

new media

# TRUTH OR CONSEQUENCES

NAVIGATING COUNTERFEIT JOURNALISM IN THE DIGITAL AGE

by Eileen Reynolds / GSAS '11

The premise of the “Google Game,” as the Poynter Institute’s Craig Silverman called it, was simple: Paste text from science writer Jonah Lehrer’s Frontal Cortex blog into the search engine, and in seconds find a nearly identical passage from one of Lehrer’s previous pieces—published in, say, *The Wall Street Journal*. Legions of amateur sleuths joined in the hunt after media blogger Jim Romanesko first busted *The New Yorker*’s newest



staff writer for repurposing old material on the magazine’s website in June 2012.

Some readers at first dismissed Lehrer’s “self-plagiarism” as a minor misstep by an impressive,

if overworked, young journalist. Lehrer, 31, had penned three best-selling books on neuroscience and well-received articles for top-notch publications such as *The Washington Post* and *Nature*. But his defenders fell silent on July 30, when Michael



C. Moynihan revealed in *Tablet* magazine that Lehrer had fabricated quotes attributed to Bob Dylan in his book *Imagine: How Creativity Works*. Lehrer’s publisher pulled it from bookstore shelves. *The New Yorker* fired him. An investigation of 18 of Lehrer’s *Wired.com* blog posts by NYU journalism professor and fellow science reporter Charles Seife uncovered 17 instances of “recycled” material, outright plagiarism, language lifted directly from press releases, or distortions of fact. *Wired* terminated his contract.

In weeks, Lehrer became one of the most notorious names in modern journalism, alongside Stephen Glass, the *New Republic* writer who dreamed up whole

characters and scenes for more than two dozen articles; Jayson Blair, the *New York Times* reporter who wrote dispatches from far-flung states without leaving his Brooklyn apartment; and Jack Kelley, who fudged details in a *USA Today* story that led to a Pulitzer Prize nomination in beat reporting. And Lehrer’s wasn’t the only fall from grace in a season Silverman dubbed “journalism’s summer of sin”: *Time* magazine editor-at-large Fareed Zakaria was suspended for plagiarizing a *New Yorker* article by Jill Lepore, and Connecticut’s *New Canaan News* fired staff writer Paresh Jha after discovering that he’d fabricated sources and quotes in at least 25 stories.

Had ethically challenged journalists become more common or simply easier to expose, thanks to the Internet? With readers’ trust at stake, editors, publishers, journalism professors, and students now face thorny questions about how to repair a system that has allowed wayward writers to rise through its ranks. At the center of this dilemma is the industry’s own convulsive transition to online journalism, and the fall of rigorous editing and fact-checking. Professor Seife wrote for

*Slate* that he believes Lehrer’s “journalistic moral compass is badly broken”—but he also told *NYU Alumni Magazine* that “it’s easy to

point fingers at the bad guys without looking too carefully at systemic problems.”

One of those problems is that writers and editors are expected to do more with less. Venerable publications have been cutting corners

“It’s easy to point fingers at the bad guys without looking too carefully at systemic problems,” journalist Charles Seife says.

for more than a decade as readers have gone online and subscriptions have declined. At the same time, journalists must write quickly and often, frequently sidestepping time-consuming editorial processes to keep up with the fast pace of the Web. “It breeds sloppiness, shoddiness, and almost plagiarism,” Seife says. Lehrer’s blog posts, for example, escaped the multiple rounds of editing and fact-checking for which *The New Yorker* is renowned, even though they too ran under the magazine’s prestigious banner.

In a more universally embarrassing stumble last November, the Associated Press, *Forbes*, *Business Insider*, and *TechCrunch* were all forced to retract statements after

fake—written, perhaps, by an investor seeking to profit by artificially inflating the price of ICOA’s stock. “We all make mistakes,” says Adam Penenberg, also an NYU journalism professor. “But the idea of not checking out a press release,

not checking with the company, not trying to get a comment? That’s egregious.”

Penenberg knows better than anyone that a writer determined to twist the truth can do so in any medium: As a young *Forbes.com* business technology reporter, he was the first to uncover the deceptions of Stephen Glass, who thwarted *The New Republic*’s fact-checkers by creating notes, diagrams, and even a phony website to corroborate wholly invented stories for the print magazine. These days, Penenberg calls himself a “platform agnostic”—meaning he believes articles should be held to the same high standards whether they appear online or in print. But he acknowledges that it’s difficult for even the most vigilant editorial gatekeepers given the sheer volume of content online.

One solution would be to simply publish less. Seife suggests that smaller publications, especially, should focus their energies on careful, old-fashioned reporting—the painstaking work of “doing research, speaking to people, and getting documents” in order to bring readers something of unique value—rather than simply digesting news from larger outlets and “repackaging it with a little flavor and a

little added snark.”

New media can also present ethical quandaries for which a clear set of guidelines has yet to emerge. Social media platforms, for example, have collapsed the distinction between public and private life for journalists like everyone else. After drawing criticism for her comments on Facebook and Twitter about hostilities in Gaza last fall, *New York Times* Jerusalem bureau chief Jodi Rudoren was assigned an editor to help manage her social media presence. But it seems unrealistic to expect all reporters to consult with their editors before posting each tweet.

As part of NYU’s business and economic reporting curriculum, Penenberg has added training in multimedia journalism, social media, and even HTML and CSS coding—all in the interest of equipping graduates with the skills demanded of the digital age. But this also means diverting time away from the basics of what he calls “hard-nosed reporting.” When evaluating student work, Penenberg routinely investigates phrases or passages that seem “too good to be true”—and calls in students to talk about what he finds. (Students sign an ethics pledge at the start of study at NYU’s Arthur L. Carter Journalism Institute, and those who violate it risk expulsion.) Sometimes a conversation about journalistic responsibility can be enough to break a bad habit.

Perhaps the best way for journalists to keep themselves honest is to seek out editors who, whether they work in print, online, or both, do what good journalism professors do. “To have a devil’s advocate, a good editor who tried to destroy your story, who tried to poke holes in your argument—I don’t like operating without that,” Seife says. In an age of instant publishing and feedback, the greatest discipline might just be avoiding situations in which what you write goes, as Seife puts it, “straight from your brain to the world.” ■

# University at a Crossroads

JOHN SEXTON KNOWS THAT NYU NEEDS TO ENGAGE ITS FACULTY BETTER. HE TELLS US HOW HE INTENDS TO MAKE THAT HAPPEN.

**O**n March 15, NYU's Faculty of Arts and Science registered a vote on President John Sexton's leadership. Of the 682 full-time tenured and tenure-track professors in the school, 569 participated. Fifty-two percent of those voting expressed "no confidence," while 39 percent disagreed and 8 percent abstained.

That same day, the Board of Trustees passed a resolution of support for Sexton, with Chair Martin Lipton writing: "It is clear to us that NYU is a great success story. It is also the case that higher education faces pressures that call for leadership that can enact change where needed." Other statements of support have come in from deans across the university, as well as the NYU Alumni Association and departments or councils within the School of Medicine, College of Dentistry, College of Nursing, and School of Law.

The circumstances that led to this moment, and may lead to further votes at several NYU schools, can be interpreted 10 different ways by 10 different people. In one example, bold shape-shifting over the past decade—from the rise of new campuses in Abu Dhabi and Shanghai to plans for a major

reconfiguration of two superblocks just south of campus—has struck some as pioneering and essential to staying competitive on a postmodern educational playing field. Others see them as a radical departure from the NYU they knew. A consistent thread throughout this recent debate has been a complaint

by faculty that they have not been adequately engaged with the changes that have taken place.

*NYU Alumni Magazine* recently spoke to Sexton about what this experience has meant for him and can ultimately mean for the university.

## Where does this current debate belong in the NYU story?

In the late 1960s and early '70s, NYU was understood to be in serious trouble, yet the NYU community pulled together to ensure that the university survived, and then blossomed. The difficulties of those times were much more obvious—especially the terrible state of our finances, and the challenges posed by CUNY's new open-admissions policy. But I believe that today's challenges are just as great—the political pressure on universities relating to costs, the expense of technology, and the competition posed by foreign universities. The responsibility for me as president, and for the Board, is to recognize those challenges now, *before* they overwhelm us, and to innovate in ways that sustain the extraordinary academic momentum that has brought us here.

## All else aside, a number of faculty members feel hurt or alienated by NYU right now. What would you say to them on a personal level?

The pace of change at NYU has been rapid and, at times, there was not adequate consultation. But I would say to my fellow faculty colleagues that it has not been intentional. I feel badly if it seemed that way because I greatly value their judgment and thinking.

I want to work with them to find ways to better ensure their involvement in university decision-making.

Most of my professional life has been devoted to NYU. Like many of our faculty, I was part of the generation that helped transform this institution from a good regional school to an outstanding, revered international research university. It is our faculty's commitment to teaching and learning that is the core of what has driven our successes in recent decades, and will be the key to our future successes.

## Many on campus have expressed a desire for their voices to be heard right now. How will the administration accommodate that?

We have already taken a number of steps to broaden and deepen channels of faculty input, from an agreement between the Faculty Senators Council and the university administration on principles of shared governance to the creation of faculty-led committees on space, on global initiatives, on technology, and on how the university should respond to a possible NLRB ruling on unionization of graduate assistants. But beyond that, it's clear that it's a good time to reflect on whether the mechanisms to give voice to all NYU constituencies are serving us as well as they could. So I have pro-

posed that our Board form a special committee of trustees led by Chair Marty Lipton that will use the next two months to listen to a range of faculty groups, students, and alumni and to hear their ideas on how we can develop new mechanisms and channels to receive input from all stakeholders in our community and, in particular, the faculty.

## Some say that adversity makes an institution stronger. What kind of productive soul-searching—both for yourself and NYU—has this experience inspired?

It's clear that we still have work to do, and I include myself in this equation, in getting the balance right on a crucial challenge facing places like NYU: How do we ably and efficiently run a large, diverse, complex institution that can move nimbly through a very difficult time in American higher education and, at the same time, allow our community to be involved and invested? The events of the past several months have convinced me that we have to do a better job in this regard, and I am committed to finding ways for NYU to be an exemplar of getting this right for the future.

I won't say that the vote of no confidence didn't hurt. Both before the vote and since, there have been many expressions of sup-

port—some personal, some by faculties or other NYU constituencies. I am grateful for them; they make me feel that what we have been trying to accomplish has been heard and understood. I worry that the vote of no confidence will have some negative effects on the university in the short term, but I do think that the criticism inherent in it compels me—and all of us—to think even more deeply on what we can do to make NYU benefit from its many voices, now and in the long run.

## In the past decade, there have been more than 50 votes of no confidence at U.S. colleges and universities for widely varied reasons. Does this signify a trend in higher education?

Universities are among the most enduring institutions in human history, and they tend to be very tradition-bound. Those traditions, by the way, have carried U.S. universities a very long way—they are seen as the gold standard for higher education throughout the world. But this is a time of profound and rapid change in higher education, without a clear pathway forward. Reduced support from governments, concern over rising tuition, the impact of technology on learning, the pressures from a globally competitive landscape...the challenges are being

felt by all of us. In these times of strain and anxiety, it's perhaps understandable that university leaders are under increasing scrutiny and even criticism for innovating to forge sustainable futures for their institutions.

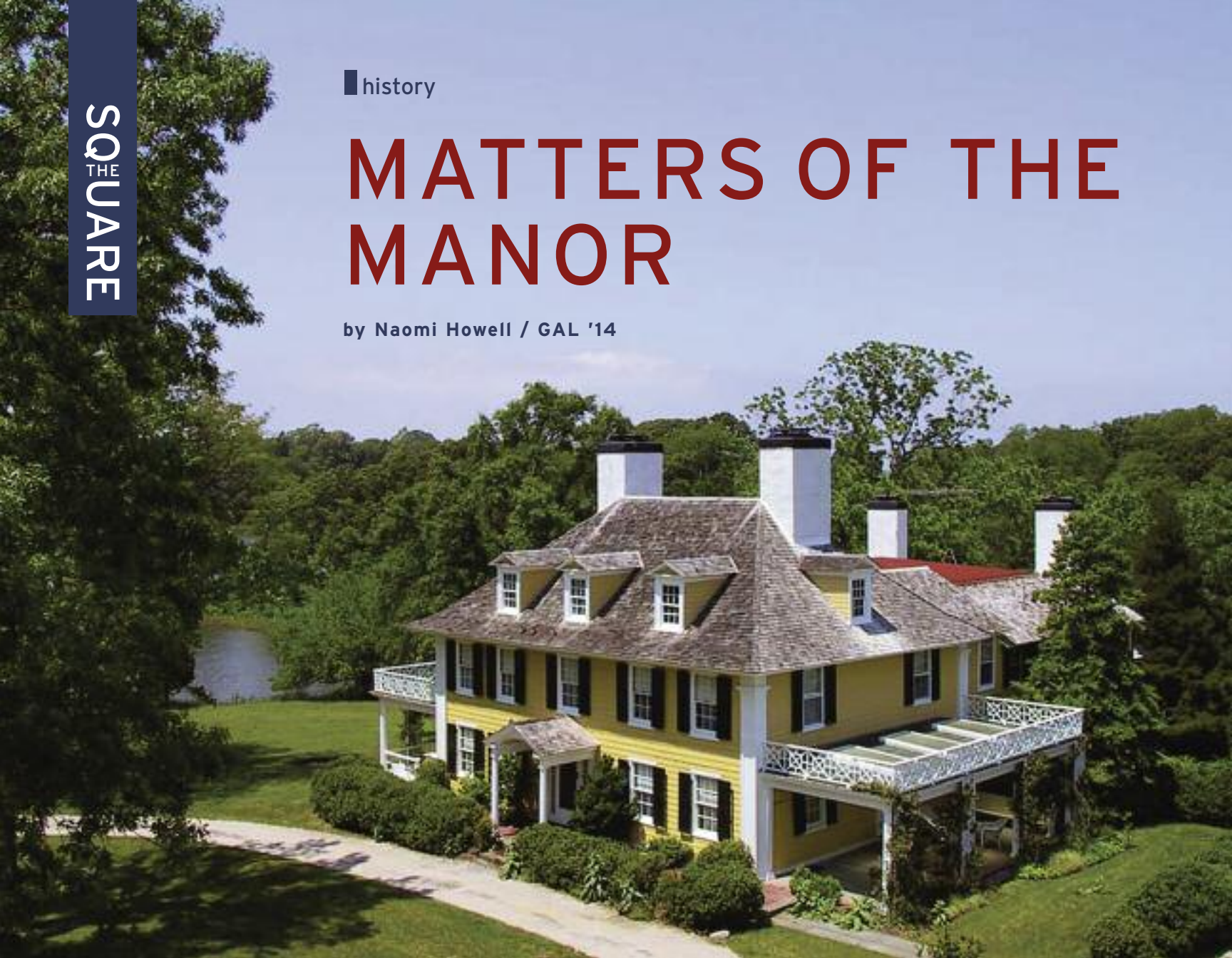
## This is an especially complicated time to be a university president. After 12 years of leadership, what propels you each morning to navigate through all these tangled issues?

I was put on Earth to be a teacher, and my time in the classroom grounds me. Beyond that, I love NYU and its mission. I love NYU's connection to the city and how we overcame near-bankruptcy to achieve soaring success. I love its ambition, and grit, and entrepreneurship, and how unpretentious it is. I believe strongly in the unparalleled opportunities we offer to our scholars and students, both here in New York and through the Global Network University. I love that I was able to raise my family here, where I have spent more than 30 years—as professor, as dean, as president—with a single aim: to lend my talents to NYU as best I could and to leave my successors a stronger, more resilient university, able to withstand the challenges of the 21st century. That makes it easy to come in to work every day. ■

history

# MATTERS OF THE MANOR

by Naomi Howell / GAL '14



## In this still-young country, it's hard to imagine grand estates riding out the ages *Downton Abbey*-style in the care of a

single family. And yet the Sylvester Manor on Shelter Island, nestled in between Long Island's two forks, has been passed down through 15 generations of Sylvesters. Among the house's historic treasures are 60 linear feet of letters, journals, maps, photographs, and artifacts, offering a range of insight into early American culture—from the little-acknowledged practice of slavery in New York to the industrialization of agriculture. Now organ-

ized and protected within NYU's Fales Library & Special Collections, the new Sylvester Manor Archive has inaugurated its opening with an exhibition at Bobst Library.

The manor was initially a point on the infamous triangle of trade, whose coordinates were in West Africa, the American colonies, and the Caribbean. In 1652, Nathaniel Sylvester bought Shelter Island to use for raising livestock to sell in the West Indies and harvesting

PHOTOS COURTESY SYLVESTER MANOR ARCHIVE



OPPOSITE PAGE TOP: THE GEORGIAN-STYLE MANOR WAS BUILT CA. 1735 TO REPLACE THE SYLVESTER FAMILY'S ORIGINAL 17TH-CENTURY HOME OF "SIX OR SEVEN CONVENIENT ROOMS." BOTTOM: THE ESTATE WAS USED AS A SUMMER RETREAT WITH SOME SMALL-SCALE FARMING WHEN THIS PHOTO OF PLANTATION WORKERS AND A HAY WAGON WAS TAKEN CA. 1900. ABOVE: A PAINTING BY SYLVESTER DESCENDANT CORNELIA HORSFORD, WHO OVERSAW THE RESIDENCE'S SUBSTANTIAL RENOVATION BY ARCHITECT HENRY BACON IN 1908.

trees for wooden barrels to be shipped to the islands and filled with rum. The estate ran on the labor of African slaves, Native Americans impressed into service, and indentured European servants. Some of the archive's earliest documents are bills of sale from the Boston slave market.

By 1859, when the property passed to Eben Norton Horsford, a wealthy Boston chemist and the inventor of baking powder, the manor was used as a vacation home, welcoming the likes of Henry Wadsworth Longfellow and Sarah Orne Jewett, whose handwritten poetry resides in the archive. Today, the most recent Sylvester relation has opened the estate to the public as an organic farm and food education center. ■

*The "Sylvester Manor: Food and Power on a Northern Plantation" exhibition closes August 31.*

music

# A PEACEFUL, TEACHY FEELING

When the man who co-wrote "Hotel California" talks about songwriting, people listen. So this year, lucky students in

the Steinhardt School of Culture, Education, and Human Development were following every word that came out of their professor's mouth. Glenn Frey—who has won six Grammys and sold more than 120 million albums as a solo artist and founding member of the Eagles—helped team-teach a master class in the school's new songwriting program.

NYU *Alumni Magazine* spoke with singer, actor, and guitarist Frey (below) at the Beacon Theatre last November as he and the rest of the Eagles prepared to take the stage for the Steinhardt Vision Award Gala. Before the Eagles went on, three of Frey's students performed original songs as the opening act. The crowd's roar proved that the creativity that helped

him pen 18 top-40 hits, and find magic in the recording studio, translates rather well to the classroom.

## HOW'D YOU DECIDE TO COME TEACH AT STEINHARDT?

I was at the Country Music Association Awards with the Eagles three years ago, and we went on last. So for the better part of three hours, I sat watching the show.

And with no offense to any particular artist or songwriter, I sat through some of the most cliché, half-baked, boring songs. It was troubling to say the least.

As luck would have it, the very next morning [producer and engineer] Elliot Scheiner calls me up and says, "Would you talk to a buddy of

mine, [songwriter-in-residence] Phil Galdston, and another guy over at NYU, [professor] Lawrence Ferrara? They're talking about starting an elite songwriter program, and they want to pick your brain about curriculum." So the timing couldn't have been better. It was supposed to be a 15-minute conversation, and we wound up talking for an hour and 15 minutes, and only got started. And then this year, Phil asked if I would be interested in team-teaching a class with him.

## HAS THE GIG BEEN CHALLENGING?

It's different teaching songwriting than it is teaching how to write music. That you can teach a little more pragmatically. This is an elusive subject, but there are rules. Like, keep it interesting. Don't have there be a place in your song where people are going to change the channel or tune out. So it's been really exciting to share our insights. Phil and I are already thinking about what we'll do next and how we'd tweak the program a little bit.

## WHAT'S BEEN THE BEST PART OF THIS EXPERIENCE?

Coming to New York and seeing my daughter, who's a senior at Tisch [laughs]. She's made it a good excuse to come do this. But the best part of it is how contagious the enthusiasm and the commitment of the students has been. That really gets me feeling like a songwriter again.

—Jason Hollander



PHOTO © BOB KING/GETTY IMAGES

# IN BRIEF

## CONSTITUTIONAL CREW

NYU law professor Sujit Choudhry flew to Sri Lanka in 2003 to advise on the fledgling democracy's constitution. But it wasn't until after he'd landed, driven across the island, and started talking with local stakeholders that the key question facing the nation's constitutional designers emerged: What role would law enforcement have in the federal state? Though scholars had developed models for this exact problem, Choudhry was unable to access much of this information half a world away.

His response was to found the new Center for Constitutional Transitions at the NYU School of Law, which aims to act as a "back office" for legal advisers working in countries undergoing a regime change. For comparative constitutional specialists such as Choudhry, who is the faculty director of the project, fieldwork usually involves traveling to a remote locale with little advance notice, minimal academic resources, and bare-bones communication infrastructure.

The center, which relies on 20 law students working for academ-

ic credit, will provide a sort of research department for clients abroad. They are currently preparing a series of reports for legal advisers in Jordan, Libya, Tunisia, and Morocco on issues that arose during the Arab Spring, such as how to build a liberal democracy in which the partisan interests of civilians don't lead to an abuse of power by the security sector. "This is the first time in the world anyone has tried to do this," Choudhry says. "There is a lot of excitement about this work—people are waiting for our answers."

## DWORKIN HONORED WITH 2012 BALZAN PRIZE

Before his recent death, Ronald Dworkin, the Frank Henry Sommer Professor of Law, received the Balzan Prize for his "fundamental contributions to jurisprudence, characterized by outstanding gifts of sharpness, originality, and clarity of thought in a constant and fruitful interaction with ethical and political theories and with legal practices." The prize was accompanied by an award of 750,000 Swiss francs, about \$800,000, half of which must be invested in research—preferably involving young scholars.

Dworkin authored numerous books, including most recently, *Justice for Hedgehogs* (Belknap Press/Harvard), which he noted was not a treatise on animal rights nor a take-down of hedge fund barons, but a nod to an ancient Greek axiom and the notion that a single value underlines truth, morality, justice, and life.

## THE BUSINESS OF MEDICINE

Along the grueling path of medical education, students will memorize every bone, muscle, and ligament in the body, plus a litany of diseases and their telltale signs.

As residents, they'll easily clock 80 hours in a week at the hospital. The result generally is a tested physician with a wide-ranging knowledge of sickness and health. But some are finding that is no longer enough.

As the health-care system grows ever more complex, doctors have realized that they must also develop expertise in areas such as management, business strategy, and public policy—or risk abdicating their role in shaping the future of medicine. To that end, NYU has joined the cadre of medical schools that now offer dual degrees in medicine and business administration. Darien Sutton-Ramsey (MED '14), a third-year medical student and class president, sees the degree as a way to "fill a void between the people who make health care and the people who *do* health care."

The program is part of the School of Medicine's Curriculum for the 21st Century, or C21, which also offers medical students a chance to earn a dual degree in four other disciplines: bioethics, clinical investigation, global public health, or health policy and management. "Our goal [with C21] is to take on very smart students and offer them pathways to go deeper into the areas of their particular interest," explains Steven Abramson, senior vice president and vice dean for education, faculty, and academic affairs.

Abramson says that the response from would-be students has been "remarkably strong"—particularly to the MD/MBA, whose first class starts this fall. The investment, med student Sutton-Ramsey notes, will give NYU grads far more tools to use in the field. With such a degree, he says, "I will be able to treat not just one patient, but populations of patients."



## Far-Flung Study

From the White House to Sydney's Opera House, NYU is adding new icons to its study-away options. The Aussie academic site opened this fall with a humanities-based curriculum centered around English literature, environmental studies, and journalism. NYU Sydney will also introduce students to the country's Aboriginal culture through classes on art history and anthropology, plus faculty-led field trips. Or if the outback seems too far from home, there's the Constance Milstein and Family Global Academic Center located in the heart of Washington, D.C. The newly constructed 75,000-square-foot facility will house 120 students per semester with courses focusing on government, politics, economics, and public administration.



Prague, Czech Republic



Paris, France



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Florence, Italy



Washington D.C.

Occupational therapy

## Keep Calm and Carry Om

Under the watchful eye of their teacher, a group of 6-year-olds walk into their classroom, unroll pint-size yoga mats, and inhale deeply before assuming downward-facing dog position.

It may look unconventional, but that's how more than 500 classrooms across New York City now start the school day, thanks to "Get Ready to Learn" (GRTL). The program, designed by occupational therapist and yoga instructor Anne Buckley-Reen, comprises a 17-

ideal for children on the autism spectrum because they thrive on predictability, says Kristie Koenig, an assistant professor of occupational therapy at the Steinhardt School of Culture, Education, and Human Development. Together with Steinhardt doctoral student Satvika Garg, Koenig ran a 16-week study of GRTL in which teachers and parents completed a checklist recording the daily behavior of students with autism.

The resulting paper, recently published in *The American Journal*



PHOTO COURTESY GET READY TO LEARN  
AUTISTIC CHILDREN WHO STARTED THE DAY WITH YOGA SHOWED LESS AGGRESSION AND HYPERACTIVITY.

minute series of simple yoga positions, such as spinal twists and child's pose, as well as breathing exercises, for autistic students ages 5 to 21.

While yoga is now common in schools, Buckley-Reen's program, which is led by teachers and uses instructional DVDs, follows the same specific pattern each day. This repetition and precision is

of *Occupational Therapy*, notes that the children who participated in yoga showed less of the aggressive behavior and hyperactivity typically associated with autism. In fact, the students reported feelings of calm and happiness after the exercises. "You could see the stress and anxiety levels drain from the classroom," Koenig says.

—Sally Lauckner

Anthropology

## SIZING UP EARLY HUMANS

In 1972, along the crumbling ravines of the Lake Turkana Basin in Kenya, paleoanthropologist Richard Leakey uncovered the skull of an odd-looking hominid. KNM-ER 1470, or simply "1470," as it came to be known, appeared to date from the dawn of the *Homo* genus nearly two million years ago, but was unlike any early human fossils found before. It had a large skull and notably flat face. The question that divided anthropologists was whether it was simply an outlier—an abnormal-size or deformed individual—or evidence of a whole other species.

The answer to that question was recently unearthed with three new fossils—a juvenile's face, a nearly complete lower jaw, and a portion of another

lower jaw—that closely match the unusual structure of "1470." Scientists with the Koobi Fora Research Project, led by Meave and Louise Leakey (Richard's wife and daughter, respectively), made the discoveries, which were announced in the journal *Nature*. They suggest this was indeed a separate species that lived alongside two other early types of hu-

mans, *Homo habilis* and our direct ancestor, *Homo erectus*. "Since we're the only species of *Homo* [today], we tend to think that's the way it was universally in the past," says NYU anthropologist Susan Antón, who analyzed the bones as a member of the Koobi Fora team. "And that's not the case."

The advent of early humans was likely a dynamic time, Antón observes, where various species may have experimented with foods or environments in their evolutionary quest to survive. But scientists refrain from supposing too much from these latest finds. What Antón and her colleagues can say—after comparing them to fossils housed in the national museums of Kenya and Tanzania, as well as to living apes and modern human skeletons—is that their jaw was constructed differently.

And the new finds presented another twist. While some anthropologists had long suspected that "1470" represented a new *Homo*, many had assumed that it was a larger species—much like a gorilla is to a chimpanzee. But the new juvenile's face and jaws suggest "1470" was simply an outsize adult within a species whose size variation may have been as vast as our own is today (think Shaquille O'Neal compared to the average man on the street). "That's the thing about the fossil record," Antón muses. "It always kind of throws you a curveball."

—Nicole Pezold

Physics

## WHAT'S THE FREQUENCY, VIRUS?

A few years ago, Stephen Arnold was at an Itzhak Perlman concert when his mind wandered. "I was wondering what a piece of dust would do if it hit the violin string," the professor of physics and chemistry at NYU-Poly says. Surely the dust would change the string's frequency ever so slightly. He then wondered whether the same principle could be used to detect something even smaller, such as a virus, and he took the idea to the lab.

What emerged was a new type of biosensor, one that could revolutionize the diagnosis of disease. Here's how it works: A laser sends light through a glass fiber to a detector. When a tiny glass sphere is placed against the fiber, certain wavelengths of light will take a detour into the sphere and bounce around inside, creating a dip in the light the detector receives. If a virus clings to the microsphere, which is only two-thousands of an

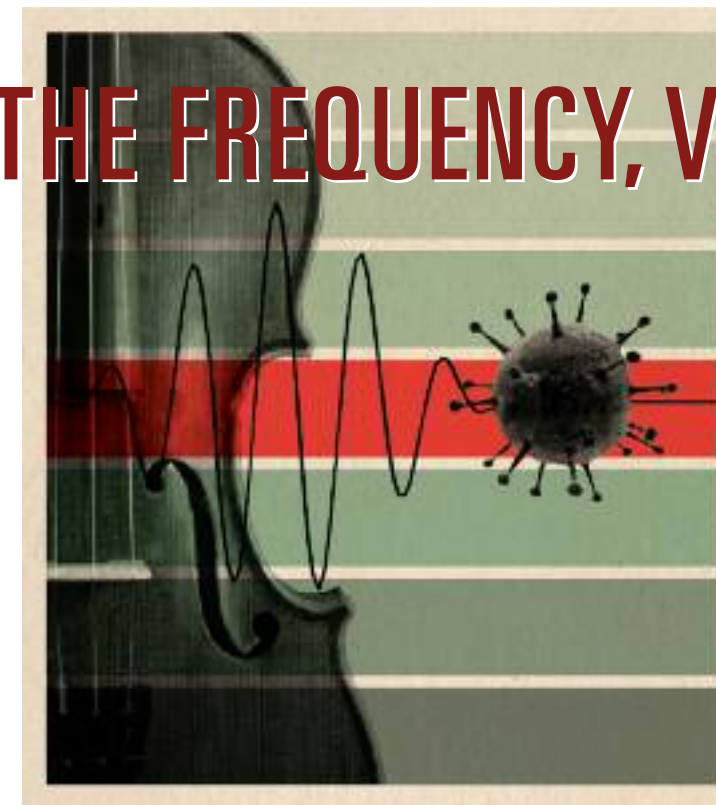


ILLUSTRATION © CRISTINA COUCERO

inch across, the sphere will resonate at a different frequency and take in different wavelengths of light. Arnold named the system a "whispering gallery-mode" biosensor, or WGM, in a nod to the way voices bounce around the whispering gallery under the dome of St. Paul's Cathedral in London.

In a recent issue of *Applied*

*Physics Letters*, Arnold and collaborators reported that they've now taken WGM biosensors to a new level. By attaching a smaller gold nanoparticle to the microsphere, they've managed to amplify its sensitivity. Before this innovation, they could detect viruses such as influenza, which weighs a few hundred attograms, or quintil-

lionths of a gram, one at a time, but not smaller viruses, such as polio and hepatitis. Now even the smallest known RNA virus particle, MS2, at only six attograms, can be detected when it perches on the gold nanoreceptor.

"You know that if you can improve the sensitivity of a sensor by 70 times on your first effort," you're onto something, Arnold says. And his lab is just getting started. Now they're working to detect single proteins, which are smaller. In blood, antibody proteins can signal infection before viruses take over, giving doctors a head start on treatment if found in time. In recent months, Arnold has even found a way to insert his biosensors into "smart" syringe needles.

"Ultimately sensors will make diagnostics in-house, in minutes rather than days," he says.

Let that idea rattle around in your head for a while.

—Matthew Hutson

Psychology

## OBSERVANT INFANTS

A new study suggests that infants see the correlation not just between speech and observed action, but also the very unobservable relationship between speech and intention.

In an experiment published in the *Proceedings of the National*

*Academy of Sciences*, NYU psychology professor Athena Vouloumanos, her former research assistant Amanda Pogue, and Kristine Onishi of McGill University had adult "communicators" and "recipients" act out predictable and unpredictable scenes in front of infants. In one

case, an actor tried to stack rings onto a funnel and showed frustration at it being out of reach. In another, a communicator barked words or noises to a recipient: In one instance, a made-up word, "koba"; in another, a common cough. The young subjects held their gaze longer when a recipient failed in the action after hearing koba, indicating that they viewed this result as incongruent with the instruction and the intention. Results from the cough did

not provoke their interest as extensively.

Vouloumanos believes this confirms that infants are more perceptive than previously thought. "[They] understand not only that other people have invisible thoughts, but that people can use speech to inform others about these unobservable thoughts," she says. The implication is that infants "could learn, in theory, about things beyond their immediate experience." —Naomi Howell