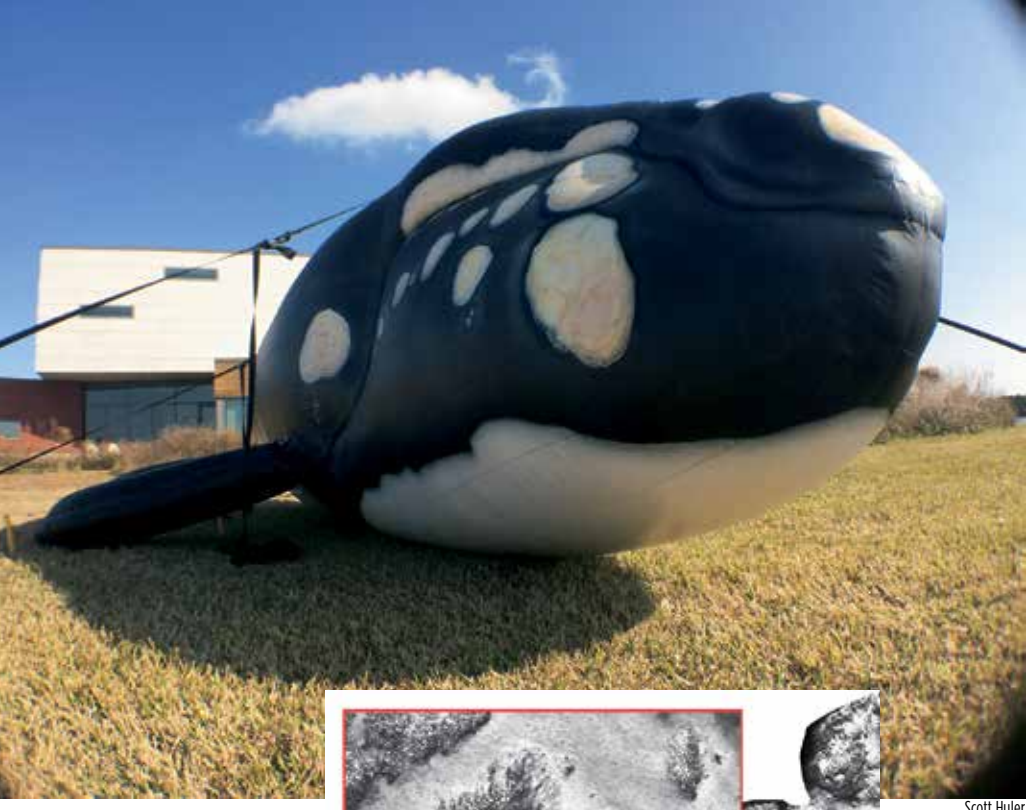
"This is an inflatable whale," says David W. Johnston, whose position as assistant professor of the practice of marine conservation and ecology almost never brings him to the Nicholas School of the Environment on West Campus. Instead, he spends his time at the Duke Marine Lab, on Pivers Island in Beaufort, where he investigates ecology and the effects of people and climate change on the needs of marine vertebrates.

Like, for example, whales, though he usually focuses on ocean-dwelling mammalian ones, not inflatable ones on loan from the North Carolina Aquarium at Fort Fisher and strapped to the ground on a day when the wind is gusting to 20 mph. One of the ways he gathers information is through the use of drones—"unoccupied systems" in the parlance. Drones can explore and map territory. They can gather images after a storm and compare them with historical ones. And they can provide information about the number, the range, and even the health of animals like sharks, turtles, and whales.

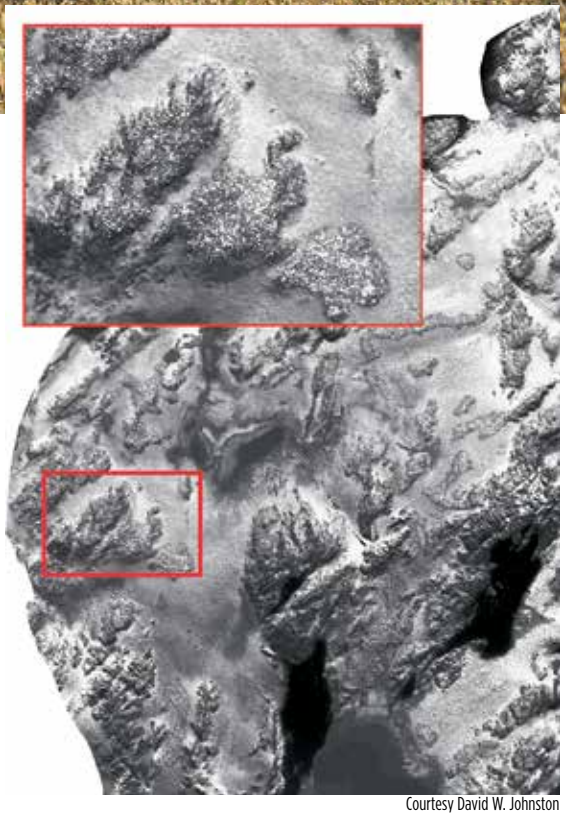
Enter the inflatable whale, which is set up as an example. All morning drones from the lab's squadron have buzzed it, taking pictures of the island that they will stitch together into high-definition mosaics that will include the whale. (At other times things like homemade wooden models of sharks and turtles have played the role of the inflatable whale.) The various drones—some rotor-style craft that hover like helicopters, others lightweight foam fixed-wing planes—track their altitude when each image is taken. Then applying trigonometry to measurements of the whale and the camera's internal organs, Johnston and his

UP AND AWAY: Graduate student Everette Newton launches a drone at the Duke University Marine Lab in Beaufort.

Chris Hildreth



Scott Huler



Courtesy David W. Johnston

LET'S SEE: Top, an inflatable whale helps with calibration, enabling scientists to get accurate readings on animal size from drone images. Bottom, drones are used for mapping big areas, like this thermal map of a penguin colony on the Antarctic Peninsula.

crew of graduate students can calibrate the cameras so that subsequent images will yield completely trustworthy measurements of objects below.

It's nice for them to have something to do, given that the drones themselves do pretty much everything else.

THIS IS AN ISSUE WORTH CONSIDERING. Drones are already astonishingly capable and complex: The drones Johnston's group uses take care of the hardest parts of launch and landing, check on the wind, use the conditions to organize the course they need to trace, and decide to come back to base if anything gets out of whack. They don't lick a finger, hold it up to the wind, and get a thoughtful look on their face while they cogitate, but that's about all they don't do. "As much as this hurts me as a pilot," says Ph.D. student Everette "Rett" Newton, "it flies a lot more accurately than me." And Newton, mind you, for twenty-eight years flew for a little organization called the U.S. Air Force, where he piloted things like the F-15E Strike Eagle.

Johnston's group uses drones for photography, mapping, and other oceanographic research and observation needs; it also provides similar services to other academic departments, like classical studies (for which drone patrols have facilitated discovery at archaeological sites). Other labs at Duke explore just how much autonomous systems—drones, robots, vehicles—can do instead of us, without us, and even with us.

CONSIDER THAT DRONE—an eBee, a fixed-wing, airplane-style mapping drone made of foam that has a wingspan of about a meter, weighs a pound and a half, and can fly on its own for almost an hour. Of course, that's not all it can do on its own. Johnston shows how the drone, working with a program on a nearby computer, responds to a boundary called a geo-fence—a border Johnston sets up on a map on-screen, in this case covering the island point where the whale sits. The drone uses its GPS system to orient itself with respect to the geo-fence.

Then Newton takes the eBee out near the whale, points it into the wind, and shakes it three times to wake up its internal motion sensors. Propellers whir, Newton flings the drone up, and it flies, tentatively meandering around while it gets a feel for the wind (if the wind hits 29 miles an hour, the drone comes home like a kid with a curfew; it does the same thing if it somehow accidentally crosses the geo-fence). Then it starts covering the territory. Johnston, watching the computer, listens for shutter clicks as the drone takes the pictures it will stitch together to make the single survey image of the territory. And once again, it does this on its own. It chooses its own route. When it gets done, it orients back into the easterly wind, heads home, slows down, and drops lightly to the ground at Newton's feet like a good dog.

"It figures out what's the best overlap and footprint," Newton says. "I just tell it I want this area surveyed with this camera at 2 cm per pixel, and it does

Courtesy David W. Johnston

the rest." They keep an eye on it the whole time, of course—it has a brief interaction with an eagle, which appears to want to challenge it for territory before losing interest—but mostly they just monitor as it buzzes back and forth, making a sort of dentist-drill whine when it's overhead. "It's windy, so it's crabbing a little bit," says Johnston, but he echoes Newton. "For it to be able to stay on course, the autopilot does a much better job than we can do. That autonomy part really helps with our sampling to make sure we get really good coverage."

"And here's the cool thing," Newton adds. "We use that same autopilot for an autonomous ground rover, an autonomous boat, an autonomous submersible. The best of all possible worlds is when we can tie all those systems together for science."

That is, wherever they need to put eyes, they can put them—and the eyes will, on their own, provide that coverage. Which is good enough that the Marine Lab has ceded Johnston half its iconic boathouse as a home for the new Marine Conservation Ecology Unoccupied Systems Facility, which focuses exclusively on the use of various autonomous systems to perform marine-science work like mapping coastlines, counting species, examining ecosystem health and productivity, measuring animal health and activity, and even doing marine archaeology. It's not only the first facility the FAA has approved for drones in marine research. Right now there isn't another university that has a place designed for using drones for marine ecology, Johnston says.

As a biological oceanographer, Johnston is interested in all the ways marine species and habitats interact with people. He looks into big-picture issues like climate change and localized ones like harassment of animals.

As he walks from the island point to the room where he's preparing equipment for the new facility in the boathouse, Johnston explains. "So for me the drones are just a tool," he says, "one of many tools we use to measure species." They put tags on animals to gather data on their travels. With the capacity to measure and record position, speed, and depth, the tags can gather weeks' worth of data on, say, a seal. The boathouse room is still being completed, so he shows off his workroom, a large lab filled with computer guts, whiteboards, and eight large screens on the wall. He picks up a blob of clear plastic with an antenna, a battery, and some electronic components inside: "This is a tag that we

CAUGHT: In Antarctica, a drone took images of humpback whales using a bubble "net" to catch prey and feed.

would glue on a seal," he says. It has a cell-phone antenna, so when the seal comes near enough to shore to be picked up by a service, the tag automatically uploads its data.

"So you essentially have a data plan for a seal," he says, smiling. And he can envision further streamlining—say, instead of merely uploading its data, the tag sends an automatic text message that turns on a nearby drone, which wakes itself up, checks for flying safety, and then goes out to take photographs or video of the seal. "You can imagine a future where you have one robot telling another robot what to do. It's kind of like there's no ceiling for what technology can help us do now."

Photos. Videos. (The facility Twitter feed, @MarineUAS, is a thing of astonishment and beauty.) Infrared photos. Underwater sound recording. Lasers that not only measure altitude with greater accuracy (altimeters commonly use air pressure, but that changes with wind speed) but also help with mapping tasks. He's even flown drones through whale spouts, collecting what scientists call "exhalate" but you and I—and Johnston, to be honest—call snot. To check their health, because like every daycare provider knows, if the snot is icky, there's something going on. With all these tasks, the drones gather enormous amounts of data.

"You can imagine a future where you have one robot telling another robot what to do. It's kind of like there's no ceiling for what technology can help us do now."

Which is where the people come in. Graduate student Alex Seymour joins the discussion. "I'm just in the process of building the new computer; it's part of the core structure that helps us manage the drone data." He pulls an image up on the screens of how overwash from Hurricane Matthew affected Bird Shoal, the spit of land just offshore from the Marine Lab. The lab made drone flights over the shoal just before, just after, and a month after the hurricane and could measure changes in its structure. There were 2 meters' worth of erosion on the sea side, new sand on the island's shore side. "And on the recovery flight, interestingly enough, the area [on the front] is filling back in."

The point is that the drones take these images cheaply (flights with a pilot would be enormously expensive), quickly, and routinely. "And we start to understand process at that point," Johnston says. "It changed this amount because of this storm with this amount of wave energy." More, the stitched-together images the drone create have such high resolution that in the resulting 3D images you can zoom in on a footprint or piece of trash.

Again, that's a lot of data to manage, and the drones and computers can enable people to step out of the equation there, too. One Marine Lab team used drone-mounted infrared cameras to photograph seal rookeries in the North Atlantic. The result: images, covered in blobs, each blob a warm mammal on a cold shore (small blobs are babies; blobs of a certain size are groups). Ask grad students to count those blobs, and you've got twelve to fifteen hours of work per image; plus, the students might fall asleep. Seymour worked out an algorithm that counts them in two to five minutes and doesn't get bored and stop to check Facebook. Plus, give three different grad students the same image, and you might get three different counts; tests have shown the algorithm doesn't much differ from people's counts. "And Alex's algorithm does it the same way every time," Johnston says.

The drones and their attendant computer programs save enormous amounts of money and time and free their human coworkers to do other things—like design research, of course, but also teach. The center hosted a workshop in 2015 that drew attendees from companies, universities, and federal agencies and had a workshop on West Campus last year as well as a summer 2016 course on unoccupied-system use in research. And Johnston and his charges remind anybody that they write the programs, design the problems, choose the research. Even once the systems are in the air, people aren't completely out of the loop. But as Johnston says, "We're mostly just monitoring at that point."

WHICH, IT TURNS OUT, IS NOT REALLY WHAT WE'RE GOOD AT. This from Victoria Nneji, a Ph.D. student in the Humans and Autonomy Lab (which has the playful acronym HAL). She's studying the development of autonomous aerial vehicles or "personal transportation drones," which will carry people rather than cameras. Instead of doodling pictures of flying cars, Nneji is thinking infrastructure. "What kind of command center is necessary?" she asks, and she has a point. If the sky is full of drones carrying people—and packages, and cameras—no matter how good the programs are, doesn't some actual person need to be keeping an eye on things? Yes, she says, and that's the problem. Keeping an eye on things bores us.

Chris Hildreth

"Compare with trains," she says. Engineers on busy commuter trains stay busy; those on long, straight-line freight runs lose attention, because instead of actively controlling their vehicle, they're simply monitoring it. "We're not the best at monitoring tasks where a lot of boredom comes in." She spent last year working with the Federal Railroad Administration on what is called "positive train control," a way to protect against that human boredom factor that in many ways resembles the geo-fencing of Johnston's drones. Trains would receive information about speed limits, workers in the area, other trains, and so forth, and could automatically avoid collisions and other problems that inattentive operators might miss, and that would be catastrophic if missed.

Regrettably, she says, "with that work I realized just how far behind our train system is here in the United States" compared with others worldwide.

The fact that the very computer systems that will manage the drones will keep an eye on most of the conflicts perversely creates the same problem the trains have: It makes people even less likely to be aware when trouble develops. "That's why it's important to recognize what humans are good at, compared to computers," Nneji says.

Put a computer in charge of watching out a train windshield for hours and stopping the train if some concern arises, and it'll do great; it has no attention span; its mind can't wander. On the other hand, in an environment not limited to whatever's straight ahead between the rails, computers are still in the infancy of their capacity to truly recognize what they're seeing. Nneji sweeps her hand around a building lobby filled with chairs, tables, columns, windows. "We're good at looking at that window and understanding what's in front of it and behind it," she says. We get how windows work. Computers just see objects and boundaries, still wrestling with things like windows or gestures. "Humans are better at making inferences."

And leaps. If despite all the management issues they'll raise you're still wondering about flying cars, she notes that several companies are working on prototypes; some look like overgrown drones, with a dozen or so rotors. Don't expect them to come to your yard any time soon (noise issues, for one thing), though parking garage top decks offer an opportunity. As for others? "Well," she says. "Have you seen *The Jetsons*?"

Yes, we fall asleep when we're trying to manage trains, but we're on the road—sky?— to personal flying cars. She emphasizes that the time of autonomous drones carrying people around, when it arrives, will require above all human management, and human understand-

Want to fly one?

"Would you like to fly a plane?" asks Rett Newton, Ph.D. student at the Marine Lab, cheerfully proffering the controller to a Parrot Bebop, an inexpensive starter drone that beginners can safely manage. I give, in order, what I assume must be the two most common responses to that question. First: "Has anyone ever said 'no' to that question?" (no one has). And second: "Do you have insurance?" Because as thrilled as I am to get the opportunity to fly a drone, I know from video-game experience that I lack every skill needed to keep such an object in flight and out of trouble, much less master takeoff and landing.

Wrong. The Bebop does pretty much all of that by itself. My entire job is, mostly, to hold the controller and express delight.

So: Takeoff. No careful joystick management along with throttle control and anxious looking back and forth between craft and controller screen. Nope. I just press the controller's "take off" button and the propellers begin to spin, get up to speed in a second or so, and then the thing hops into the air, stabilizing at about a meter up and turning expectantly toward me. After that, my thumbs keep busy adjusting the camera angle, rotating the craft, and zipping it in any direction I want it to go, though when I send it around some trees Newton reminds me that I'm required by regulation to retain eye contact with my drone. It's a little speck in the sky, so if I wonder I can just glance at the controller screen, which shows its view. If I turn the camera toward me, I know where we both are.

FLY HIGH: Drones offer scientists opportunities impossible to imagine even a decade ago.

Back it comes, and when I'm ready I effortlessly direct it to a spot a few feet in front of me and a meter or so in the air. Then I press "landing," and that's what it provides, slowly descending and then dropping into the grass from a foot or so.

I cannot state this plainly enough: My boys no longer invite me to play race-car video games with them because I am so incompetent that I present not even token competition. So don't say I flew a drone. Say, rather, the drone went for a fly, and I didn't interrupt it too badly.

—Scott Huler

Colin A. Huth

how to spoof cars—confusing them by sending them false GPS signals, for example—you're wrong, she adds. "This potentially could spark a bunch of new behaviors."

BEHAVIORS THAT OTHER DUKE RESEARCHERS ARE TRYING TO ADDRESS even now. Kris Hauser, associate professor of electrical and computer engineering and of computer science in the Pratt School of Engineering, runs the Intelligent Motion Lab. He's doing research into several ways in which people and robots interact.

Hauser has a team working on the DARPA (Defense Advanced Research Projects Agency) Robotics Challenge, working on getting a generally human-scale robot (it has two legs and arms and looks like it's made of an Erector Set) to climb a ladder. Videos show it doing well in the lab, but a high wind was too much for it outdoors. Climbing a ladder, though, is simply repetitive motion: If the robot has one routine, it can just repeat it to complete the task. Hauser is more interested in complicated motions, like rock climbing, where a robot would have to figure out each next step on its own.

Wait—rock climbing? We need robots to go rock

Courtesy Kris Hauser

HELPER: Top, Robot nurse Trina beside a dummy patient. In frames, above, Trina works on some of the tasks she can complete. Corresponding frames show a human nurse doing what the robot can not.

ing of how to manage. Air traffic control? A national network? "What sort of people should be doing this? Pilots? I don't think this would be the same as air traffic control," she says about the way drones will travel. She suspects that what will emerge will be something closer to the way Uber works, with light, user-created management in many different places and people watching the systems to make sure they work. And Nneji uses the phrase "management by exception" to explain how computers and people can work together. The computers keep an eye on things as long as, according to algorithms the people write, everything looks okay. When the systems pick up something out of the ordinary, they alert the person in charge, who presumably pauses a Youtube video and checks things out.

HAL director and professor of mechanical engineering and materials science Missy Cummings, too, issues a reminder that as rapidly as autonomous systems—in cars and elsewhere—are advancing, they're obviously not yet ready for introduction into the real ecosystem of human beings. The 2016 crash of a Tesla vehicle operating semiautomatically in Florida that caused the death of its driver bears that out. That subsequent investigations have blamed the crash on human error emphasizes Nneji's point. "Even the Mars robot still has to have someone to supervise it," Cummings says. You also have to remember that people bring an unpredictability factor. "They'll find a way to cover up the cameras," she says of the way people will likely turn driverless cars or buses to their own uses.

If you don't think people are already figuring out

climbing? The point, Hauser says, is to address complex and unpredictable motions. "Think about getting into an airline cabin," he says. "Contorting yourself around people, luggage, seats," in a different way each time. "We're trying to achieve versatility in robot locomotion." Something like rock climbing goes to extremes, of course. "By focusing on the far end of extremes, we're hoping everything easier can be done," he shrugs, "for free." As a rock climber himself, Hauser knows how complex the decision-making is, and if robots can learn to do that, climbing stairs and getting into and out of cars will be nothing. "We've gotten two limbs up on the wall so far," so there's a ways to go, though at least his RoboSimian, as the robot is called, is working.

RoboSimian was developed by NASA, and it uses a lithium-ion battery. There was one more working version until one at NASA, incorrectly hooked up for recharging, suffered the same fate as phones with lithium-ion batteries have suffered recently. (Find the video; it's worth it.) Applications for the RoboSimian, once it can clamber to its heart's content, will include, besides getting into and out of airplanes, search and rescue and space exploration.

If you're wondering how it would feel to have a RoboSimian squeeze past you on an airplane to get to the window seat, you're thinking about one of Hauser's main interests. One place he's pursuing that is with the Tele-Robotic Nursing Assistant, or Trina, a robot nurse that shares a lot of physical characteristics (as well as a job description) with Baymax, the inflatable robot in the movie *Big Hero 6*. Trina will someday, Hauser hopes, be able to do everything from bring food to patients to change their bedding and even draw blood. With obvious benefits not only to free up nurses but to tend to patients suffering dangerous communicable diseases, she's gathered a lot of notice. She may not look human, but she's generally vertical, has two arms, and has a screen where her face would be, which shows the face of the person working Trina. "Right now we do have a nurse behind the wheel, driving, so to speak," Hauser says.

The problem is, where the characters in the movie almost reflexively hugged Baymax, Trina gets a different response. Engineers try Trina out with nurses and people who act as patients. "The fake patients tell us they are threatened by the robot," Hauser says. Even though they know that there's a nurse behind there, and they even see the nurse's face on the screen, "they still feel this surrogate body the nurse has is still quite threatening."

Nurses like to put hats and things on Trina and give her pet names to try to humanize her, but Hauser says, "this whole boundary between humans and robots is one of the great unsolved mysteries." Trina has a long way to go before she's ready for patient care anyhow—she's pretty clumsy, and she's slow—but that challenge gets attention elsewhere in Hauser's lab, too. In a project on cooperative motion-planning, he works on the way people and robots work together. Not in the standard, I'll-tell-you-what-to-do sense, but together, perhaps on an assembly line. "Robots that work alongside humans without safety cages and so on," he says, illustrate the idea of "collaborative manufacturing." He leads the way into what looks like an assembly table. "We're exploring a mock industrial setup here," he says, "where the robot is doing something around the human."

The point? Taking the role of robot, he takes a step forward, uncomfortably close to a visitor, who instinctively steps back. "You see?" he says. "You're already backing up." That showed "avoiding behavior" to his "aggressive behavior." He's interested in how different people behave around robots, when the robots go about their business. Do people back away when the robot gets close, or do they push back in frustration? Do different personalities respond in different ways? "We also want to see what people do if the robot explicitly transgresses cultural norms," he says. "It's really interesting to take things out into the wild and see what normal people do."

Whether it's drones, autonomous cars on the ground or in the air, nurses, or coworkers, that sounds like a description of the next decade. As for whether people are even necessary, you can relax. Everybody thinks we still are.

If only to manage the robots. ■

Early birds love them, but for

Rise!

everyone else 8:30 classes are a test of endurance and skill. (& Shine?)

By Lucas Hubbard
Illustrations by James Yang

"It's really hard to tell if you're sleepy or confused," Genevieve Lipp '10, M.S. '13, Ph.D. '14 says to her EGR 244: "Dynamics" class at 9:07 a.m. on a Friday in mid-January. While her comment draws a few nervous laughs, it's not an unfair claim. She's outlining the polar frame for an audience of almost forty sophomores—the whiteboard replete with derivatives, trigonometric functions, and derivatives of trigonometric functions—and if the students are processing the material, well, then it's a pretty subtle processing.

Lipp, now an adjunct assistant professor in the Department of Mechanical Engineering and Materials Science, understands the predicament she faces teaching in this 8:30 a.m. timeslot. As a first-year, she took a linear algebra class during the same semester she was tenting for basketball tickets. Soon, she stopped going to class; soon thereafter, she scored a 26 on the first exam. The experience taught her two key qualities for a successful class: Students need to feel the class is worthwhile, and students need to be engaged. "These two ideas weigh more heavily on an 8:30 a.m. class because it's harder to make yourself get there, and it's harder to stay awake once you're there," she says. "An instructor should encourage active learning the same as she would at any time of day, but the stakes are higher for an early class."

So, Lipp breaks students into groups at the start of each session, transforming the room from a staid lecture into a communal problem-solving seminar. She paces up and down the middle walkway of the banked hall, looking for struggling students to almost preemptively answer their questions, trying—as does the room's sharp wood paneling—to brighten things up inside the Teer Building. One glance out the window at the dark-gray sky outside, or a look around at the bleary-eyed students, underscores the lack of a lively environment. "There are some mornings where…I end up trying to write," says Gustavo Andraje, a blue-hoodied sophomore in Lipp's class who also is tenting this semester, "and I look at my paper, and it's just a bunch of scribbles because I've been dozing off."

At 8:30, or 9, or even 9:30 a.m., staying awake, let alone being alert, is an uphill battle for students. Ceaseless activities—classes, homework, paid work, extracurriculars—overflow their daily schedules; finding seven to nine hours for adequate nightly sleep becomes a Herculean task. Plus, the inherent social aspects of college don't make it easy to resist procrastination impulses. "It's harder to go to bed when you live with friends. Especially freshman year, when you get to know your hallmates, there's a common room—people stay up there to talk, to do homework together—you're probably not gonna go to sleep unless you're really, really tired," Andraje says. "In high school, I think the latest I'd go to sleep was one. I'd try to be in bed by midnight. But now here, I don't think I've been asleep by midnight yet."

The struggle isn't universal; for some, this timeslot is fine, even preferred. "My friends think I'm crazy. They just don't understand why this would ever be a thing that you'd want to do," says Shreya Shankar, a sophomore in the same "Dynamics" class, of her preference for early-morning classes. (Her secret to staying alert? Honey lattes from Joe Van Gogh café.) But mostly, early-morning class presents myriad problems for students. The classes force the day to start earlier without a guarantee it will end at a reasonable hour; they can create uneven daily schedules where students have to wake up early two or three times each week, which is worse than five times; and they can become, commonly, sacrificed in the hunt for more hours in the day. As Kevin Gehsmann, a sophomore in the 10:05 a.m. session of "Dynamics," explains bluntly, "You're much more likely to miss the 8:30 class than any other class, so you're gonna do worse" in the early-morning session.

Yet, these classes exist; they're logistically impossible to completely excise. And eventually, after the harrowing registration process, they get filled. Duke's early-morning contingent, students and instructors alike, is an alloy of the undeterred and the unlucky, the naïve and the nascent. They may be undesirable, but the classes cause everyone involved to grapple with a somewhat philosophical question: How does one deal with something unpleasant but necessary, knowing that life inevitably promises similar hurdles in the future?

> "In high school, I think the latest I'd go to sleep was one. I'd try to be in bed by midnight. But now here, I don't think I've been asleep by midnight yet."

Nominally, college kids do have it easier these days in the early-to-rise sense. Dating back to the 1940s, Duke has begun school days at 8 a.m. (before that: 8:30 a.m.). While the '70s and '80s provided a brief flirtation with 9 a.m. starts, by 1993 the 8 a.m. class was back in style, and the schedule was standardized across all days to end at 7 p.m. Often these early course meetings were unavoidable: The required first-year writing course, which now is known as "Writing 101" and features classes sprinkled throughout the day, used to schedule all of its sections in the first period.

With the 2005 school year, Duke shifted to the current schedule of an 8:30 a.m. start, with the erroneous headline "Duke cuts 8 a.m. classes to help students get more sleep" attached to the Associated Press story. The adjustment was related more to the fact that the course schedule had become too cluttered: Students were increasingly gravitating to classes between 10 a.m. and 2 p.m. on Mondays through Thursdays and were forced to make tough tradeoffs in their course scheduling.

The administration, in response, spread out the curriculum. Under the current Course Schedule Policy, last revised five years ago, only half of a department's undergraduate level courses can fall between 10 a.m. and 2 p.m., which the university registrar refers to as "prime time." The academic day now extends further into the evening, with the last period starting at 7:30 p.m.; the morning's start shifted a half hour later to help accommodate the greater number of students that would be enrolled in first-period courses.

Despite these efforts, it goes without saying that not all of these periods are equally popular: Based on the 197-page course catalogue detailing the 2017 spring semester, first-period classes, starting at either 8:30 a.m. or 8:45 a.m., are offered 40 percent less frequently than second-period classes (starting at 10:05 a.m. and 10:20 a.m.). The scheduling isn't an inefficiency; in short, the disparity is due to a lack of demand. Perhaps domestic students, coming from a high-school system in which six out of seven kids will be at their desks before 8:30 a.m., are lashing back against four more years in such an imposing environment.

What's clear is that Duke, before 8:30 a.m., is far from its typically bubbly campus. On the walkways of Abele Quad, lone students shuffle about, either hauling sleeping bags (tenters) or boasting Duke-emblazoned backpacks (most are athletes with early-morning practices). Any chatter stems from suited administrators ambling to the Allen Building. The "natural" elements of Duke's campus—landscaping vehicles on the main quad, trucks beeping backward below the Bryan Center Plaza—create an unfettered soundscape.

While Duke students' penchant for night life is well-established, the morning life has not found its audience.


Y.

Inside the Physics Building, Christopher Roy, associate professor of chemistry, is trying just to make his audience chuckle. Roy, who sounds like Louis C.K. with a chest cold, discusses phenomena like "supercritical fluids" and "chelating amines" in his CHEM 410: "Inorganic Chemistry" course; at 8:30 a.m., it's important to muster enthusiasm. So he refers to *Breaking Bad*'s suspension of disbelief regarding hydrogen fluoride and makes corny dad jokes about a kind of super acid that, once it's in contact with a certain chemical, peels apart to reveal an "S" on its chest. No one laughs, until one student does at the glaring absence of laughter, and then it becomes pretty funny for everyone.

The willingness to take a swing and a miss at a joke, though, is intentional. "If you don't inject some humor, or something that really gets the class paying attention to you, it's almost—I just don't think it's successful," Roy says. "I always tell my students that if it doesn't seem like I'm enjoying it, then there's no way you'll enjoy it."

It helps that, as associate director of undergraduate studies in the department, he knows all of the seniors in the class well. "Inorganic Chemistry" is required for students getting a B.S. degree in chemistry, and given the stacking of courses inherent to the major, most students are spending their final semester at Duke waking up early twice a week to listen to Roy. It's his duty to turn a learning ordeal into an opportunity.

"Because he's the kind of person who cracks jokes every five minutes, at the very least we're more willing to be awake and listening to him," says Kelley White, a senior in the class. Her schedule on Tuesdays and Thursdays runs from 8:30 a.m. to 7:30 p.m., and she is, not coincidentally, drinking an unprecedented amount of coffee this semester. "We don't always laugh, partially because we don't want to boost his ego about it, but also partially because it's that early in the morning. But it definitely helps."

Roy mentions that, for a major like chemistry, the coordination of classes goes far beyond the department itself. Pre-health students, as a number of his are, will undoubtedly also be occupied with biology, biochemistry, physics, math, sociology, and psychology. Naturally, a few courses have to be shifted outside of "prime time" to avoid key conflicts. "It's not a battle. We're all trying to work together. Everybody would like to have classes between 10 and 2," he says. "[But] you can't fit all your classes between 10 and 2."

Still, Roy's lecture almost apologetically acknowledges the fact that, yes, it is a little early for learning and teaching both. In fact, one similarity among early classes is the instructors' willingness to acknowledge and empathize with the plight of their students, if only for a smidge more attention during the class. When Roy struggles with the projector, he facetiously asks, "Who am I? Where am I?" When Lipp reaches a good point in her lecture, she manufactures a five-minute break: "I don't like sitting for seventy-five minutes first thing in the morning." When Joe Nelson, a Ph.D. candidate in philosophy who is teaching an 8:30 a.m. section of an introductory undergraduate logic course, misreads a truth table he wrote earlier, he says, "In my blanket disclaimer, I don't usually get up this early."

The corollary to students' hesitancy to enroll in these classes is the faculty's general reluctance to teach them, best shown by Nelson's initial response to the thought of teaching in the morning, one that evoked Bartleby the Scrivener: "I would prefer not to." While every department assigns courses and instructors differently, the trend is for tenure-track faculty to have first dibs on picking timeslots. Naturally, they gravitate toward classes outside the first period.

So these early slots fall to adjuncts, visitors, and grad students like Nelson, who ended up in this predicament partly because he missed the initial e-mail from the director of graduate studies. As someone who gets "a ton of work done between 10 p.m. and 3 a.m." and is in the midst of his thesis, it'll be a major shift. "I basically drew the short straw; there was nothing the least bit unfair about it, but it's just how it worked out," he says. "But I had concerns about it, because it's going to require me making a pretty significant shift in my study habits and my sleep habits, if I'm going to be, you know, awake and functioning at the appropriate hour."

Perhaps the most telling faculty story comes from Astrid Giugni Ph.D. '13, a visiting assistant professor in the Department of Information Science + Studies (ISS). When pitching her first-year seminar, ISS 89S: "One Person, One Vote," she requested the two-and-a-half-hour Monday morning timeslot strategically, hoping to avoid competition for students. "I think when I told Megan [Whitney, who

helps assign courses for ISS] that, 'Yeah, I'd like an 8:30,' " she says, "her response was 'Yes! Somebody will take it!' "

"From when I came to Duke, I always teach my courses at 8:30. It helps maximize my day." That's Mbaye Lo, associate professor of Asian and Middle Eastern studies, who's teaching elementary Arabic at 8:30 a.m. this semester. His attitude is a forward-looking one; he feels that learning to cope in the early hours is, like time management or organization, an essential skill college should provide. He doesn't know what they mean when people tell him, "I'm a morning person," he says. "For me, by default, that's how life is."

Lo occasionally will make things easier for his students: When he covers abstract grammar concepts, for example, he'll bring communal tea to class to make sure everyone's awake. But he harbors a general fear that some Duke students don't have the necessary drive to succeed post-graduation. "One of the challenges we face in advanced capitalistic societies is life becomes very good, and people lower expectations—that is the nature of human beings," Lo says. He mentions how Duke graduates won't merely be competing for jobs with domestic graduates but also with graduates from China, and India, and Senegal, where he went to school. And the fear of early classes, late classes, and Friday classes reflects a potentially fatal weakness—the lack of a work ethic. As Lo says, "The other day I talked to a student. I said, 'What do you do on Friday?' He said, 'I sleep.' "

If you're well-accustomed to early mornings like junior May Li—"I feel guilty if I get up really late"—then the shift from college to the labor force won't be drastic. Otherwise, the essential question of "What happens when I have to wake up before 10 each day?" is a scary one for students. As Roy says, college is "one of the few times in your life when you have this much flux in your day, in your opportunity to start your day at noon." And yet, for any of his "Inorganic Chemistry" students entering the traditional workforce or graduate school, the gravy train of late-morning wake-ups will end soon after they throw their ceremonial caps in the air in May.

"That terrifies me," says Ahmed Noor, a senior in Roy's class who is looking to go to medical school after a gap year. "I've heard that first year after medical school, your intern year, that year is supposed to be terrible and that's where you have the most shifts where you're working thirty-six hours nonstop. I'm trying to prepare myself for that reality eventually…. I'm very bad on five or six hours of sleep. But I feel like that's something I'll have to get used to."

"I feel like it's interesting I don't know a lot of morning people at Duke," says Noor's classmate White, who admits to having missed one of Roy's classes this semester because she wrongly set her alarm for a later hour. She mentions the graduate student in her chemistry lab who's there from 5 a.m. to 7 p.m., noting that few of her undergraduate peers can match that intensity. Still, she says, the early-morning stigma is overblown. "What I've noticed the fear of is 8 a.m.'s and then, kind of like my schedule, where you have class at 4 or 5 as well. If you can get your entire day done by 2 and start at 8 a.m., more people would be willing to do that than starting at 8 a.m. and having a peppering of classes with large breaks in between."

"You don't see people falling asleep a lot in classes—people just don't come."

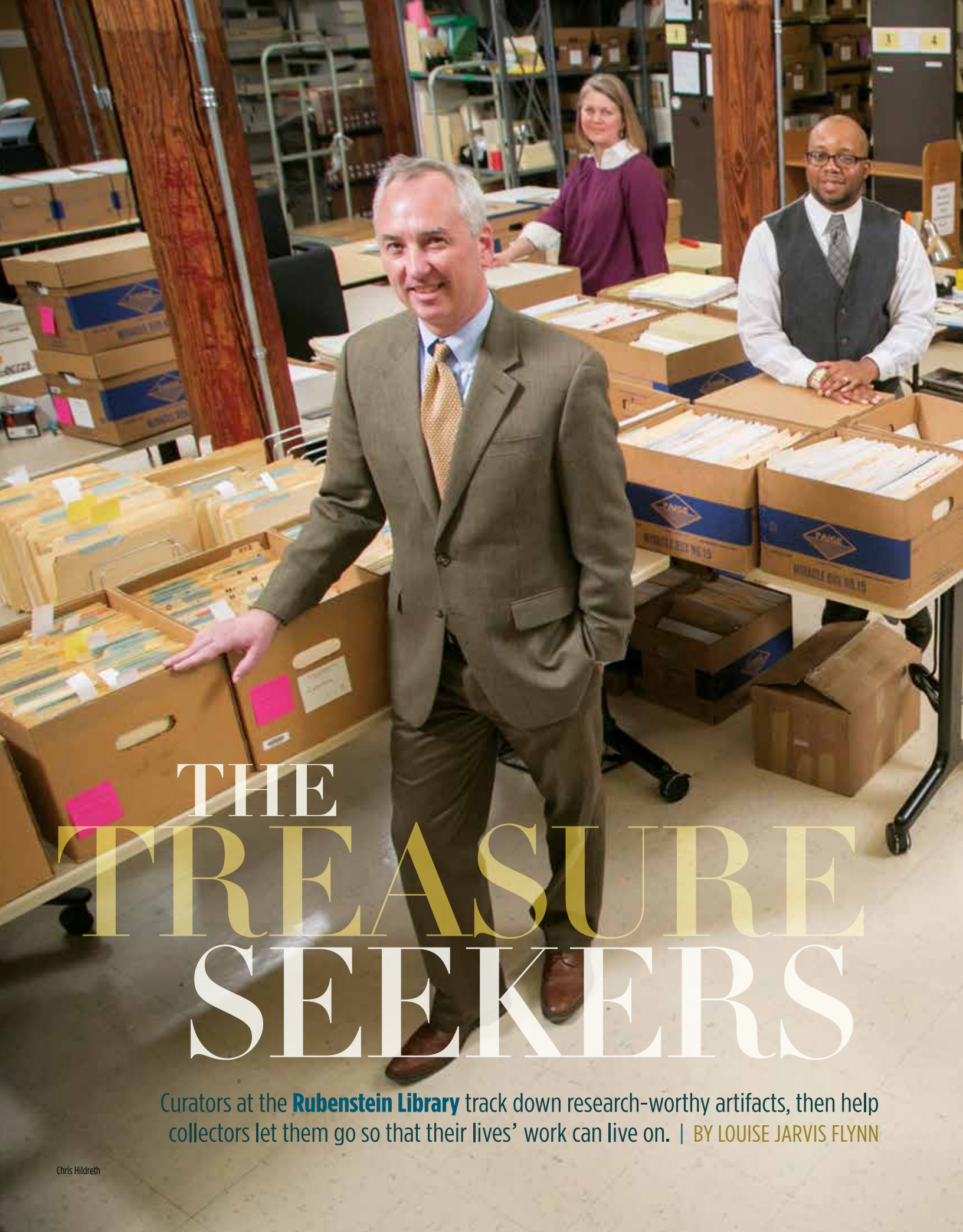
For someone like Noor, who also cut out caffeine over winter break, the semester has been an exercise in persistence and, well, recalibrated expectations. "I made a vow to myself that I wouldn't miss a single class this semester," he says three weeks in, "and have not really kept up with that so far." But he's developing a few tools for navigating the early hours. "There's taking good notes, and there's taking notes just for the sake of taking notes," he says. "One trick I'll use is that sometimes I'll just write down what's being said, even if it's not super important or something I don't know already, just so I'm doing something physical that keeps me awake and keeps me focused. I am being intentional and paying attention to what they're saying, even if I'm not processing it at a deep level, at least I'm there in some sense, mentally.

"There's some days where I get lucky and I'm there mentally, but most days I have to rely on that method."

While the mileage may vary, what's most apparent in the morning is a steeled optimism. The experience may be suboptimal, but when students are forced into these circumstances, they rally—sort of.

"You don't see people falling asleep a lot in classes—people just don't come," says Li. She's right—the only time heads seem to droop (before the inevitable jolt up and sheepish glance around the room) are during the most impersonal of lectures, where attendance tops a couple hundred. Mostly, students make the optimal tradeoff for their over-programmed selves, attending class when they can, and sleeping when they must. It goes back to what Lipp says: The opportunity costs for early morning lectures are higher. If students are willing to forego sleep for your class, your class must be pretty engaging.

And even in the worst-case scenario, as Li explains, from the student's perspective, a classroom nap is a step in the right direction. "For those who were in lecture who actually fell asleep, well, at least they're trying." ■



THE TREASURE SEEKERS

Curators at the **Rubenstein Library** track down research-worthy artifacts, then help collectors let them go so that their lives' work can live on. | BY LOUISE JARVIS FLYNN

Chris Hildreth

TEAM EFFORT: Left, J. Andrew Armacost, head of collection development and curator of collections; Sara Seten Berghausen, associate curator of collections; John Gartrell, director of the John Hope Franklin Research Center; Rachel Ingold, History of Medicine collections curator; Jacqueline Reid Wachholz, director of the John W. Hartman Center for Sales, Advertising, and Marketing History; Lisa McCarty, curator of the Archives of Documentary Arts; and Laura Micham, Merle Hoffman Director of the Sallie Bingham Center for Women's History and Culture, curator of the Gender and Sexuality History collections.

One pope was a woman, so the story goes. The year was 855 and even those attending her papal procession didn't know she was not a man until she dropped to the ground and gave birth to a child. The tale of Pope Joan is told in *Incominciano Le uite de Pontefici et imperadori Romani*, or *Lives of the Popes and Roman Emperors*, which was published in 1478 by an all-female press at the Ripoli convent in Florence. Nuns typeset and bound the volumes and even were paid for their efforts.

There are two known copies of this book. One appeared at an auction; it is a fragment. The other, until recently, was in the massive private collection of historian, philanthropist, and political activist Lisa Unger Baskin. Now, it belongs to Duke, where any student, professor, or researcher may (very gently) flip through pages printed by women more than half a millennium ago.

TREASURED ITEM: Lisa Unger Baskin holds artist Phoebe Anna Traquair's hand-illuminated copy of Alfred Tennyson's *In Memoriam A.H.H.* (1889-1892), in the Mary Duke Biddle Room. The book's binding is also by Traquair.

Their arrival at the university is a story of serendipity and savvy, a bounty bestowed via the work of the curators at the Rubenstein Library. In service to research, these curators hunt down collectors, then skillfully guide them through the process of letting go of artifacts acquired after decades of obsession, and help them see the value of sharing their collections with the world.

Collections like Baskin's, thought at the time to be the largest assemblage of women's history and ephemera held in private hands in the U.S., are the cornerstone of university scholarship, shaping courses and new research, inspiring interdisciplinary work, and deepening the academic experience for all.

J. Andrew Armacost, head of collection development and curator for collections of the Rubenstein Library, has spent a dozen years working with donors and bibliophiles to bring their resources to Duke. He and the seven other curators, each with a different specialty, tap into a global network of booksellers and auction houses to track down and acquire materials for the university. "I think we have one of the best jobs in the world," says Armacost. "We're going out and meeting people and working to save things that wouldn't otherwise be preserved."

Many people don't realize that what they have stored in their garage or attic is worth preserving until someone tells them, says Jacqueline Reid Wachholz, director of the Hartman Center for Sales, Advertising & Marketing History at the Rubenstein library. "Everyone has a story," says Wachholz, who collects and catalogues the work and experiences of industry insiders, from copywriters to corporate bigwigs.

But, she adds, "unlike writers or public figures, advertising professionals don't envision that their life's work might end up in an archive at some point. It can be hard to get at those experiences."

Among the center's holdings are cookbooks produced by companies as diverse as Frigidaire appliances and Metropolitan Life insurance, ads for Liggett & Myers Tobacco Company, work created by the legendary J. Walter Thompson ad agency, and images of society women taken for Pond's cold-cream ads. Several years ago, Wachholz made a rare find: the 1916 diary of a woman who worked for the in-house advertising division of Marshall Field's department store in Chicago. "She's a single woman, and her diary talks a lot about

her career aspirations, her personal triumphs and tribulations. I really treasure it because it's so early, fifty years before Peggy Olson [from *Mad Men*] would have existed."

Mad Men was a Hartman Center obsession, of course. Wachholz came across an interview on the show's website with Joy Golden, an advertising veteran in her eighties living in New York City, who was known for her witty radio ads. Wachholz cold-called Golden to see whether she had any materials that might find a home at Duke.

At first Golden demurred, but six months later she contacted Wachholz and invited her to her midtown apartment. "She'd saved quite a bit—recordings, speeches, manuscripts. There was a clear story to be told," says Wachholz, adding that it was an emotional experience. "Letting someone into your life that you barely know, and letting them take all this material that reflects your whole career—she got teary eyes and gave me a big hug."

When the boxes were packed and in the lobby of her building awaiting FedEx, the doorman took a picture of Wachholz and Golden amidst the stack. "What struck me," says Wachholz, "was how pleased and flattered she was that someone else thought this was important to save."

Baskin, whose collection sprawled throughout her rambling, nineteenth-century white clapboard home, always "knew it would go to an institution, where it could be safe and used in a very broad, general way," she says. The same local colleges borrowing pieces for classes would ask when she planned to part with it, and she would reply, "When I'm ready, you'll know."

But that was before multiple tornadoes ripped through a nearby town, and Hurricane Irene churned up the Connecticut River Valley, sweeping away covered bridges. The same fall, an early snowstorm took down trees and electrical lines, knocking out power. And then, a friend's house was struck by lightning and completely destroyed.

When the weather vane atop her barn began to spin, so did Baskin's worries. She felt too anxious to leave her house, fearing what might happen to the collection. "I spent forty-five years finding all this, protecting it," she says. "How could I expose it just to have it around me?"

In June 2012, another extreme storm hit, but this one brought a felicitous encounter: Baskin's son, Hosea, owner of Cumberland Rare Books, had been in California at the annual meeting of an antiquarian books and manuscripts organization. Rubenstein Library curator Armacost also was there. Thunderstorms delayed their flights, and both were stranded in the Dallas-Fort Worth airport.

Because they ran in the same bibliophile circles and had known each other professionally for years, they fell into conversation. "He was asking what kinds of things I did at Duke, and he started talking about his mother and her collection, and how she was thinking about the right sort of home for it," recalls Armacost. "Then he said, 'Well, you should come up and see it.' "

"I could not transmit to her how relieved I am, how my anxiety is diminished. I don't have to worry about every story."

THE WRITE PLACE: Lisa Unger Baskin in Perkins' Michael and Karen Stone Family Gallery with Virginia Woolf's writing desk.

On that first visit, Baskin showed him, among other pieces, the Charlotte Brontë needlepoint sampler and the Charlotte Perkins Gilman papers. Laura Micham, director of the Sallie Bingham Center for Women's History and Culture, and John Gartrell, director of the John Hope Franklin Research Center for African American History and Culture, paid a visit next, in the summer of 2014. "This was about relationship-building," says Micham, who has worked with donors and collectors for twenty years, fourteen at Duke. "Collectors want to know, 'Will this be understood by everyone who comes after? Will it be cared for? Will it make the difference it made to me? Will it have the effect on others?' "

Building those relationships can take years of face-to-face contact, or it all can be sorted out in a few e-mails. Some donors want to visit the space where it will be kept and meet

Photos by Les Todd

WOMEN'S WORK: Clockwise from upper left: A pamphlet by Margaret Sanger titled *Family Limitation* (1924); materials related to Susan B. Anthony including a photograph of Anthony, an encouraging letter from Anthony to an unnamed fellow suffragist (1900), and issues of the weekly women's rights newspaper *The Revolution*; a copy of *Of the Friendship of Amis and Amile* (1894), bookbinding by Katharine Adams and embroidered book pouch by May Morris; a small box of suffrage pins; a letter from the Italian painter Artemisia Gentileschi (1630); and a needlepoint by Charlotte Brontë (ca. 1840).

the staff involved. For others, a crucial point may be how the collection will be used in the classroom, or whether certain materials can be embargoed until a person's death.

For Baskin, it was essential that her material be catalogued and described well so that it could be used by students and scholars. She also wanted to document the collection in situ with a photographer and oral historian Craig Breaden before it was moved.

Three other universities bid for the collection, but when the archival plans were presented, Baskin chose Duke. "What we do in no small measure is a huge bond of trust," says Micham. "You talk them through the lifecycle of their documents. You talk them through the next chapters of their [materials'] lives. Everyone has a different set of priorities."

Like Wachholz, Micham knows how difficult it can be for a donor to let go. "I've worked with so many donors and collectors and have had the experience of packing up and taking things away. There is liberation, but also mourning," she says. "I had one woman say to me, 'This is like taking off my skin.' "

The Baskin collection's primary holdings run through the 1930s, but there's a second, smaller collection of 1960s and '70s material, too. The collection is unique, Armacost says, because it's so quirky and spans centuries and innumerable topics: There are early midwifery manuals; the most complete set known of Susan B. Anthony, Elizabeth Cady Stanton, and Parker Pillsbury's newspaper *The Revolution*; books and fragments of incunabula (books printed between 1455 and 1500); a manuscript from 1240; and reams of unpublished letters by

Les Todd

female writers and activists. And then there's the realia: pottery from the kilns of Hull House, suffrage lapel pins, employment pamphlets, and the crowd-pleaser of the collection, Virginia Woolf's writing desk.

"Each item is like a little thread you can pull, and ask, 'Where does that story lead? Can I find other items related to that or this person?' " he says of Baskin's approach to collecting.

Despite its size, few outside the rare-books world and women's-studies programs knew of its existence. "It's not that easy to find out about it Googling," says Bingham Center director Micham. "Part of why she has been so successful as a collector is that she was very private."

identify and see and touch and feel will inform new histories that have yet to be written," says Gartrell, director of the John Hope Franklin Research Center.

He remembers one of his first acquisitions for Duke, in early 2013, a cache of eighty letters and other documents from 1735 to 1859 belonging to Robert Anderson, a merchant, land owner, and former mayor of Williamsburg, Virginia, found in a book dealer's catalogue. Among the letters of transaction for buying and selling slaves are letters from Anderson to his own daughter, Haidee, who had been sent to a school in New Jersey run by abolitionists. But Haidee had a secret: She was the daughter of Anderson and one of his slaves, with whom he had

"There is liberation, but also mourning, I had one woman say to me, 'This is like taking off my skin.' "

When Armacost and his moving team arrived at Baskin's house, they worked on thinking about the collection in different categories. Different rooms stored different categories. Sections were packed separately. Books were stacked three-deep on some shelves. "There was historic material everywhere, just everywhere," he recalls.

It would take them—a specialty moving company, art packers, and Duke staff with expertise related to the collection—ten days to pack. A friend asked Baskin how she could tolerate it. "I could not transmit to her how relieved I am, how my anxiety is diminished," Baskin laughs. "I don't have to worry about every story."

A special art packer flew in to build a custom crate on site for the Woolf desk, which was then sealed in Tyvek and layers of foam. No one was taking any chances. Armacost, who is an avid photo-sharer like Baskin, still has pictures of the crate-building on his phone.

On the final day, the last boxes were loaded onto two trucks—for insurance purposes it was better to separate the collection—and the trucks drove off. "I don't think anyone can be emotionally prepared for a moment like that," says Armacost. On his phone is a picture of the empty library with its bare vermillion shelves, and on the moss-green wingback chair sits Baskin's fox terrier, seemingly pleased to have the place to himself, finally.

That Baskin was able to part with the objects she had lived with and cherished for decades—all loaded into two trucks bound for a university to which she had no prior affiliation—is remarkable to Armacost. "I give her so much credit for tackling this," he says. "There are so many people unable to resolve things like this, or to let them go. And it's something very sophisticated in her ability to realize that it needs to be done, that it's important, that it needs to be saved."

That the curators are sensitive to the donors' feelings is an acknowledgement that adding to the Rubenstein Library's coffers is fully an act of scholarship. "Hopefully the things I get to

begun a relationship after his white wife died.

Gartrell was struck by the ways in which the letter resembled "a typical letter from father to daughter. He asks how her classmates are treating her, and tells her that everything is fine at home with her mother." He asks her whether anyone at the school suspects that she is black. Other letters reveal a dilemma: If he frees his daughter, who remains his slave under law, he will never be able to see her again, because slaves freed in Virginia were required to leave the state within ninety days.

"This man is conflicted about freeing his daughter because he will never see her again," says Gartrell. "For me that line of documentation flips what we think we know about the institution." There are no surviving letters in Duke's collection from Haidee to her father, and the mystery of what happened to her has stayed with Gartrell. "The trail goes cold," he says. "Maybe one day I'll be able to track down the rest of the story."

Or, maybe a student will find clues in the Baskin collection's abolitionist materials. Already other parts of the cache have proved fruitful. A scholar from Oxford, England, writing a book about the suffrage caravans that traveled from all corners to London, came to Duke to study an eighty-nine-page account of a suffrage pilgrimage from Baskin's collection. The scholar found she could identify the unnamed women in the photographs from her previous research. What's more, this new account had vital information about a fourth group that had been a mystery.

Armacost and Micham still e-mail or text Baskin regularly—her treasure hunting continues, as does theirs. "It's something you can't turn off after it's finished," Armacost says, referring to Baskin's collecting pursuits as well as his own. "We compare notes about catalogues or auctions. Sometimes I'll e-mail just to say, 'I saw this great thing. Thought you'd like to see it, too.' " ■

Jarvis Flynn is a writer and editor who lives in Durham.

Go to* dukemagazine.duke.edu *and listen to audio stories on the Baskin collection by Center for Documentary Studies students.


MINING

FOR ALL IT'S WORTH DATA

The Information Initiative at Duke puts students to work with outside companies to help them solve complex issues.

By Scott Huler

THE INTERNET ASSUMES EVERYONE IS WHITE. A strong statement maybe, but Winston Henderson B.S.E. '90, J.D. '96 takes out his phone to offer a simple demonstration.

"Let's look up 'female beauty,' " he says; he goes to Google and enters the term. He turns the phone toward you as his finger flicks through gallery after gallery, image after image of conventionally beautiful women. All of them slim. And virtually all of them white, especially on the first pages. "There's nothing I typed in that said, 'white, thin female beauty,' " Henderson says. Point made. The culture has a bias, and the technology reflects it.

Henderson has created a start-up, Sankofa, to try to address that complex intersection of technology and culture. Sankofa is in its earliest days, and Henderson says it will work on multiple levels, addressing both cultural blind spots (like those in his search-engine example) and the paucity of people of color in tech industries. "If you take out sales and manufacturing," he says, "you have less than 2 percent black and Latino workers" in tech companies.

Henderson, vice president and general counsel at Nano Terra, a Cambridge, Massachusetts, nanotechnology company, reached out to his alma mater to see whether Sankofa could get some help addressing both of the problems he had identified. He ended up working with Data+, a project of the Information Initiative at Duke (iiD), an interdisciplinary program that focuses on increasing student engagement in research into "big data" in various forms. "iiD is trying to set up a place where all the Duke divisions that think practically about big data can talk to each other," says Paul Bendich, associate director for curricular engagement of iiD and assistant research professor of mathematics. It's designed to get real data from Duke departments, outside companies, and the community, and, from there, to get students used to working with data, with a customer who has a specific need, and with each other.

Duke has big-data needs, and outside organizations do, too. All that means there's money to get students involved in complex data problems. But starting with some enormous, three-year funded study headed by a faculty member would limit students' opportunities to take chances and to get deeply involved in the fundamental questions the work raises. So Data+ starts small. With a small project the stakes are lower. "Having a small project is a way to get your feet wet," Bendich says. "We really conceptualize Data+ as a summer incubator of ideas that might go further."

He describes the internships Data+ provides as "a hothouse community of about seventy students" each summer. Those students come together in small teams of two, three, or four and address practical issues raised by actual clients. Projects might focus on the needs of campus departments (helping Duke Parking and Transportation design an app identifying parking spots) or community agencies (the Durham Crisis Intervention Collaborative needed to turn statistical data into understanding of how various mental-health interventions by the Durham police worked).

If you don't appear on the first page of Google, you don't exist.

The Sankofa Data+ team approached the way Google's algorithm underrepresented minorities and minority-related products by choosing an example: hair care. A quick Google search of hair-care products, once again, takes many screens before it yields any products for the African-American market. "If you don't appear on the first page of Google, you don't exist," Henderson says, and he wanted his Data+ students to reverse-engineer how what ended up on that first page got there. Plus, Henderson took a step further. Rather than just funding a project and receiving good work from Duke students on the problems his nascent company would address, he helped spark a collaboration between Duke and North Carolina Central University, its Durham neighbor. As the nation's first public liberal-arts institution for African Americans, Central had a natural interest in such a collaboration.

"How do you make sure you approach data with diversity?" Henderson asked. Duke had overwhelming strength in the data science, he says, "and you have a school across town with a very diverse student population." So it seemed like a perfect meshing of interests and abilities.

Weiyao Wang, a Duke sophomore majoring in math and computer science with a minor in political science, joined the project at the suggestion of one of his political science professors, who knew of his interest in big data and steered him toward Data+. In the group of four students on the Sankofa project, "I'm basically the tech person," he says. And using those technologies in social science fit directly with his broad interests.

The project consisted of ten weeks spent cloistered in rooms in Gross Hall with other Data+ teams. This closeness has purpose, says Bendich. The Sankofa team shared a room with a group focusing on data topology and geometry and another group gathering data on eye movement and food choice in a market—two other groups, that is, doing serious math and statistics. "We want them near other smart people working on other parts of the spectrum," Bendich says. "Getting a sense of the cultural-trade space—basically, what does it look like to do that kind of work?"

Data+ worries less about teaching students specific technical skills than teaching them to think like problem solvers. "Almost always the students will try to dive deep into technical things they want to learn," Bendich says, "and need to be pushed back to look at the bigger problem." That is, students naturally want to master skills like scraping data from Twitter or Google (using a program to turn images or words into data the team could

then analyze) or cleaning data (removing flawed data and rendering the remainder more ready for analysis) once they've got it. Skills that make résumés shine. "But we want to train students to do data science in the actual world," Bendich goes on. "There's grownup, adult research that goes on there." What the students learn in Data+ is "not just being tech nerds but collaborating with the social sciences and the natural sciences and the humanities."

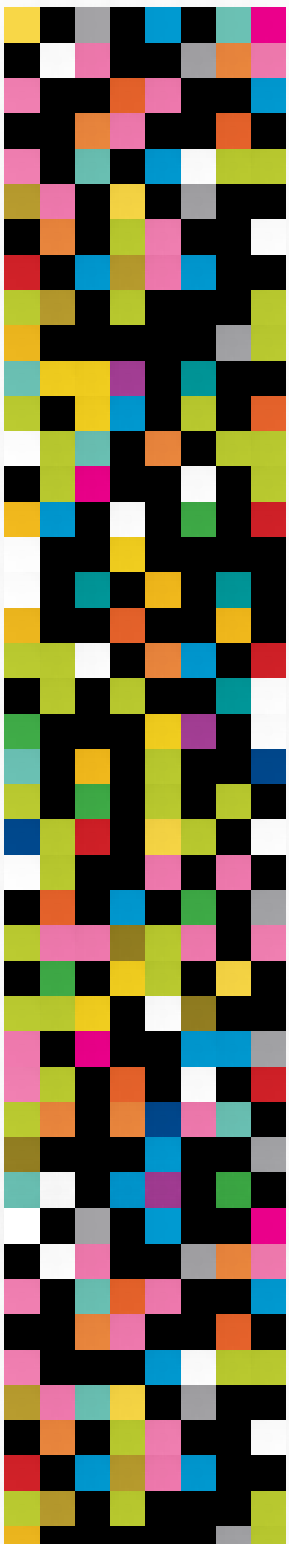
The students value that approach.

Wang describes the difficulty of trying to figure out how Google's search algorithm worked. He designed a Web-crawling program to perform search after search and use machine learning to analyze the results directly from Google and continue searching, but that didn't work well at first. "Google doesn't like people hacking them," he says, laughing. "It will return a lot of random stuff when you try to get html from a bot." Google can tell, that is, when a particular machine makes repetitive searches, staying on each result for a recognizable amount of time. Its machines know your machines are up to something. So Wang had to teach his bot to use proxies for his IP address so it looked like different users were generating searches, and to spend random time on the images it was analyzing, so Google couldn't tell so easily that a bot was peeping in its windows.

Though the group could never quite crack Google's algorithm, it was able to begin figuring out how it worked. The members learned that keywords played an important role, especially in domain information, as did the number of links to a page. If highly ranked pages linked to a page, that page's rank went up. As Bendich says regarding page rankings, they follow the high-school model of popularity: "You're popular if the popular kids say you're popular." And here's where the collaboration with North Carolina Central really paid off. "They identified better problems than us," Wang says of Central students Samuel Watson and Jarret Weathersby, who joined Wang and junior Jennifer Du of Duke. In figuring out the algorithm they were designing, "I was thinking we could manually assign higher scores to certain minority websites," Wang says, "because they're not that popular." That is, Wang would simply give higher scores to certain pages and see whether that improved their ranking in results.

Not so much. "They said all these minority websites are closely linked," he says—so no matter how high a score he gave minority websites, they were linking mostly to each other. The popular kids, in Bendich's parlance, still didn't think those pages were popular.

You're popular if the popular kids say you're popular.



Whereas the Duke students jumped on the technical issues, the Central students saw that connection and offered a better understanding of the complexity of the problem the team was trying to solve. "I mostly dealt with the cultural aspect of it," says Weathersby, a junior physics major at Central, "looking up different hair products or finding out what the African-American community is looking for in hair-care products."

In the shampoo search, after getting Google results for its initial searches, the team went to Twitter and performed sentiment analysis—finding people's opinions about shampoos by analyzing the words they use to describe them in tweets—and found the results significantly changed, especially when they seeded that information to increase relevance to minority searches. Their resulting algorithm gave better results than simply adding minority-related search terms to a Google search. As Wang puts it when describing a hypothesis he's continuing to investigate: "It's not the algorithm itself that's discriminating. It's just the result that reflects what society believes."

That they didn't crack Google's code doesn't worry Wang. "Our project was just to give Winston a hint of ways his start-up can go," he says. Bendich agrees. "We never want to assure companies that they're going to get commercial value out of this," he says. "It's more exploration of an idea—and exploration of potential hires."

That element of preparing students for research seems to be working. A discussion with one of his current political science professors has Wang continuing his attempts to provide more statistically sound search results. And Weathersby, according to Eric Saliim, director of the Fab Lab at Central, "took all that wonderful information that he learned and brought that back to campus and started an NCCU data program." That model of exploration in December 2016 netted Data+ the gold prize in the natural-sciences category at the Reimagine Education Conference and Awards at the University of Pennsylvania's Wharton School, which recognizes innovative programs that enhance both learning and employability.

As for Sankofa, Henderson says the results helped. Students learned a bit about the problems in online results, and they prepared themselves for the industry. "My hope is that it is the first step in an ongoing story," Henderson says. "How do you make the digital universe inclusive?" ■

THE DIPLOMAT

However murky the motivations, warming up to Russia is a good idea, says a onetime U.S. ambassador to the former Soviet Union.

BY ROBERT J. BLIWISE

Here's an exercise to focus the mind: Imagine a new nuclear-arms race with no end in sight—except, maybe, Armageddon. And so in late January, Jack Matlock's personal website carried his "Open Message for Presidents Trump and Putin." As the two leaders were preparing for a phone chat, the time was right to acknowledge that their countries should be cooperating around common problems, particularly the dangers associated with nuclear weapons.

Matlock '50 will keep making his case in conference settings and congressional testimony, in books and opinion pieces, and in the classroom. He'll do so with an earnestness that comes from authority. After all, his open message referred to a chapter in world history he had helped close: As one of the last U.S. ambassadors to the Soviet Union, he says he had "advised President Reagan on how to end the Cold War."

Now in his second year of teaching at Duke as a Rubenstein Fellow, he's one of the first recruited as a "thought leader" to engage with the campus on global issues. His permanent home is in Booneville, Tennessee, a town settled originally by a relative of pioneer Daniel Boone and, Matlock points out, a few miles from a Jack Daniels distillery. He and his wife, Rebecca Burrum Matlock '50, live on a farm (in her family for generations) of about 140 acres, soon to include plantings that will provide a butterfly sanctuary. Much of the land is wooded; the "working" part of the farm is rented out to a neighbor, who runs cattle there.

Images courtesy Wikipedia

Chris Hildreth

A point of pride for Matlock is a personal library of some 14,000 books, most of which are related to Russia. He keeps a small subset in his Duke office. On his desk are *The Crimea Nexus*, *Should We Fear Russia?*, and *Return to Cold War*; on the shelves, Cold War histories, Andrei Sakharov's memoirs, biographies of Ronald Reagan and Mikhail Gorbachev, some works by Dostoyevsky. On the wall is a scene from *The Master and Margarita*, by the Russian writer Mikhail Bulgakov. The novel was inspired by Goethe's *Faust:* The devil appears and unleashes the forces of darkness and destruction, with no diplomatic solution at hand.

One January evening, just before the promised phone summit, he is lecturing to the forty or so students in his class on "The U.S. and Russia, 1991-2017." They're packed tightly into a lecture hall in the Languages Building that could be a Cold War artifact. As they're settling in, they offer obvious reasons for being there: "There's a ton happening now" between the two powers; Russia is "a really relevant topic"; and, to at least one student, the career of this longtime diplomat could be a template for a future in the Foreign Service.

A senior in the class, Peter Jenka, later identifies himself as the only current Duke student from the Czech Republic. He says he admires Matlock for his evenhandedness. That admiration comes despite the fact, Jenka adds, that many in his own country—which was part of the Soviet bloc from 1948 to 1990 and whose 1968 "Prague Spring" was forcibly ended by an invasion of Soviet and Warsaw Pact forces—are enduringly wary of Russia's policies.

REAGAN had to convince **GORBACHEV** "that we did not

In his class, Matlock tells his students, "Be careful about asking me for more details. You'll probably get more than you want." Matlock has to be seen as an outlier in the age of diplomacy by tweet: He values the written word, and pithy statements are not his stock in trade. On his office desk he keeps a set of fountain pens along with a cigar box packed with small jars of ink. He occasionally makes journal entries by fountain pen.

Matlock brings personal history into his classroom lectures—for example, how he communicated word of a potential coup to the Soviet leader—along with a bit of insight into the world of diplomacy—for example, what makes a good interpreter. Reagan and Gorbachev agreed that a war between the two nations would be untenable, or unwinnable. That shared belief, Matlock tells his students, should remain a central tenet of the relationship.

And regarding some issues in the relationship currently: Did Russia, with approval at the highest level, interfere in the U.S. election? Probably, he tells the class. Did Russia want Donald Trump to win? Certainly, but it didn't expect his victory, and it probably didn't contribute much to it. What was the aim of the interference, then? To send a message, via document dumps, that the U.S. is not a perfect democracy; that its politics are messy and manipulative; and that, by the way, Russia has the wherewithal to break through data-security barriers.

Is there a fundamental conflict between the two countries? Not according to Matlock. But in class he reads out a letter from Vladimir Putin's political partner, Prime Minister Dmitry Medvedev. The letter blasts U.S. foreign policy for its interventionist tendencies, and it echoes an earlier statement that "we have slid back to a new Cold War."

The Cold War was just beginning when Matlock began as a student at Duke in 1946: The Yalta Conference, just the previous year, had awarded control of Eastern Europe to the Soviet Union, and Stalin had declared that communism and capitalism were incompatible. Russian wasn't part of the Duke curriculum. On his own, and just by chance, he read a translation of *Crime and Punishment* by Dostoyevsky. He says Russian literature would impress him with its psychological depth, that it would transport him into a very unfamiliar world. Later, when Duke added Russian, he registered for the first course. From there he added courses in Russian history and literature.

In his first book, *Autopsy on an Empire*, he writes about his instructors admiringly: One would "convey the nuances of Russian historical development without skewing the evidence to fit some particular theory or national bias"; another would lecture with "spellbinding gusto." While at Duke, he and Rebecca met at a gathering of the World Federalists, a group committed to world government as an answer to the scourge of nuclear weapons. (They married in their senior year.) Once the Soviet Union developed nuclear weapons, he says, it was clear that diplomacy rather than world government was a more workable solution.

After graduating with a history major, Matlock attended The Russian Institute at Columbia, where he earned a Ph.D. His dissertation looked at issues surrounding literary translation. The project required him to veer among English, Russian, French, and German in his writing, and so to keep switching out one IBM Selectric type ball for another.

It's almost trite to observe that words are the indispensable tool for the diplomat. But Matlock is a wordsmith across a spectrum of languages and technologies: In the 1980s he designed a Georgian font (that is, a typeface with a particular size, weight, and style) for a dot-matrix printer, using a program called Fancy Font. At the time, Georgian fonts were not available off the shelf. He used it to print out the Georgian text of a speech he gave in Tbilisi. Later he designed a set of Cyrillic fonts using a different program, Metafont. For a few years he wrote his journal in a mix of his Cyrillic font and a compatible modern font.

AP/ Bob Daugherty

1983, to work on the National Security Council staff. There he would develop a negotiating strategy with the Soviet Union that, if it wouldn't end the Cold War, would end the arms race.

Reagan and Gorbachev convened in Geneva in November 1985. Thirty years later, Matlock took part in a retrospective conversation at Duke. Reagan "knew that he had to convince Gorbachev that we did not want an arms race," Matlock said, "but if Gorbachev did want one, he would lose." Today he notes that Reagan's training as an actor may have encouraged him to discern "what made Gorbachev tick," to try to understand his character and the context in which he operated. And so it may have helped Reagan as a negotiating partner.

Two years before the summit, Kremlin leaders had come close to concluding that NATO war games in Western Europe heralded a likely nuclear first strike on Russia. Earlier Reagan had characterized the Soviet Union as the "Evil Empire," and—true to his cinematic past—had unveiled a vision for

want an **ARMS RACE**, but if Gorbachev did want one, he would lose."

He taught Russian language and literature at Dartmouth, then entered the Foreign Service in 1956. His first assignment was writing reports on internal Soviet developments. After a tour at the American Embassy in Moscow, he spent seven years in Africa. He writes in *Autopsy on an Empire* that he had requested the assignment because "I wanted to witness the formation of new nations out of the colonial empires which were disbanding. I understood that the Soviet Union itself was an empire and sensed that what happened in Africa in the 1960s might someday be relevant to the Soviet Union itself."

DIPLOMACY IN ACTION: Gorbachev and Reagan exchange pens during the Intermediate Range Nuclear Forces Treaty signing ceremony, in December 1987; between them is Gorbachev's interpreter, Pavel Palazhchenko, who flew from Moscow to Durham this spring to take part in Matlock's class.

In the 1970s he re-engaged with the Soviet Union, first as director of Soviet affairs in the State Department, then as deputy chief of mission at the embassy in Moscow. He was ambassador to Czechoslovakia and then went back to Washington, in defense against nuclear attack that was quickly dubbed "Star Wars." Such were the twists, turns, and misunderstandings that Matlock witnessed in his Cold War phase. The summit produced various exchange agreements; it did not produce a formal arms-reduction agreement. But one outcome, as Matlock recalled, was a statement "that a nuclear war cannot be won and must never be fought and that therefore no war could ever happen between us."

Matlock recalled that period in 1997, for an oral-history program at the University of California at Berkeley. During the Cold War, President Ronald Reagan "had very harsh things to say about the Soviet Union, all of which in my opinion were true, and they may have seemed undiplomatic," he said. "But they had a purpose. One was to delegitimize the system. The second was that he felt he had to build up—in poker terms you might say he wanted to have more chips on the table—to negotiate effectively. Thus, his arms buildup. But at the same time, he always intended to negotiate and to negotiate the best deals he could."

In his Berkeley oral history, he offered this advice to students aiming for a career in global affairs: "Number one, get as wide a

liberal-arts background as possible. Everything human is important to the diplomat. You're dealing with human beings; you're dealing with cultures. Second, make sure you're comfortable in cultures other than your own." An "optimistic nature" would also be an asset, he noted. "Finally, for heaven's sake, don't come in with some idea that you're going to change the world. You're not."

The world did change with the end of the Cold War. In November 1989, East Berlin's Communist Party announced that citizens of East Germany were free to cross borders, making the Berlin Wall, long the ultimate Cold War symbol, a meaningless barrier. Matlock had returned to Moscow two years earlier as U.S. ambassador. (His Duke office wall pairs the two framed certificates that made official the ambassadorial appointments, with Reagan's signature on both.) He felt it important to visit every republic in the Soviet Union, and so on that day he was traveling in Armenia, where tensions appeared to be brewing with another Soviet republic, Azerbaijan. The fall of the wall didn't surprise him, he says; by that point it had seemed to be a historical inevitability.

One observer of Matlock's diplomatic tenure is longtime commentator on Russian (and Soviet) affairs Dimitri Simes, now president of the Center for the National Interest. The center was established by former president Richard Nixon LL.B. '37 to serve as "a voice for strategic realism in U.S. foreign policy." Simes, a native Russian, says Matlock, as ambassador, was adept at balancing American interests and American values without seeming "patronizing or offensive" in his dealings with Soviet officials. "What was also helpful is that he spoke good Russian. He gave interviews to Soviet newspapers and he could explain the American position in a very articulate manner on Soviet TV, where, unlike his predecessors, he was allowed to appear."

Simes contrasts that record with other U.S. ambassadors who, as he describes them, saw themselves as "social engineers" in the "democracy-promotion business," obliged to "explain to Russians their imperfections." All of that "made them totally ineffective in terms of conducting meaningful diplomacy with the Kremlin."

According to Simes, Matlock had unparalleled access not just to the foreign ministry but to the top Soviet leadership as well. From his work on the White House National Security Council, he was considered "not just another career ambassador but Ronald Reagan's personal representative." Reagan was looking for a new beginning with Russia, even as Gorbachev was supporting the idea that the U.S. should no longer be viewed primarily as an adversary. "There was clearly a window of opportunity. But Ambassador Matlock knew how to walk into this window. Even around Gorbachev, people associated with the security services were quite suspicious of American intentions, and quite suspicious of a new American ambassador who used to work for Reagan, an American president who was seen as a hardliner."

After he completed his ambassadorial stint in 1991, Matlock was surprised by the return of hardline thinking. In 1997, he testified before the Senate Committee on Foreign Relations against the expansion of NATO. He argued that expansion would "convey to the Russian nation, and particularly their military, that we still consider Russia at least a potential enemy, unsuited for the same security guarantees and the same degree of cooperation that countries in Central and Eastern Europe are being offered." He added that "Europe is not divided today," but if Russia were to perceive a threat on its borders, that could change.

"Any attempt by the **U.S.** to reduce **RUSSIA** to subordination

AP/Manuel Balce Ceneta

LIFE BEYOND THE COLD WAR: Matlock, left, listens as Gorbachev speaks at a 2005 press conference in Washington, D.C.

Today he says, "The breakup of the Soviet Union along with the demise of communism was seen as a victory for the West. Liberal democracy was seen as the future of the world, the proper path forward for every country. I've never heard a more absurd non sequitur."

Such a triumphalist attitude, says Matlock, contrasts with the decision by the World War II Allied nations to build strong ties with the defeated Germany and Japan. He says it was predictable that Russia would lash out defensively, including sending fighters into Ukraine, right on its border, and annexing the chunk of Ukraine known as the Crimean Peninsula. Matlock says Ukraine is deeply divided between nationalists and Russian speakers who identify strongly with Russia. And Russia, as it happens, has its only Black Sea naval base in Ukraine. The U.S. invasion of Iraq, and even the earlier U.S. involvement in Serbia, had less rationale and produced worse outcomes, he says. "It's easy to say that one nation should not grab the territory of another, even though we haven't kept to

that principle ourselves. We don't have to approve the methods. But if most of the people in Crimea genuinely want to be in Russia, shouldn't that be a factor in our consideration?"

Matlock says he's no apologist for Putin; he sees the Russian leader as someone whose machinations help keep a fractured country together. In response to a question (from Czech Republic student Peter Jenka) in class, he says he has no doubt that in Putin's Russia, journalists have been targeted for assassination. He questions, though, whether Russia is a "totally centralized dictatorship" in which such decisions are made at the very top.

Noting the broad criticism that Putin has let loose anti-democratic forces, he says, "Russia has never had a functioning democracy," but Putin has preserved the most basic freedoms, including the freedom to travel. Russia's elections "are pretty much fixed," he says. "But even if they weren't, Putin probably would be winning them."

He tells his students that the greatest gift that

2012 AFP

STRONGMINDED BUT NOT SEEKING TO REINVENT THE SOVIET UNION: Putin rallies his supporters in Moscow.

helps keep **PUTIN** in power."

the U.S. and the West in general can give Putin is the stigmatizing of Russia. "Russians can put up with enormous deprivation if they think it's required for their honor or their patriotism. More than anything else, they fear chaos and anarchy. When they did not have a strong leader, things got decidedly worse. So any attempt by the U.S. to reduce Russia to subordination helps keep Putin in power. That's something our political leaders have had a hard time understanding."

A couple of years ago, Matlock and Putin shared a platform, along with the former president of the Czech Republic and the chairman of the Iranian parliament, at a conference in Sochi, Russia, the site of the 2014 Winter Olympics. Matlock reminded the audience that he had not been giddy with joy over the breakup of the Soviet Union: He knew it would produce economic hardship, social pressures, and security challenges for the shrunken empire. Putin, in the presence of the former ambassador, attacked the U.S. plan to install a missile-defense system in Eastern Europe.

Does Putin want to rebuild the old Soviet Union? Matlock scoffs at the thought. He cites a Putin statement that anyone who does not mourn the Soviet Union has no heart, but anyone who wants to put it together again has no brain.

By December 1991, when the Supreme Soviet recognized the dissolution of the Soviet Union, it had already become something quite different from the communist-ruled totalitarian state. Not only had it given up its "external empire" in Eastern Europe and recognized the independence of the Baltic countries; it was also in the midst of supporting democratic reforms throughout its internal empire. This past June Matlock wrote in the *New York Review of Books* that Gorbachev had tried to democratize the communist system, only to be overwhelmed by political forces within the U.S.S.R. that were unleashed by his reforms. "Rather than representing a Western 'victory,' the dismemberment of the Soviet state illustrated the dictum that a serious attempt at reform can be the most dangerous threat to an autocracy."

As he looks at the world today, Matlock is skeptical of American exceptionalism. He writes in his book *Superpower Illusions* that the Soviet Union "failed as a state because it was based on an ideology that caused its leaders to look at the world in theoretical rather than realistic terms. The Soviet ideology divided the world into opposing camps and postulated that only communist-ruled states could be reliable allies. It was permissible to impose communism by force because, as Marxist doctrine made clear, communism was the inevitable future."

In his view, it's not much of a stretch to see similar hubris in the American urge to impose its own standards—even, as he describes it, to carry the banner of an American empire—around the world. He says it's fine to see U.S. foreign policy as pursuing a moral course. But in the spirit of good old-fashioned American pragmatism, policy decisions should reckon with the likely consequences. "The first principle is the physician's admonition: Above all, do no harm. Part of morality is also having enough humility to realize we don't have the prescription for good behavior for every country in the world.

"How well does our democracy work at home? We are not exactly setting a model for the rest of the world." ■

A Reach Beyond Imagination

Mark Hecker's idea to take on youth literacy led to a nonprofit that's boosting students, academically and personally.

BY EDWARD G. ROBINSON III

Mark Hecker '03 takes the same approach every time. He shows up in front of a D.C. public high school, out-of-place in well-worn jeans and a T-shirt, or maybe a long-sleeve dress shirt with a very adult collar, carrying a homemade sign, looking like a protester.

This look is calculated. Here's this short, thirty-five-year-old white guy, standing outside a majority black public school, holding a poster-size sign, and smiling. Strange. Except the sign he's holding attracts a crowd like McDonald's golden arches. "Do you want a job?" the bold black ink on the white poster board reads.

For many of these teenagers, and others like them in this city, the answer is likely yes. What's the job, they want to know. How much are they paying? Is this guy for real?

Hecker—who maintains composure through every awkward handshake—explains why he's holding the sign and what the job entails. He's for real. If they qualify, he tells them, just fill out this form and return it. "You get them to slow down long enough to have a conversation," says Hecker, founder and executive director of Reach Incorporated, an acclaimed nonprofit program that pays high-school students to tutor elementary students in reading.

Hecker works hard to get them to stop. He sells his product. He's looking for ninth- and tenth-graders, he explains, no work experience necessary. His energy is consistent, his words encouraging and clear, never condescending or belittling.

His spiel attracts both boys and girls. Girls say they are good with kids. Boys say they want the money. Ultimately, he will

FDCONNECTIONS

Typically, Duke's Peer Tutoring program hires about **190** tutors in the fall and about **160** in the spring.

Michael Bonfigli/*The Christian Science Monitor*

decide if they are invited to participate.

Hecker says he's looking for the outlier, the underachieving student with potential hidden by attitude and perceived difficulty. He's looking for those students who've challenged teachers and worried parents. He's looking for those who've been bruised by trauma. He's looking for those students who've managed to stay in school yet haven't reached their greatest potential.

So far, he's found nearly a thousand of them.

"MR. MARK," as his students call him, created Reach Incorporated, now in its seventh year, to help where he noticed the system had failed.

After graduating from Duke, where he majored in psychology, Hecker completed graduate studies at the University of North Carolina, earning a master's degree in social work, then went to work for The National Center for Children and Families.

There, he was assigned general family casework, replete with the strife and turmoil that comes with directing displaced families. He worked daily with children confounded by the sluggishness and inadequacies of the system—social, educational, or legal. He watched as children fell behind in school and then were treated, he says, as "idiots" because their lives prevented them from succeeding. He watched as children fell through the cracks, despite diligent efforts from concerned adults. There were never enough resources or time. He only had two hands.

Secretly, he began developing a plan to address one of the many problems children faced. He would not change the entire system for everyone. He would not solve every problem. Who could?

But he could create a program that addressed youth literacy. The educational system was not designed to help many students catch up once they fell behind. He needed to answer the question, how do you catch up? If you're fifteen years old and reading at a fourth-grade level, how do you catch up?

Then there was the problem of fighting stigmas. If students needed to start with fourth-grade books, how do you get them to read them without creating tension in the classroom? Hecker quit his job in search of the answers.

His gut told him to trust the children he wanted to help. He had worked with so many kids with varied backgrounds, and he felt they all wanted to succeed, despite their circumstances. So he thought about pairing older students with younger students. His program would target just the tutor and the student getting help with reading. He would target students who had been failed by the system in some way.

He got a job in education, teaching math, science, English, and history in a one-room school to students in the sixth through twelfth grades. He worked with youth transitioning from prison. He experimented with his idea. "Just to see if it worked," Hecker says. "I discovered pretty quickly that it was a good tool in energizing students who aren't usually energized."

The entire idea revolved around giving teens the opportunity to be seen. "They feel important," Hecker says. "If you don't feel like you can make a difference in the world, you're not going to try. When you're able to see that people depend on you and your actions matter, it's really a strong motivator."

MYLIA HEADSPETH, a high-school senior at Capital City, walked out of school one spring day in 2013, as a freshman, and noticed Hecker's sign. She sped over to him. "It was so out there and blatantly honest," she says. "I was like, 'I respect that.' " After helping Hecker pronounce her name, she applied, was accepted, and started her first job.

No one prepared Headspeth for what came next. At that time, she earned decent grades but was known for a sassy attitude with teachers and students. She was trying to change her reputation, make something of herself, maybe one day go to college, and change life for her family. Now she would be earning $100 per month tax-free. "It was so beautiful," she says.

Until it wasn't beautiful at all. It started when Reach introduced Headspeth to a spitfire second-grader named Taylor, whose wisecracking, stubborn personality reminded her of herself. For several days per week, over the course of several months, the task at hand was to help Taylor read a variety of material. After school, they linked for one-on-one tutoring. They sounded out small words. They spelled out big words. They stared at each other. She tickled the little girl to wake her up. She fussed with her to keep still. But they both experienced a breakthrough.

Eventually, they grew as readers. And something else happened: They developed skills they never imagined.

Headspeth, a college-bound senior, tackled her anger-management issues, her level of professionalism deepening every

A **2016 Duke study** found that allowing people to see their brain activity might help them motivate themselves.

year she remained in the program. Her overall behavioral issues dissipated. That, Hecker says, happens with experience, exposure, and opportunity, all provided to students who participate in Reach Incorporated programs.

Reach helped Headspeth see her bright future by providing several opportunities for her to visit colleges. In her mind, pictures lie, so seeing, firsthand, campuses like Morgan State University validated the talk. "It's opened my eyes," she says.

Hecker, who develops personal relationships with each student, taught Headspeth a few things, too. She noticed his firm handshake the first day she met him. He looked her directly in the eyes and acknowledged her presence. He taught her his secret shake, and that, combined with her newfound confidence, has her prepared for what the world brings next. "Now I break hands," she says proudly.

Courtesy Mark Hecker

SCOTT HECKER recognizes his younger brother's motivation from a loss that defined their teenage lives. Their father, Andrew, died at fifty, from cancer. He sees his brother's devotion to others, especially children, as a way to honor their father, who lived by the same code.

The three brothers, including youngest Brian, thirty-two, grew up in Cheltenham Township, Pennsylvania, where they were sportsmen who tried their hand at everything. Mark excelled at swimming and water polo. He was solid at baseball, and in basketball had an ugly, flat jump shot that always fell through the hoop. He also possessed a wonderful singing voice and played guitar. Not long ago, his brother tried to get him to try out for *American Idol*.

Their father was a lawyer by day and a volunteer by night. Andrew Hecker started his own firm in the late 1970s, and it grew in success and stature. The elder Hecker remained active at church and advised youth groups. He especially loved the arts, where he worked with theater groups and designed sets.

Moreover, if Andrew Hecker could help, most often he did. His example rubbed off on Mark, who in high school volunteered to work with at-risk youth. Mark also served as a swim coach for a local team.

Mark was thirteen when his father died. Before he did, Mark took over at home. He cleaned and packed his father's surgical wounds and helped him function. After his father died, Mark, still in middle school, started raising money for cancer research. By the time he reached high school, Mark was holding parties and a silent auction, enlisting local sports teams and a variety of organizations, all to raise funds for research.

"He's not just going to sit there and sulk," says Scott Hecker. "He finds a way to contribute and take action. Instead of not changing the situation, seeing something not right or not working, he's going to address it."

WHEN HECKER QUIT his job as a social worker, his biggest supporter was Lanae Holmes, his boss. She encouraged him to follow his dreams, execute his plans, and excel at Harvard University, where he pursued a master's degree focusing on school leadership.

Hecker had shared his idea, and she thought his practical, passionate approach would work. "I knew something good was going to come out of that," Holmes says. She thought, *this is so simple but it just might work*.

She had come to know Hecker as cool-headed, someone who never got overwhelmed by the needs of his clients. He never felt sorry for children. Despite their deficiencies and deficits, he'd pick out the special things about each child and celebrate those. Then he'd figure out what the child needed to make the next step.

That attention to detail remains. Pamphlets about Reach Incorporated are adorned with the slogan "Confident Readers, Capable Leaders."

These days the company has six full-time employees and is located in a one-floor office about ten blocks from the Capitol. In its seventh year, Reach has nearly 400 kids participating each year

Despite their deficiencies and deficits,
he'd pick out the special things about each child and celebrate those.
Then he'd figure out what the child needed to make the next step.

A GOOD READ: Trevon Evans, a tutor at Washington's H.D. Woodson Senior High School, shares *Corduroy* with a student.

Songwriter **Kara DioGuardi '93** was a judge during *American Idol*'s eighth and ninth seasons.

across eight sites around the city. The overall concept has been refined as new groups of teenagers tutor elementary-age children. With each new cohort, the staff has tweaked the curriculum to match the needs of the youth. Last year, the program experienced its largest growth with 100 additional students joining.

Back in 2010, there were forty students enrolled. The goal is 500 by late 2017. Among the high-school students who have mentored youth, fifty program graduates have been accepted into college. Internally, employees speak modestly of their success. Outsiders have started to notice.

In 2015, the National Book Foundation awarded the program its Innovations in Reading Prize. The list of accolades has piled high over the years.

Holmes agreed to join Reach's board of directors and signed the organization's nonprofit paperwork to become incorporated. Along with Hecker's family, friends, and supporters, she spent hours in his brother's basement helping Mark create a business model.

Hecker pitched Reach Incorporated to city officials, corporate executives, teachers, counselors, principals, and whoever else would listen. In the program's first year, he cultivated relationships that have since paid dividends. He had to capture the minds of those who couldn't understand the concept. It took months. He felt the pressure as he constructed his business from scratch. There were many fifteen-hour days, reading manuals, placing calls, requesting book donations, and soliciting financial support.

The hardest part, of course, was raising money. That's become a little easier as the program has been recognized for its success. AT&T awarded the program a $90,000 grant last year. It's one sign to Hecker that people are finally paying attention.

"Credibility matters for us," he says. "You have to have some substance to pass muster" with an organization like AT&T.

Courtesy Mark Hecker

LESSONS: Ninth-grader Lashawn helps third-grader Ricardo. They see each other twice a week.

IT'S PAYDAY on this recent winter night in February, and Mr. Mark has arrived at Beacon House on the northeast side of the city. In a back room, teen tutors and elementary-age students close the evening session with "shout-outs."

They go around a circle and acknowledge the efforts of participants that day. The young thank the old, and vice versa. Their energy is high and their laughter contagious. Hecker can't help but smile. He seems to know most of the students. But there are some new faces. Eventually, he's introduced to one elementary-age student holding a medal in his hand.

"What did you get the medal for?" Hecker asks.

"I got straight A's," the boy says.

"Get out of here," Hecker says.

The young man proudly nods his head up and down.

Hecker congratulates him. He then shakes hands with identical twin brothers Kairea and Kairon Cunningham, both seventeen-year-old juniors. Kairea, a third-year tutor, hands Hecker a local college brochure and remarks about the scholarship offered to students who achieve a 3.7 grade-point average or better.

This is new territory for him, but the program has taught him to be a more efficient student, to stay on task. College is no longer an unimaginable destination. This program, he says, has changed his life.

"Mr. Mark is spectacular," Kairea says. "He's a real great boss. He just puts smiles on people's faces, even when they are down."

Kairea shakes hands with the boss and accepts his check.

"It's good earning my own money," he says. "But at the end of the day, I think about what the kids take back to school. It's important." ■

Robinson is a former sports reporter for The News and Observer *in Raleigh and a lecturer at Morgan State University in Baltimore. He lives in Washington, D.C.*

A **Duke study** found teachers were more likely to stay when they were satisfied with their principal's leadership and with the school climate.

ForeverDuke

On November 9, 1989, the Berlin Wall began to fall in Germany, and with it communism in Eastern Europe. **PENKA KOUNEVA Ph.D. '97** was an aspiring composer living in Bulgaria, and her parents told her it was time to leave.

"There was chaos. Nobody expected communism to collapse," Kouneva, now a Hollywood video-game composer, says of that time. "My parents told me, 'You have to look for an opportunity to study composition in the United States.' "

And she did. Kouneva scrambled to finish her application to Duke to pursue music composition and received the prestigious Mark Duke Biddle Fellowship in composition. At Duke, she studied with composers Stephen Jaffe and Scott Lindroth, and she became the university's first Ph.D. in music composition. "That was the most life-changing moment in my life, ever," Kouneva says.

Courtesy Penka Kouneva

But getting to Duke certainly wasn't as easy as it sounds. There were obstacles along the path, much like the barbs and bunkers of video games, that Kouneva overcame with a mix of determination, grit, and even a little of something that seems like fate.

Kouneva didn't know anything about Duke until a chance encounter with an ad placed in the International League of Women Composers' newsletter in 1989. But even before then, she faced the challenges of living as a young girl who dreamt of composing in a society that didn't envision that career for her. She couldn't get into composition classes open to her male classmates, she says, even though she was composing music for children's theater as early as age twelve.

Pursuing her dream, however, was something fully supported by her parents. Kouneva's mother, a professional musician and professor of music theory, was her family's fourth generation of college-educated women, while her father was a scientist.

"The composing process gave me a sense of: This is something I can do, this is something that makes me who I am—and I just kept doing it," Kouneva says.

Fast-forward to today, and Kouneva is still doing it. For the past seventeen years, she's worked as a composer for films, television, and video games. Her work includes composing and orchestrating the music for *The Transformers, The Matrix,* and *The Pirates of the Caribbean* films and video-game series, the documentary-style television show *Forensic Files*, and a host of video games, including *Prince of Persia* and *World of Warcraft*.

She moved to Los Angeles shortly after earning her degree, without a job and without knowing anyone. But it wasn't long before Duke's network intervened.

She met Patrick Williams '61, a well-known composer who has scored music for nearly 200 TV films, feature films, and television series, including *The Mary Tyler Moore Show,* and who was the musical director for Frank Sinatra's final studio recordings. Williams became her mentor and introduced her to fellow composers, including Bruce Fowler, the orchestrator for Hans Zimmer; and Steve Jablonsky, the lead composer for the *Transformers* film series produced by another Duke alumnus, Mark Vahradian '89.

Kouneva says she's deeply grateful for all Duke has done for her in helping her to pursue her composing dreams. As a mark of that gratitude, she gave the music department $10,000 in 2015 to make a way for orchestral works by graduate students to be performed and recorded by the North Carolina Symphony Orchestra, which the composer says will help students have a competitive edge in the field.

Making a way for others to pursue a career in composing is as much a passion for Kouneva as is pursuing her own goals. Recognizing that she works in a field in which women are underrepresented, she teaches classes for and mentors young female composers.

In 2015, Kouneva composed a cinematic orchestral album called *The Woman Astronaut*, inspired by the fact that "there are more women astronauts than women composers for film." It follows the path of a female astronaut from Earth, from taking flight to entering space, and closes with a song called "Solar Flare." A solar flare occurs when magnetic energy in the solar atmosphere builds up and explodes—the equivalent of millions of hydrogen bombs exploding all at once.

Booming and triumphant before lingering in haunting silence, the song draws the listener into the explosion of determination and tenacity Kouneva always has been. "I was willing to go through whatever I had to in the name of being true to my passion," she says. ■ ***—Christina Holder***

In 2012, **Ben "Merlini" Wu '09** quit his job at a trading firm to become a full-time video game player.

After graduating from Duke, **SOLEIO CUERVO '03** found himself in Silicon Valley, where he was developing a social-commenting tool nicknamed the "awesome button" by employees at a then little-known social-networking site.

That tool eventually became what is known as Facebook's "Like" button, one of several tools, including Facebook Video, Messenger, and Groups that Cuervo is credited with developing and launching during his six years at the company.

Though he's often pegged solely as the "Like" button designer, the entrepreneur and software developer sees the tool and the cultural phenomenon it ushered as one stop in a career built upon the ability to see "the possibility in a product," he says. The "Like" button, for instance, stayed in "product purgatory" for almost two years, Cuervo says, and launched with a healthy dose of internal skepticism that it would last.

Courtesy Soleio Cuervo

Eight years after its debut, it is the signature gesture of the world's most active social-networking site (1.79 billion monthly users), has been copied by millions of other websites, and has morphed into an even more precise tool for expressing social feelings via emoticons that display love, anger, surprise, sadness, and laughter.

That ability to envision possibility was a product of part personality and part Duke—where Cuervo studied music composition via Duke's interdisciplinary, create-your-own-adventure major, Program II, and taught himself Web design and development on the side. In between his studies, Cuervo launched a side business from his dorm that helped Duke organizations launch and maintain an online presence. His work caught the eye of a Facebook recruiter and landed him a job as the company's second designer as it was just starting up.

Cuervo left Facebook in 2011 and later joined file-collaboration platform Dropbox, first as an investor, and later as head of design, taking the company from a team of three designers to more than forty designers, researchers, and creatives.

Now an entrepreneur and early-stage investor, Cuervo hasn't lost his passion for the possibility of new invention. He is as disciplined in looking for the next new start-up to invest in, as he has been in his career track. That's a lesson he hopes to pass to Blue Devils who come after him, he says.

"Cultivate good habits. College is an environment that will command a lot of your attention and allow you to lead an undisciplined life," he says. "I think people who cultivate discipline in an environment like this are the ones who really thrive later on." ■ ***—Christina Holder***

Research by **KAFUI DZIRASA Ph.D. '07, M.D. '09** on using neurobiology to find new treatment methods for mental illness has earned him a TedMed talk, a visit to the White House during the 2016 White House Frontiers Conference, the Presidential Early Career Award, and numerous other awards and acknowledgments.

Yet, neurobiology was not his initial goal when he began his academic career. In fact, before coming to Duke, Dzirasa attended the University of Maryland, where he received the prestigious Meyerhoff Scholarship and earned a degree in chemical engineering.

Two chance meetings led to his interest in using neurobiology methods to treat mental illness. As part of several undergraduate biomedical engineering classes, he participated in a lab tour at Duke where he met Miguel Nicolelis, the Duke neurobiologist well-known for his work on neuronal population coding, brain-machine interfaces, and neuroprosthetics. That work got Dzirasa thinking about the possibilities of using his engineering knowledge in a neuroscience context.

Then, during his first clinical rotation, he spoke with a war veteran who was experiencing the symptoms of schizophrenia. "Nobody could tell me what had changed about his brain; nobody could tell me how the medications worked. All of a sudden the idea of using the same technologies that were being used to create robotic arms and legs, to create prosthetic devices for psychiatric illness became a real driving force for me."

Dzirasa went back to his mentor Nicolelis and proposed a research project that would answer the question of whether neuroprosthesis could be used to treat mental illness. He has been working on the project ever since.

Dzirasa ultimately hopes his work will lead to a breakthrough in the way we treat mental illness. He's also set to take a leading role in the newly formed Next Generation Research Committee, a committee sponsored by the National Academy of Sciences that aims to identify policy changes and programs that will aid the U.S. in increasing and supporting the next generation of researchers in the biomedical and behavioral sciences. ■

— Lynn Brown

The former e-scene competitive player now is a professional **DOTA 2** streamer and consultant.

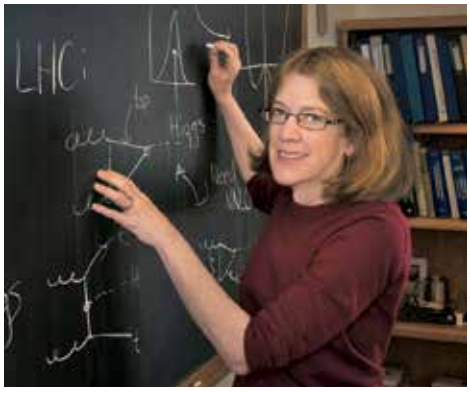
ForeverDuke

Newsmakers

ericoberstein.com

Eric Oberstein '07 is a producer on *Cuba: The Conversation Continues,* which won a Latin Grammy Award for Best Latin Jazz Album.

Sally Dawson '77 was named a recipient of the J.J. Sakurai Prize for Theoretical Particle Physics.



Brookhaven National Laboratory

Yale College Native American Cultural Center

Kelly Fayard '02 is director of Yale's Native American Cultural Center.

Lisa Radinovsky Ph.D. '99 teamed up with a Princeton-educated computer scientist to produce a new website about Greek olive oils, greekliquidgold.com.

Research ecologist **Chris Oishi '97, Ph.D. '12** studies the journey of water by analyzing watershed data that have been recorded every five minutes since 1934 at a hydrologic lab in Otto, N.C.

Frankie Fouganthin

Sara Danius Ph.D. '97 is the permanent secretary of the Swedish Academy, a role held by men since 1786. Danius had the honor of announcing the 2016 Nobel Prize in Literature winner, Bob Dylan.

A film by Duke Young Trustee **Jamal Edwards '16**, *See Me in My Black Skin*, was among winners of MTV's Look Different Creator Competition.

The Chronicle

Ben Hillo

Carl Kurlander '82, the screenwriter for *St. Elmo's Fire*, now is a professor at the University of Pittsburgh, where he teaches the art of the screenplay.

Eric Greitens '96, a former Duke boxer, Navy SEAL, and Rhodes Scholar became governor of Missouri in an unprecedented gubernatorial race in which the first-time politician defeated long-running attorney general Chris Koster. In other election news, Blue Devils returning to Washington for the 115th Congress include: **Dan Lipinski Ph.D. '98** (D-Ill.), **Mo Brooks '75** (R-Ala.), **Bradley Byrne '77** (R-Ala.), **David Trott J.D. '85** (R-Mich.), and **Scott Peters '80** (D-Calif.) in the House; and **John DeFrancisco '71** (R-N.Y.) and **Rand Paul M.D. '88** (R-Ky.) in the Senate.

Charlie Rose '64, J.D. '68 received the 2017 William Allen White Foundation National Citation for outstanding journalistic service.

Daina Falk '05 published *The Hungry Fan's Game Day Cookbook*, which features favorite recipes of professional athletes.

Jennifer Manning '94 was elected corporate secretary and associate general counsel of The Coca-Cola Company.

Martin Dempsey A.M. '84, former chair of the Joint Chiefs of Staff, was elected to the board of directors of the Bob Woodruff Foundation, which seeks to meet the needs of veterans.

Have news to share about your achievements and milestones? Submit a class note and read your classmates' latest news by logging into alumni.duke.edu.

Chris Hildreth

1.2.3.
QUESTIONS FOR...
Lynn Chen A.M. '06

Sterly Wilder '83, associate vice president for alumni affairs, talks with Lynn Chen A.M. '06, an entrepreneur and founder of China Logics, a cross-border advisory firm that works with start-ups to devise market-entry and fundraising plans. As China Logic's chief consultant, Chen travels between the U.S. and China to identify investors and match them with start-ups. A former Groupon sales director who developed a passion for entrepreneurship as a child, Chen is the founder of several start-ups. At Duke, Chen completed a master of liberal studies degree; she went on to earn an M.B.A. from Columbia University. She has been involved with DukeGEN and the Duke Women's Forum in New York.

Scott Goldsbury

What's a day like in your life as an entrepreneur?

It's chaotic! A lot of the ecosystem for an entrepreneur is staying involved and developing. So, I reserve two nights per week to go to networking events. Sometimes DukeGen comes to New York. I meet a lot of entrepreneurs through those events. The challenges we face are similar, and I'm reminded that this is a community that is always there for me.

I'm currently advising two start-ups whose founders are Duke alums: M.S.Q. Ventures, started by two Fuqua alums who are basically doing a cross-border boutique banking business; and The Pill Club, which is like a "Dollar Shave Club" for women's birth control. Through my consultancy business, China Logics, I work on projects for more established companies in the health-care tech space. And then, of course, there are my own start-ups. Those things keep me busy! I usually work to midnight.

On your LinkedIn profile, you've declared you are "crazy about start-ups and smart, driven entrepreneurs." Where did that passion for entrepreneurship begin?

I think the entrepreneur bug started with my family. I grew up in China, and my mother started a business selling electronics in the 1980s. She started with one store and turned it into a wholesale business. When I was five years old, I started hanging out at the store with her, interacting with the customers. That early experience showed me that I wanted to help others, to see more entrepreneurs live their dream. I get energy from that.

What is your advice to Duke students and alumni who would like to pursue an entrepreneurial path?

There's never going to be a perfect time. When you think: Can I take a leap? Can I leave my full-time job? You should think rationally—but in the end you need to listen to your heart. You also need a contingency plan. How much time will you give yourself to pursue your dream? If you're thinking about starting a company, you really need to think about who you can start it with. If you haven't worked together—if you're just social friends—that really doesn't guarantee your venture success together. So you need to think about who will be on your team—and then start something immediately to test it out.

—Edited by Christina Holder

Re-create Your Favorite Duke Memory

Enter the #MyDukeMoment contest now for the chance to re-create your favorite Duke memory during Reunions Weekend, April 7-9. Submit a favorite photo on social media using #MyDukeMoment. We'll select a few winners to re-create their photos with a professional photographer during Reunions Weekend.

Party Crashers

You never know when DAA might crash your party. The #CrashMyHoopsWatch campaign sends DAA staff to surprise one regional "Hoops Watch" with upgrades to their party. On March 4, that party was in Seattle for the Duke-UNC men's basketball game. Nearly 100 alumni were welcomed to their party with a photo booth; prize giveaways; commemorative pint glasses; and a meal flown in from Durham's Bullock's BBQ. See all the fun on DAA's Facebook page.

Getting Started

The Eighteenth Annual Duke Start-Up Challenge is in full swing, a competition that invites Duke's entrepreneurial-minded community to pitch ideas for new businesses. This year's competition features a handful of teams that have been competing over the course of eleven months with the help of Duke alumni mentors. The Start-Up Challenge will culminate this fall with a $50,000 prize for a student team and a $10,000 prize for an alumni team to bring their ideas to life.

GO!

A Home on Campus

Duke approves plans for a new alumni center.

For the first time in Duke's history, alumni will have a place of their own on campus. Construction of a new alumni center—a four-building cluster that will include event space, meeting rooms, offices, and Duke-themed exhibitions and displays—is beginning this spring, with the goal of opening in 2019.

Situated at the main entrance to campus at Chapel Drive and Duke University

Road, the center will be a gateway for the thousands of alumni and visitors who come to Duke each year. Plans are for three new buildings, the largest of which is a 20,000-square-foot events pavilion that will provide a stunning backdrop for on-campus events such as Reunions and Homecoming, as well as the restoration of the historic home at 615 Chapel Drive. The Chapel Drive house, one of the faculty homes built as part of the original construction of West Campus, was renamed Forlines House in honor of former trustee and Duke Alumni Association president John A. Forlines Jr. '39.

NEW SPACE: Left and above, renderings of the new alumni center show a modern building with echoes of Duke's architectural roots.

Designed by Connecticut-based Centerbrook Architects & Planners, the buildings will be arranged in a quadrangle behind a grassy lawn. They will be modern in style, with arches and Gothic accents that echo Duke's architectural roots.

"We think this center will pretty quickly become one of the most-visited places on campus," says Sterly Wilder '83, associate vice president for alumni affairs. "Together these buildings are going to create unparalleled opportunities for us to welcome alumni and connect them with the ongoing life of Duke."

—Michael Penn

TRUE BLUE

Bob Belmaker M.D. '71 talks about meeting and connecting with Blue Devil travelers.

My wife, Elaine, and I are both graduates of Duke Medical School—Class of 1971—and we have lived in Israel since 1974. Elaine is a public-health specialist, and I am a psychiatrist, and we have spent many an enjoyable weekend acting as tour guides for our colleagues who are visiting Israel. A few months ago, I happened to be reading *Duke Magazine* and noticed an ad from the Duke Alumni Association announcing that Duke Travels was making a trip to Israel. Elaine and I jumped at the chance to meet these Blue Devil travelers, and I e-mailed Beth Ray-Schroeder '83, director of Duke Travels, to invite the group to our home.

Sylvia Lin '93

WELCOME: Belmaker, far right with beard, with some Blue Devil travelers.

What we didn't know was that we would find a special bond with one of the travelers.

Terry Reisman M.D. '68 and his wife, Marilyn, were on the trip. Terry, who now lives in Tallahassee, Florida, and Elaine and I were all at Duke Medical School at the same time. I did not know Terry at Duke, but within minutes of talking, we discovered our time overlapped. We pulled out my old yearbooks, found our photos, and recalled many of the same stories. Terry shared how much Duke has changed over the years, which was especially appropriate, because Elaine and I headed back to Duke's campus in November for our medical school's forty-fifth class reunion.

I was reminded during this encounter with fellow Blue Devils in Israel that Duke folks are special folks. The friendliness and warmth in our house overflowed. We reminisced, we bonded with old and new friends, and we ended the night with a larger Duke family. Best of all, we hope to continue to be on the itinerary of future Duke Travels trips. ■

Learn about more Duke Travels trips at **alumni.duke.edu/programs/duke-travels**.

DUKE OSCARS

The annual Academy Awards are behind us—but we're giving out the Duke Oscars. See the Blue Devils who are making a mark on Hollywood from the writer's room to the big screen.

Best Supporting Actor

While **Annabeth Gish '93** was getting settled in her Duke dorm, the '80s cult classic *Mystic Pizza* with Julia Roberts was being screened on campus. But the actress took a break from movies while at Duke, studying English with renowned professors such as the late Reynolds Price '55 and keeping up with acting via the drama club. After graduation, Gish headed back to Hollywood to take on supporting roles in films including *Wyatt Earp*, *Nixon*, and *Beautiful Girls* before switching screens to TV, where she appeared in shows including *The X-Files* and *Sons of Anarchy*. In 2017, watch Gish in crime thrillers *Term Life* with Vince Vaughn and *Before I Wake* with Kate Botsworth.


Twitter

Ken Jeong '90: Comedian and actor known for his role as gangster Leslie Chow in *The Hangover* trilogy. Jeong also is the creator, writer, and lead actor of ABC sitcom *Dr. Ken*.

Best Picture

After leaving corporate law in his mid-twenties, **Teddy Schwarzman J.D. '06** learned the ropes as an on-set production assistant and a film agent, and founded his own production company, Black Bear Pictures. After four films, Schwarzman hit it big with *The Imitation Game* in 2014, a biopic film that follows the life of the father of artificial intelligence Alan Turing, who cracked Germany's "Enigma Code" during World War II. Schwarzman wrested the screenplay from thirty producers also vying for the script when Warner Bros. let it go in 2012. *The Imitation Game* went on to earn eight Academy Award nominations, including Schwarzman's own for Best Picture.


Courtesy Teddy Schwarzman

Mark Vahradian '89: Paramount Pictures producer known for his work on Hollywood blockbusters such as the *Transformers* series.

Best Red Carpet Look

When **Booth Moore '94** arrived at the *Los Angeles Times* in 1998, she broke into the fashion beat as the newspaper's style and party columnist. Six years later she rose up as the *Times*' first-ever fashion critic, reporting on designers such as Karl Lagerfeld and Donatella Versace and covering Oscars' fashion during her nearly two decades at the newspaper. Today you'll find Moore reporting on the latest designers and celebrity style trends via *The Hollywood Reporter*, where she works as the magazine's senior fashion writer.

Dave Karger '95: On-air entertainment personality and former correspondent for *Entertainment Weekly* and Fandango.

Steve Pressfield '65 was a screenwriter of *Above the Law*, starring Steven Seagal, and *The Legend of Bagger Vance* was based on his book of the same name.

Best Original Score

Patrick Williams '61 is one of Hollywood's most prolific composers—writing music for nearly 200 TV films, feature films, and television series combined including *The Mary Tyler Moore Show* and *The Bob Newhart Show*. As a student, Williams directed the student Big Band group known as the Duke Ambassadors. He went on to conduct Frank Sinatra's final studio recordings and has arranged music for stars such as Michael Buble, Natalie Cole, Gloria Estefan, and Barbra Streisand. Williams has been nominated for the Pulitzer Prize in music and an Academy Award and has received two Grammys and four Emmys.

Penka Kouneva Ph.D. '97: Film and video game music composer who has written scores for the *Transformers* movies series and collaborated with composers such as Hans Zimmer. Read more of Kouneva's story on p. 66.

Best Original Screenplay

Before becoming a Hollywood screenwriter, **Eric Kirsten '91** founded a software company acquired by Disney and worked as the head of basketball programming for ESPN. In 2012, his screenplay *The Lighthouse*, about the Chrysler Building's race to become the world's tallest building, won a place on The Black List's best unproduced screenplays. Kirsten went on to write the script for *Midnight Sun*. The film was acquired by Open Road Films, which won a Best Picture Academy Award in 2015 for the film *Spotlight*. Kirsten's latest script moves closer to the screen with the filming of the psychological thriller *The Uninvited Guest* by Apex Entertainment *(Secretariat, Million Dollar Arm)* this spring.

Alisa Lepselter '85, far left: Editor of Woody Allen's films since 1999.

David H. Steinberg J.D. '93, left: Screenwriter of *American Pie Presents: The Book of Love, American Pie 2*, *National Lampoon's Barely Legal*, and *Slackers*.

Randall Wallace '71: Academy Award-nominated screenwriter of *Braveheart*, *Pearl Harbor*, *We Were Soldiers*, and *The Man in the Iron Mask*.

Best Cinematography

A Raleigh screening of Stanley Kubrick's *A Clockwork Orange* in 1971 changed **Robert Yeoman '73**. The psychology major vowed to study film after Duke and entered the University of South California's School of Cinematic Arts. He earned an M.F.A and worked on films such as William Friedkin's *To Live and Die in LA* and Gus Van Sant's *Drugstore Cowboy*. Those films eventually led Yeoman to Wes Anderson. Yeoman has worked on every Anderson action film to date, including *Moonrise Kingdom* and *The Grand Budapest Hotel*—the latter which earned Yeoman a nomination for an Academy Award for Best Cinematography in 2014.

Robert L. Cook '73: Former vice president of software engineering at Pixar Animation Studios. Cook created a computer-graphics program he dubbed RenderMan, which creates computer images that look like photos. Cook received the Academy's first Oscar for software in 2001 because of the contributions of RenderMan, which has been used by every film nominated for an Academy Award in the Visual Effects category in the last decade.

Courtesy Pixar Studios

Among other films, **Jared Harris '84** has appeared in *Lincoln*, *The Curious Case of Benjamin Button*, and *Allied*.

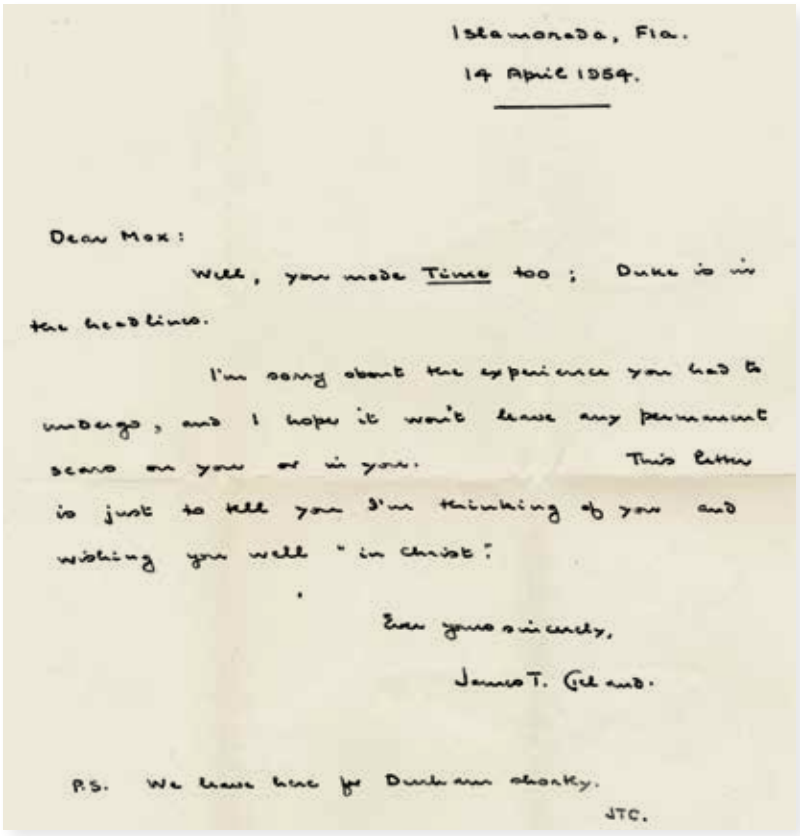
CATCHING UP WITH THE CLASS OF '97

Naomi L. Zweben
She works as a marketing and business strategy consultant in the Columbus, Ohio, area.

Danielle P. Turnipseed
After earning a master's degree in health service administration and a law degree, she has her own firm in Washington, D.C., and is a vice president for America's Health Insurance Plans.

Benjamin R. Peyser
Now a director and cinematographer in California, he cofounded a firm that makes films, videos, and commercials.

Retro



Islamorada, Fla.
14 April 1954.

Dear Max:

Well, you made Time too; Duke is in the headlines.

I'm sorry about the experience you had to undergo, and I hope it won't leave any permanent scars on you or in you. This letter is just to tell you I'm thinking of you and wishing you well "in Christ".

Ever yours sincerely,

James T. Cleland.

P.S. We leave here for Durham shortly.

JTC.

GREETINGS: A letter from James T. Cleland, then professor of preaching at the divinity school, to Max Wicker, dated April 14, 1954.

Faith on the firing line

The Joseph Mitchell papers tell the story of a tempest among North Carolina Baptists.

By Erin Ryan

The Duke University Archives recently received the Joseph Mitchell Papers on Max Wicker, a collection of letters, news clippings, and other documents that culminate in a 2006 paper, "The 1954 Firing of Max Wicker and Two Other North Carolina Student Directors, Jimmy Ray and J.C. Herrin," by Joseph Mitchell M.Div. '53, Ph.D. '62.

Max Wicker, a 1952 Duke Divinity School graduate, was president of Duke's Baptist Student Union (BSU) in 1953. After graduating, he was hired to work at Duke by Jimmy Ray, secretary of the statewide BSU.

Later that year, Baptist student leaders began planning their annual BSU conference, to be held in November 1953. Ray invited Christian theologian Nels Ferré, a Congregationalist who taught at Vanderbilt University, to be the conference's main speaker. But some

About **100** students from various Baptist denominations attend **Duke's Baptist House of Studies**.

on the North Carolina Baptists' general board had heard that one of Ferré's books cast doubt on the doctrine of the virgin birth of Jesus Christ. Ferré's speech was canceled.

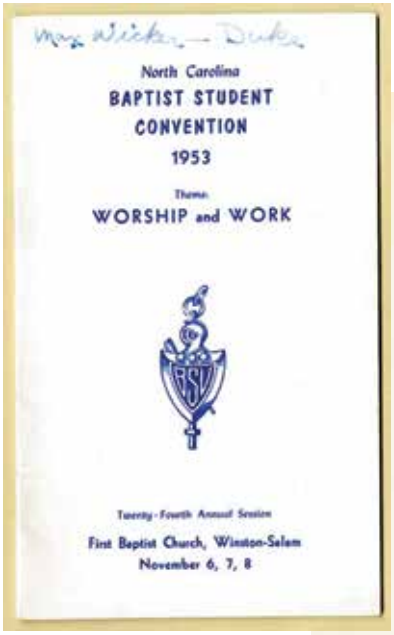
The general board then began an investigation of the programs and leadership in the Baptist Student Union throughout the state—as *Time* magazine's April 12, 1954, issue put it, "digging into charges that the Baptist student pastors have been guiding their young congregations independent of regular church supervision." By 1954, the board had scheduled a hearing for three student leaders—Ray, Wicker, and J.C. Herrin, the secretary of the University of North Carolina at Chapel Hill BSU chapter.

The hearing lasted six hours, ending just after midnight on March 31, 1954. Wicker delivered a three-page statement to the board explaining his faith. (*Time* quoted him as saying to the board, "I do not deny the virgin birth, and I do not affirm it. My mind is still open.") In the end, the board dismissed the three leaders from their jobs with the BSU. According to *Time*, students at the meeting dissented, but "most of the 500 Southern Baptists present thought that the board was right, and that the young ministers were too 'interdenominational' for comfort." The results of the hearing appeared in front-page stories in newspapers around the state.

After the BSU dismissed him, Wicker continued at Duke—where he remained employed—for a few months as a chaplain, then resigned and became a Methodist minister.

Joseph Mitchell had met Wicker while they were both at Duke Divinity School. (After graduating from the divinity school, Mitchell returned to Duke for his doctorate in religion.) Mitchell was also a Methodist minister. After he and his wife, Norma, retired, they moved to Durham in 2001. There, they lived near Wicker and his wife, Ann, and Mitchell began the personal project of researching the nearly fifty-year-old case of his friend's dismissal to tell his story.

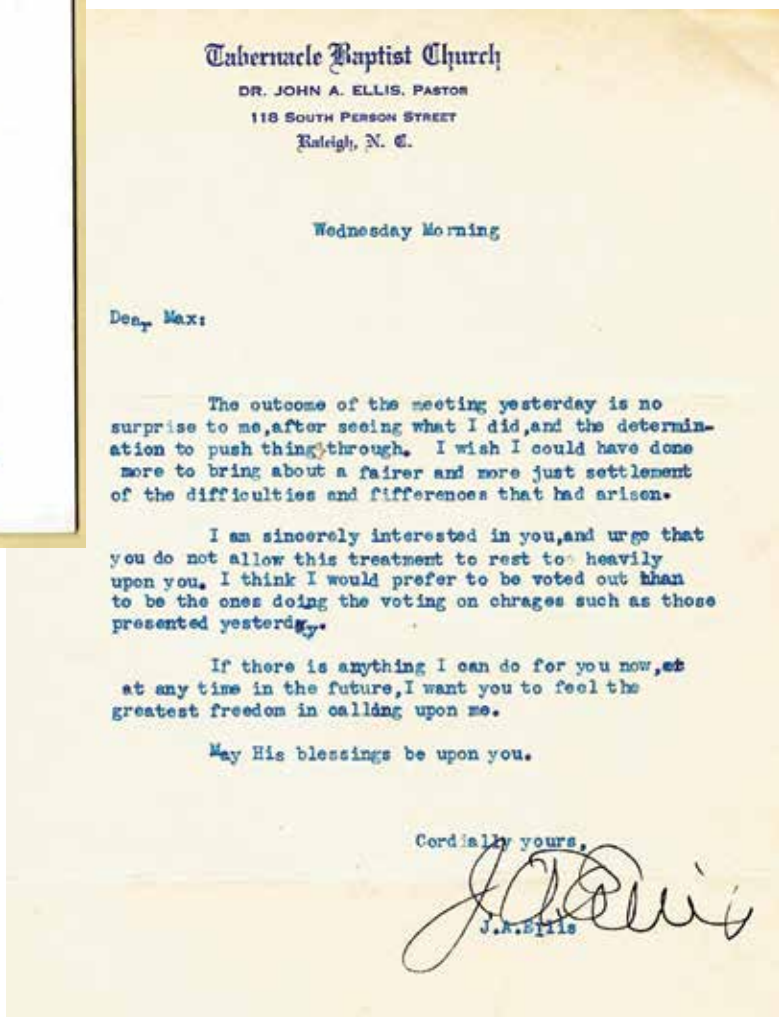
Ryan is the Isobel Craven Drill Intern for University Archives.


Max Wicker — Duke

North Carolina
BAPTIST STUDENT CONVENTION
1953
Theme
WORSHIP and WORK

Twenty-Fourth Annual Session
First Baptist Church, Winston-Salem
November 6, 7, 8

GATHERING: The cover of 1953 N.C. Baptist Student Union Convention program, the event where Nels Ferré was disinvited to speak.


Tabernacle Baptist Church
DR. JOHN A. ELLIS, PASTOR
118 South Person Street
Raleigh, N. C.

Wednesday Morning

Dear Max:

The outcome of the meeting yesterday is no surprise to me, after seeing what I did, and the determination to push things through. I wish I could have done more to bring about a fairer and more just settlement of the difficulties and differences that had arisen.

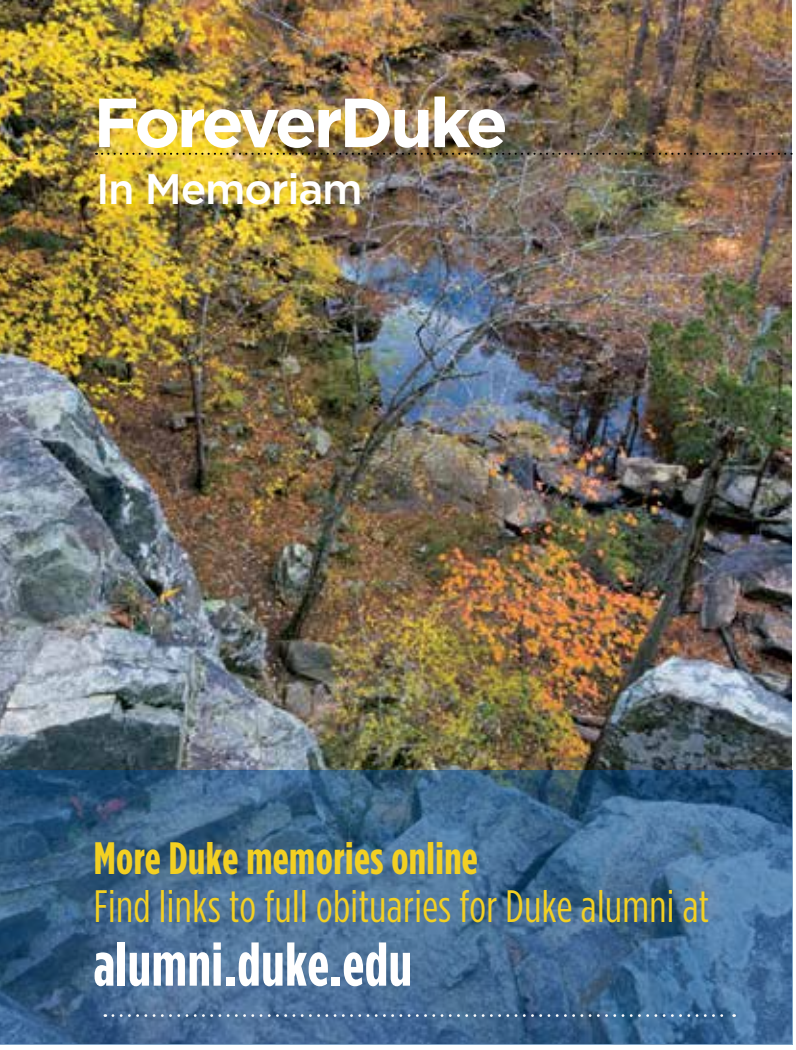
I am sincerely interested in you, and urge that you do not allow this treatment to rest too heavily upon you. I think I would prefer to be voted out than to be the ones doing the voting on charges such as those presented yesterday.

If there is anything I can do for you now, or at any time in the future, I want you to feel the greatest freedom in calling upon me.

May His blessings be upon you.

Cordially yours,
J.A. Ellis

The current chaplain of the divinity school is **Rev. Meghan Feldmeyer Benson M.Div. '02**.



ForeverDuke
In Memoriam

More Duke memories online
Find links to full obituaries for Duke alumni at
alumni.duke.edu

1930s

Martha Culbertson Bailey '37 of Kennewick, Wash., on April 7, 2015.
Vernon H. Dibeler '39, A.M. '40 of Naples, Fla., on Oct. 24, 2016.

1940s

Maryanne Blount Young '40 of Pensacola, Fla., on Oct. 5, 2016.
Richard N. Berini '41 of Winchester, Ky., on Oct. 21, 2016.
Robert Nelson Cann '41 of Bedford, Mass., on Oct. 15, 2016.
Margaret Evelyn Mallory Merryman R.N. '41 of Durham, on Oct. 7, 2016.
Roger Lee Marshall '42 of Hillsborough, N.C., on Nov. 2, 2016.
Hilda Fay van Deinse Pavlick '42 of Bowie, Md., on Oct. 10, 2015.
Louis B. Close B.S.M.E. '43 of Holiday, Fla., on Nov. 18, 2016.
Grace Evelyn Loving Gibson A.M. '43 of Laurinburg, N.C., on Oct. 16, 2016.
Otho C. Goodwin Jr. '43, M.F. '47 of Raleigh, on Oct. 4, 2016.
William Charles Dackis B.S.M.E. '44 of Bethesda, Md., on Nov. 1, 2016.
James C. Upshaw '44 of Placerville, Calif., on Oct. 18, 2016.
Wayne Edward Davis '45, M.D. '49 of Winston-Salem, N.C., on Nov. 12, 2016.
Harriett Morrison Poole '45 of Raleigh, on Oct. 28, 2016.
Arthur W. Bartlett Jr. '46 of Silver Creek, N.Y., on Jan. 19, 2016.
Hendrika Georgia Heykoop Hatley '46 of Asheville, N.C., on Oct. 16, 2016.
Meriwether Lewis Cuningham '47 of Winston-Salem, N.C., on Nov. 4, 2016.
Warren Peter Edris Jr. '47 of Kernersville, N.C., on Oct. 29, 2016.
Norris Lowell Hodgkins Jr. '47 of Southern Pines, N.C., on Oct. 29, 2016.
Robert Owens Martinelli '47, A.M. '49 of Walnut Cove, N.C., on Oct. 1, 2016.
Walter James Miller Jr. '47 of Dobson, N.C., on Nov. 6, 2016.
William Edwin Rogers '47 of Durham, on Oct. 28, 2016.
Cora Belle Schumm Sullivan R.N. '47 of North Logan, Utah, on Oct. 12, 2016.
Edwin Glenn Gilbert Jr. '48 of Fort Worth, Texas, on Oct. 6, 2016.
Betty Lee Munn Pendray Mann '48 of Traverse City, Mich., on May 15, 2016.
Sarah Louise Simpson Allen '49 of Greenville, N.C., on Oct. 10, 2016.
Clayton Leon Gibbs B.S.E.E. '49 of Easley, S.C., on Oct. 12, 2016.
Joye Lee Tilley Greer '49 of High Point, N.C., on Oct. 27, 2016.
Newlin Ashmore Nevis B.S.N. '49 of Tallahassee, Fla., on Oct. 4, 2016.
Julian Marian Warren B.S.M.E. '49 of Rocky Mount, N.C., on Oct. 5, 2016.

1950s

Edwin Forster Baum '50 of Greensboro, N.C., on Oct. 20, 2016.
Talmage Tolly Spence Jr. '50 of Charlotte, on Nov. 8, 2016.
William Hartin Stevenson Jr. J.D. '51 of Sumter, S.C., on Oct. 12, 2016.
John R. Campbell '52 of Lexington, Mass., on Oct. 4, 2016.
Charles A. Comer Jr. LL.B. '52 of Chattanooga, Tenn., on Oct. 20, 2016.
William Peter Demidowitz '52 of West Palm Beach, Fla., on Oct. 20, 2016.
Mary Alice Rooker Elkins '52 of Charleston, W.Va., on Nov. 2, 2016.
J. Bruce Gilman Jr. J.D. '52 of The Woodlands, Texas, on Nov. 3, 2016.
Frank B. Horner '52 of Fort Myers, Fla., on Oct. 1, 2016.
David Cooper Martin '52 of High Point, N.C., on Nov. 7, 2016.
Robert Emerson Windom '52, M.D. '56 of Sarasota, Fla., on Oct. 21, 2016.
Thomas C. Innes '53 of Helskell, Tenn., on Nov. 12, 2016.
Donald Reid Kernodle M.D. '53 of Burlington, N.C., on Oct. 22, 2016.
William B. Starnes '53, M.Div. '56 of Durham, on Nov. 24, 2016.
Fred Myerle White III M.F. '53 of Durham, on Oct. 25, 2016.
George Robert Nugent H '54 of Morgantown, W.Va., on Oct. 31, 2016.
Ann Tankersley Richter '54 of Oklahoma City, Okla., on Nov. 14, 2016.
Sylvia Ann Pachuta Ward '54 of Fleming Island, Fla., on Feb. 2, 2016.
Carl W. Bitzer '55 of Kenner, La., on Nov. 1, 2016.
Dennison Robert Brown '55 of Houston, on Nov. 19, 2016.
Grady Edwin Price '55, M.D. '60 of Charlotte, on Oct. 9, 2016.
Jules N. Stiffel '55 of Chicago, on Nov. 1, 2016.
Roy Dale Arn Jr. '56 of St. Louis, on Sept. 30, 2016.
Wallace Theodore Jones Jr. '56 of Sudbury, Mass., on Oct. 17, 2016.
William Kemper Putney Jr. M.Ed. '56 of Martinsville, Va., on Sept. 13, 2016.
William Marcellus Russ Jr. B.S.C.E. '56 of Satellite Beach, Fla., on Oct. 26, 2016.
Robert Drake Stewart '56, J.D. '58 of Boone, N.C., on Oct. 15, 2016.
Joseph Robert Godwin B.S.M.E. '57 of Mount Pleasant, N.C., on Oct. 2, 2016.
Anna Belle Cole Hall P.T. '57 of Winston-Salem, N.C., on Oct. 6, 2016.
Coriless V. Hanson B.Div. '57 of Olympia, Wash., on Sept. 29, 2016.
David Michael Tolmach '57 of New York, on Oct. 11, 2016.
Richard Jordan Warren '57 of Woodbury, Minn., on Oct. 30, 2016.
Jean Parker West R.N. '57 of Charlotte, on Oct. 18, 2016.
Frank Littrell Bahin '58 of Meansville, Ga., on Nov. 11, 2016.
James Richard Faggart '58, B.D. '61 of China Grove, N.C., on Oct. 28, 2016.
Elizabeth Anne League Tice '58 of Durham, on Oct. 10, 2016.
Julia Glenn Hester B.S.N. '59, Ph.D. '79 of Greensboro, N.C., on Sept. 19, 2016.
Milton S. Lippincott '59 of Denver, on Oct. 28, 2016.

1960s

Thomas Langston Bass '60, LL.B. '63 of Macon, Ga., on Nov. 3, 2016.
Virginia O. Turlington Byrd '60 of Raleigh, on Nov. 8, 2016.
Lawrence Crumpler Walker Jr. M.D. '60 of Winston-Salem, N.C., on Dec. 1, 2016.
Alan Rogers Clarke Ph.D. '61 of Hyannis, Mass., on Oct. 4, 2016.
Raymond Thomas Doyle H '61 of Cary, N.C., on Oct. 4, 2016.
Vaughn Thomas Gray II '61 of Silver Spring, Md., on Oct. 29, 2016.
Marilyn Sue Kerr A.M. '61, Ph.D. '66 of Syracuse, N.Y., on Oct. 6, 2016.
Dorothy Louise Smith Andersen M.A.T. '62 of Glenwood, Md., on Oct. 5, 2016.

In Life, He Wasn't Reserved

If you trust the stereotypes, bankers are a staid group. By-the-numbers. Risk averse. Wonky.

J. Dewey Daane '39, who died on January 3 at ninety-eight, was a banker, an expert on monetary policy who had thirty-five years of combined government experience in the Federal Reserve System and at the U.S. Treasury Department.

But he had a way of challenging those stereotypes. Indeed, doing so once famously put him on the front of newspapers across the country.

It was in 1966. Daane was among the attendees at the International Monetary Conference of the American Bankers Association in Toledo, Spain. They were invited to a private bullfighting ring at a ranch where Miguel Cervantes wrote *Don Quixote*. And then, they were invited to participate in a *tienta*, a program that tests young bulls to see if they are worthy of their lineage and the ring. Not a bloody or injurious event, they were told. Who would give it a try?

"The huge red steel doors that the picador uses have opened a crack," reported *The Wall Street Journal*, having some Hemingway-esque fun with the story, "and the mystery matador is in the ring—looking pitifully out of place. No strong protective leather chaps, no gilt-spangled tights, no heroic gestures. Slight, graying, 47 years old, wearing sunglasses, an olive-shaded business suit, a black and yellow striped tie carefully hitched up. J. Dewey Daane, Federal Reserve Board governor, has committed himself."

There's a short cape-holding lesson from the matador, and then: "Flick! He taunts the animal with his scarlet and yellow cape, and [it] lowers [its] head and attacks in a thunder of hooves. There is Dewey Daane, august international banker, draped over the neck of the still-galloping beast.

"For all the crowd can see, he may be impaled on one of the deadly horns. But after an eternity, Dewey Daane slides off the animal and lands firmly upright. The beast stumbles on, and skids ignominiously onto its knees. Now hear the crowd!

"But wait. The animal has regained [its] equilibrium, [its] momentum, and here [its] comes again. This time the cape swirls gracefully by the matador's side and [its] charges past, harmlessly. …The beast and the banker stare at one another, but there is no charge. The moment of truth has come and gone, and the unlikely antagonists turn slowly away."

Still, Daane was indeed more used to bull markets.

He studied philosophy at Duke and was a member of the debate team and Delta Tau Delta. He earned a master's in public administration from Harvard and then became the first person in the school's history to earn a doctorate in the field. He lived in Paraguay in the early 1950s on a mission for the International Monetary Fund to establish the Central Bank of Paraguay. He joined the Federal Reserve Bank of Richmond in various positions, and briefly was the vice president and economic adviser to the president and board of directors of the Federal Reserve Bank of Minneapolis.

At the request of the undersecretary of the treasury, he transferred to Washington to serve as assistant to the secretary of debt management, who was the principal adviser on managing the federal debt. He stayed in that role until President John F. Kennedy's administration appointed him deputy undersecretary of the treasury for monetary affairs. It was from that position that President Kennedy, less than three weeks before his assassination, appointed him to the Federal Reserve Board.

He left the Federal Reserve in June 1974 and became the Frank K. Houston Professor of finance at Vanderbilt University, where he helped establish the school's Financial Markets Research Center. His teaching focused on the evolution of the international monetary system and on monetary and fiscal policy.

He is survived by his wife of fifty-three years, Barbara, and three daughters.

Daane stayed involved with the Federal Reserve system until his death. He never stopped analyzing and critiquing national and international financial systems, and he searched for ways to make the U.S. economy work better. He lent his expertise to several books. He was a regular contributor to *The Wall Street Journal*'s monthly economic survey and contributed to *USA Today*'s quarterly economic forecast.

As the *Journal* article explained, in his arena, Daane had the qualities of a matador: "They shouldn't have been astonished at the mystery banker's identity. After all, it took a bit of courage to brave Lyndon B. Johnson last December and cast that decisive vote to raise the discount rate." ■

George Samuel Jones B.Div. '62 of Nashville, Tenn., on Aug. 2, 2016.
Roger M. Williams B.S.M.E. '62 of Appleton, Wis., on Oct. 6, 2016.
Raymond William Champagne Jr. A.M. '63 of Taylor, Pa., on Nov. 15, 2016.
Samuel Freeman Nicks Foster '63 of Louisville, Ky., on Oct. 9, 2016.
Angus Murdoch McBryde Jr. M.D. '63 of Columbia, S.C., on Oct. 4, 2016.
Charlie Frank Joiner A.M. '64 of Greenwood, Miss., on Oct. 7, 2016.
Jack T. Lightle M.S. '64 of Melbourne, Fla., on Nov. 13, 2016.
Kenneth M. Lloyd H '64 of Canfield, Ohio, on Nov. 4, 2016.
Frank Joseph Mullen A.M. '64 of East Bridgewater, Mass., on Oct. 5, 2016.
William Ward Rice Sr. D.F. '64 of Naples, Fla., on Sept. 28, 2016.
Frederic H. Gerber M.D. '65 of Seattle, on Oct. 2, 2016.
Clifford A. Lakin '65 of Fort Lauderdale, Fla., on Oct. 28, 2016.

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National Parks of the Southwest,
June 18-28, 2018

2018 TRAVEL DESTINATIONS

Cuba by Land & Sea, Feb. 15-24
National Parks of the Southwest, June 18-28
Alaska, June 28-July 5
Canadian Rockies Explorer, July 28-Aug. 7
Cuba, October

Holland & Belgium, Apr. 27-May 5
European Coastal Civilizations, Apr. 30-May 9
Barcelona - Art, Culture, People, May 3-11
Springtime Provence/Burgundy, May 9-17
Scottish Highlands, Islands & Norway's Fjords, May 10-18
ACA Spain - Basque Country, May 12-21
ACA Italy - Italian Riviera, May 19-27
Iceland by Land, May 31-June 10
Baltic Sea, June 14-23
Circumnavigation of Iceland, July 9-17
Family Italy, July 10-19
Cruise the Rhine, Multi-generational, July 11-19
Ancient Empires - Malta-Rome, Sept. 20-28
Northern Italy, Sept. 26-Oct. 10
Danube from Transylvania to Vienna, Sept. 27-Oct. 9
ACA Italy - Amalfi Coast, Oct. 2-10
Ancient Greece, Oct. 4-12
Paris - Art, Culture, People, Oct. 7-15
Adriatic Odyssey on *Sea Cloud II*, Oct. 11-21
Cruising the Douro River, Portugal, Oct. 11-22

Colombia, Jan. 19-29
Panama to Costa Rica, Feb. 9-17
Machu Picchu to Galapagos, Feb. 27-Mar. 13
Belize to Tikal, Mar. 10-18
Family Peru, August 1-10
Galapagos, Aug. 17-25
Amazon River, Oct. 27-Nov. 3

Journey through Vietnam, Feb. 5-20
Inland Sea of Japan, May 8-18
China, Tibet & the Yangtze, May 10-28
Family Japan, June 30-July 8
Israel, Oct. 23-Nov. 3
Himalayan Kingdoms, Oct. 30-Nov 13

Egypt & the Eternal Nile, Mar. 5-19
Southern Africa with Rovos Rail, Mar. 6-21
Morocco, Mar. 9-22
Magical Madagascar, June
Classic Safari, Aug. 8-24

TRIPS FOR FAMILIES

Alaska
Galapagos
National Parks of the Southwest
Cruise the Rhine
Family Japan
Family Peru
Family Italy

Antarctica, Jan. 11-Feb. 24

Tahiti & French Polynesia, Feb 6-16
Australia & New Zealand, Oct. 3-24

Dates and destinations subject to change

Email us at travel@daa.duke.edu with a list of the trips that interest you.
We will send you more information and add you to the mailing list.
Or call us at 1-800-FOR-DUKE.

Ann L. Molleson A.M. '65, Ph.D. '70 of Columbus, Ohio, on Nov. 6, 2016.
John Stephen Roberts Ph.D. '65 of Waltham, Mass., on Oct. 19, 2016.
Charles Hunter Voncanon H '65 of Whitwell, Tenn., on Oct. 1, 2016.
John Lawrence Campbell '66 of Pacific Grove, Calif., on April 18, 2014.
Robert B. Hale Jr. H '66 of Huntsville, Ala., on Oct. 28, 2016.
Michael R. Manes B.S.E.E. '66 of Littleton, Colo., on Sept. 28, 2016.
Suzie Cunningham Tindall '66 of Atlanta, on Oct. 5, 2016.
Rita G. Wells Aufricht '67 of Newport News, Va., on Nov. 3, 2016.
John Joseph Buder '67 of Asheville, N.C., on Oct. 4, 2016.
Jerry Jay Juren M.Div. '68 of High Point, N.C., on Oct. 30, 2016.
Owen L. Norment Jr. Ph.D. '68 of Greensboro, N.C., on June 26, 2016.
Clarence O. Stokes M.Div. '68 of Lugoff, S.C., on July 30, 2014.
Riddick Cornelius Trowell M.A.T. '68 of Beaufort, S.C., on Nov. 12, 2016.
Richard Henry Kent '69 of Lake Charles, La., on Nov. 8, 2016.

1970s

John Moffitt Gosline Ph.D. '70 of British Columbia, Canada., on Nov. 7, 2016.
Karl William Stevenson H '70, H '72 of Durham, on Nov. 7, 2016.
James Spencer Fulghum III H '73, H '77 of Raleigh, on July 19, 2014.
Kenneth Alois Kozbiel A.H.C. '73 of Cantonment, Fla., on Sept. 29, 2016.
John Allen Woodford '73 of Kennett Square, Pa., on Oct. 31, 2016.
Douglas B. Vinsel M.H.A. '74 of Raleigh, on Nov. 7, 2016.
Edward Darrell Huechtker P.A. '75 of Orange Beach, Ala., on Oct. 18, 2016.
Kristina Elizabeth Quade Ph.D. '75 of Granada Hills, Calif., on June 1, 2016.
Wayne Everett Crumwell J.D. '76 of Reidsville, N.C., on Nov. 6, 2016.
Lonzy Fitzgerald Edwards J.D. '76 of Macon, Ga., on April 29, 2016.
David Blair Merriman M.Div. '76 of Greensboro, N.C., on Nov. 8, 2016.
Elizabeth Inman Jordan M.S.N. '77 of Sea Island, Ga., on Oct. 25, 2016.
Srisaila Basavappa '79 of Chicago, on Oct. 25, 2016.
David Scott Corbett '79 of Faith, N.C., on Oct. 16, 2016.
Steven Robert Shoemaker Ph.D. '79 of Urbana, Ill., on Oct. 10, 2016.

1980s

Berrylin June Ferguson M.D. '81, H '86 of Pittsburgh, on July 23, 2016.
Terri Lynn Young '82 of Winston-Salem, N.C., on Oct. 19, 2016.
Penelope Jenkins Harris '85 of Kinston, N.C., on July 28, 2014.
Doris T. Fox M.Div. '89 of Sanford, N.C., on Oct. 11, 2016.

1990s

John Stephen Cournoyer M.B.A. '90 of Pittsboro, N.C., on Nov. 19, 2016.
Carol Annette Ball Hiscoe Ph.D. '90 of Raleigh, on Oct. 26, 2016.
Harry Richard Weller '92 of Marietta, Ga., on Nov. 19, 2016.
Kevin Iry Sims M.B.A. '93 of Camp Springs, Md., on Nov. 4, 2016.
Lynda Fonte Cunningham M.S.N. '96 of Chapel Hill, on Nov. 20, 2016.
Michael Deagle M.B.A. '96, M.P.P. '96 of Herndon, Va., on Nov. 15, 2016.
James Michael Morris M.Div. '96 of Camden, S.C., on Sept. 10, 2016.
Thomas M. Halleran '97 of Livingston, N.J., on Oct. 29, 2016.

2000s

Adam Ramsay Michael '00 of Nashville, Tenn., on Nov. 22, 2016.
Marion Dale Curtis M.Div. '02 of Wilmington, N.C., on Nov. 16, 2016.
Anna Rosser Upchurch A.M. '03 of Charlotte, on Nov. 23, 2016.
Elana Christine Fric-Shamji M.P.P. '08 of Toronto, Canada, on Dec. 1, 2016.

2010s

Ryan N. Smith J.D. '16 of Boynton Beach, Fla., on Oct. 11, 2016.

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On view through July 16, 2017

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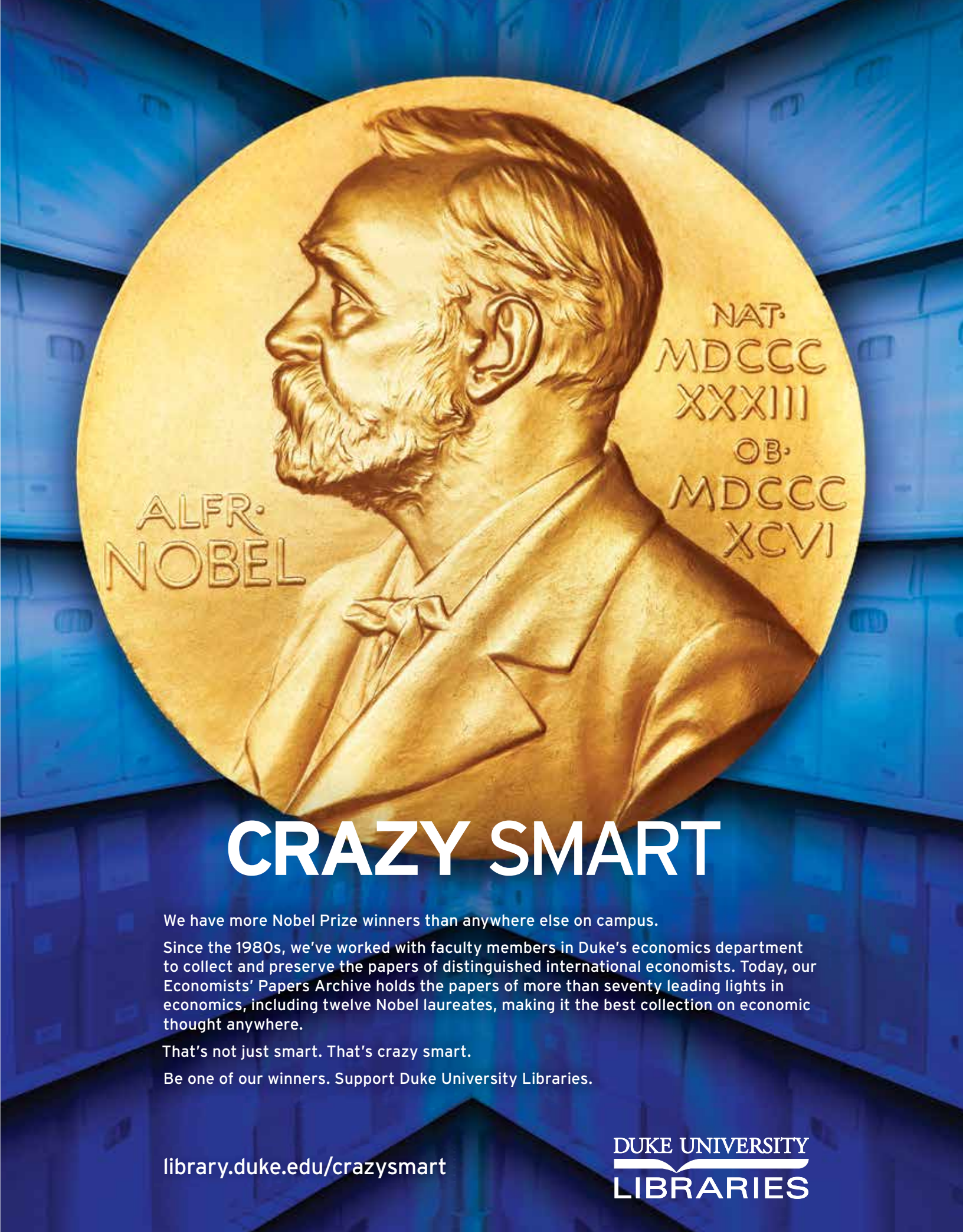
Nina Chanel Abney, Untitled (FUCK T*E *OP) (detail), 2014. Acrylic on canvas, 72 × 108 inches (182.88 × 274.32 cm). Collection of Kamaal Fareed



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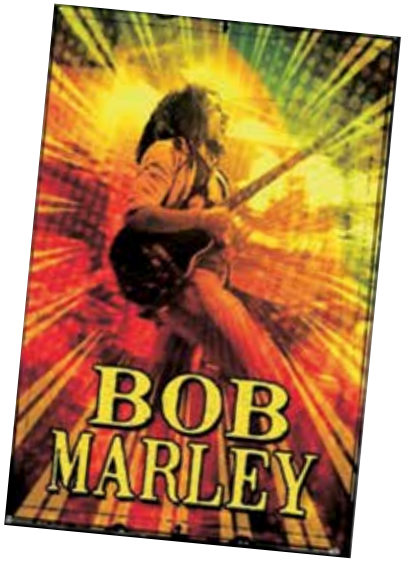
TOP 5 Must-Have Items for Your Dorm Room | By Lucas Hubbard

1. The quasi-significant street sign

With this, you'll never forget where you came from. Or, it's a handy reminder of where you want to go. Or, perhaps, one late night or early morning—say, at 4 a.m.—your buddies convinced you it'd be hilarious to steal one that was vaguely similar to your last name.

2. The Bob Marley poster

You heard "No Woman No Cry" once on a jukebox, and it, like, spoke to you, man. You don't even listen to a lot of music, but honestly, you think of it more as poetry than song, you know?



3. The Keurig machine

The problem: You want to save some money on coffee, but not too much money. The solution: A $100+ machine requiring singular pods that, per-cup, end up being like two-thirds the cost of a store-bought drip coffee. How does it taste? Fine, albeit not as fine as your ability to justify such questionable spending behavior.

4. The travel token

Your experience of culture shock and appreciation—garnered over a period of at least a week or two—needs to be told, most likely conveyed via the scarf of the locals' favorite soccer team. (Excuse us: "football club.") It's a tale as old as time, one shared by pioneers Vasco da Gama and Elizabeth Gilbert both: You went abroad, and it changed you.

5. The mini basketball hoop that hangs on the door

Maybe you didn't get to lace 'em up in Cameron Indoor, but in your bedroom and/or man cave, the glory days never ended. Plus, your Christian Laettner turnaround jumper from the top of the key is money in the bank.

What's on your list? Let us know at dukemag@duke.edu.

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COVERSTORY

With the advances made in drones and robots, are people still necessary? We explore that issue and more in our cover story. Here, graduate student Rett Newton, far right, launches a copter-style drone while fellow student researchers John Wilson, Elizabeth Mason, Julian Dale, and Nick Alcaraz look on. Go to **dukemagazine.duke.edu** to watch senior writer Scott Huler's short video on drones at the Marine Lab in Beaufort, N.C. ***Photo by Chris Hildreth***