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MEDICAL SCIENCES

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The Innovators

Weill Cornell nurtures
faculty entrepreneurs

CELEBRATING THE VISIONARY LEGACY OF SANFORD I. WEILL



The Weill Cornell Children's Health Council

The Weill Cornell Children's Health Council is an essential partner in the Medical College's pioneering children's health research efforts. The Council – a newly established group of individuals, parents and grandparents committed to finding solutions to some of the most prevalent health issues facing children and adolescents today – is led by Executive Committee Co-Chairs Jack Barchas, MD, Chairman of Psychiatry and the Barklie McKee Henry Professor of Psychiatry, and Gerald Loughlin, MD, Chairman of Pediatrics and the Nancy C. Paduano Professor of Pediatrics.

The Council includes members who have committed a minimum gift of \$10,000 payable over three years to support research in children's health. Members have the opportunity to meet esteemed researchers and clinicians on the Weill Cornell pediatric team and to learn about the latest discoveries in children's health and development. Council activities include personalized facility tours, privately hosted discussions with faculty experts, family-oriented educational events, and more.



Dr. Gerald Loughlin, Jim Price, Overseer Nancy Paduano and Dean Glimcher at a Children's Health Council event.



Eric Rosen, Ronni Miller, Jill Swid Rosen and Dr. Barry Kosofsky, the Horace W. Goldsmith Foundation Professor of Pediatrics.

"We have learned a great deal by interacting with the knowledgeable and compassionate medical professionals at Weill Cornell," say Jill and Eric Rosen, Children's Council Executive Committee members. "As parents, we have made better decisions regarding the care of our children since we became part of the council."

By increasing awareness of the major health concerns facing today's families, the Children's Health Council supports the advancement of Weill Cornell's critical children's health initiatives.

For more information about joining the Children's Health Council, please contact childrenshealthcouncil@med.cornell.edu or 646-317-7358.



Weill Cornell Medical College

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INTERVIEW BY JESSICA BIBLIOWICZ

In December, Weill Cornell's foremost benefactor, Sanford I. Weill, announced his retirement as chair of the Board of Overseers after twenty years of visionary leadership. Mr. Weill, who will hold the title of chairman emeritus, is succeeded by his daughter, Jessica Bibliowicz, a successful entrepreneur in the financial services industry and a Cornell alumna who has served on the board since 2004. *Weill Cornell Medicine* brought them together for a chat in the Belfer Research Building, where Mr. Weill shared his thoughts on a ground-breaking term of service that has transformed the institution. "This place is part of my family," he says. "It's been fun and deeply gratifying getting to know the doctors and really making a difference in people's lives."

28 ENTREPRENEURSHIP IN ACTION

BETH SAULNIER

With "translation" now the watchword of biomedical research, more physicians and scientists are exploring their entrepreneurial sides—endeavors that Dean Glimcher has encouraged since her arrival. The Medical College now has a number of programs that facilitate collaboration with industry, including the Tri-Institutional Therapeutics Discovery Institute (Tri-I TDI); Weill Cornell's branch of Cornell's Center for Technology Licensing (CTL); and an office devoted to biopharma alliances and research collaborations. "The idea that industry contaminates the purity of the academic mission is outmoded to say the least," Glimcher says. "To my mind, our alliances with the pharmaceutical industry are the most effective way to get our discoveries from the bench to the bedside."

36 MIND MELD

BETH SAULNIER

Concussion has become a subject of national discussion, as former professional athletes have gone public about the long-term damage they've suffered after years of sports-related head injuries. Ills such as dementia, depression, and cognitive deficits are increasingly being linked to the tackles, knock-outs, and cross-checks of bygone sports careers, even if an injury didn't seem devastating at the time—and the concern extends to kids' sports as well. At Weill Cornell, clinicians and researchers are at the forefront of work on concussion, striving to create a gold standard for patient care as well as to understand the condition's physiological underpinnings. Faculty are practicing on the sidelines of marquee match-ups; working to establish better ways to assess traumatic brain injury both on the field and in the clinic; advancing research on the subject; and treating patients from pediatrics to the pros.

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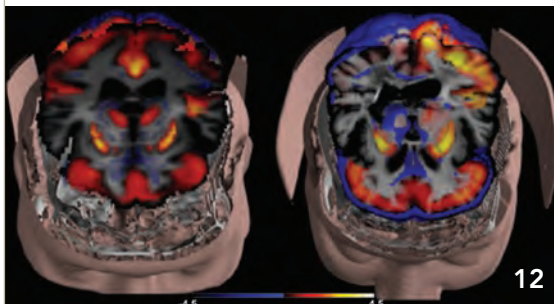
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Entrepreneurial Spirit

Laurie H. Glimcher, MD,
Dean of the Medical College

When I arrived at Weill Cornell, I knew the essential facts about Sanford I. Weill: that he was a self-made man, born in Brooklyn, who for twenty years had led this institution as chair of the Board of Overseers with the same vision, leadership, and hard work that he dedicated to reinventing the financial services industry. But it wasn't until I had the chance to work closely with Sandy that I fully understood what a remarkable individual he truly is.

This month, Sandy retires from the role of chair. His daughter, Jessica Bibliowicz—like her father, a Cornell University graduate and a successful executive in the financial sector—will succeed him, bringing the same entrepreneurial perspective to the job.

With Sandy's vision inspiring us, we have raised our sights ever higher, expanding and deepening our efforts in medical education, research, and clinical care, and launching many new initiatives all over the world. Sandy was the recipient of Cornell's first Entrepreneur of the Year Award in 1984. As you'll read in this issue, our faculty are thinking like entrepreneurs too, forging new alliances and calling on the expertise of a wide range of partners with the skills, expertise, and means to help.

Weill Cornell physician-scientists—like Sheila Nirenberg, PhD, the Nanette Laitman Professor in Neurology and Neuroscience, who started a company and raised some of the money she needed to fund clinical trials for an artificial retina—are collaborating with the private sector and finding new ways to transform their discoveries into treatments that can help patients. To support our faculty in these efforts, we founded the Center for Technology Licensing to help with

tech transfer, launched an office of BioPharma Alliances and Research Collaborations (which draws on business, science, medicine, and law to structure and negotiate strategic alliances), and established the Daedalus Fund for Innovation to support promising early-stage research with the aim of making it ready for industry partnerships.

In these ways and many others, our institution and our faculty are demonstrating how seemingly intractable, global problems can be solved with creativity, flexibility, and invention. Just as entrepreneurship has transformed numerous industries, it is transforming Weill Cornell. In a climate of diminishing federal funding, we have looked for these and other new strategies to bolster translational research—to find new ways to fulfill the great promise of the concept of “bench to bedside” and turn discoveries into therapies that will dramatically improve the lives of the patients and families who place their faith and hope in us.

Sandy's enduring legacy to this institution reaches deeper and extends far beyond the fact of our shared name, or even the astonishing generosity he and his family have demonstrated over three decades. His leadership has spurred an unprecedented expansion in our ability to treat patients, push the boundaries of human knowledge, and educate future generations of clinicians and scientists to continue to do the same. He has positioned Weill Cornell for enduring success at a critical moment, when medicine holds enormous potential to find cures and treatments for the most devastating human conditions.

For this and much more, we thank and honor him. With Sandy's spirit and vision inspiring our classrooms, laboratories, and clinics, how exciting Weill Cornell's future will be. The full magnitude of his legacy is sure to be felt for generations to come.



LISA BERG

A close-up photograph of a hand holding a clear plastic petri dish. The dish contains a thick, orange-colored liquid. The background is a plain, light color. The text is overlaid on the center of the image.

The New Daedalus Fund
Innovation and
at Weill Cornell

The Daedalus Fund for Innovation, established by Dean Laurie Glimcher and the Board of Overseers earlier this year, is a new program designed to advance promising early-stage applied and translational research with commercial potential, in order to speed the latest laboratory breakthroughs to the patient bedside.

The fund is already off to a tremendous start. Thanks, in part, to the generosity of a number of key donors, five scientists have already been selected as the inaugural winners of awards from the fund. The investigators, Drs. Peter Goldstein, Gang Lin, David Lyden, Stefano Rivella, and Enrique Rodriguez-Boulan will each receive \$100,000 to fund studies demonstrating that their early stage discoveries can be translated into effective treatments for patients (to learn more about each scientist and his work, see page 33).

Discovery

“The Daedalus Fund is helping us mobilize and innovate,” said Larry Schlossman, Managing Director of BioPharma Alliances and Research Collaborations at Weill Cornell, who manages the Daedalus Fund.

“That’s incredibly exciting. I see so much rich opportunity in Weill Cornell’s research enterprise, but some of the projects need a little help getting across the finish line or getting to the proverbial take-off point where they will be viewed favorably by industry as potential candidates for further development.”

The Daedalus Fund is designed to help Weill Cornell investigators make their research more appealing to the biopharmaceutical industry. Investors require “proof of concept” – for instance, data derived from testing in models or the discovery of a new biomarker – as the standard by which they determine whether a project is ready for funding.

While grants from the National Institutes of Health or other agencies fund basic science research, they often don’t provide enough money to cover these “proof of concept” studies. This funding gap is one of the greatest obstacles scientists face when trying to advance early-stage discoveries into next-generation treatments. The Daedalus Fund was created to help bridge that gap.

To learn more about giving to the Daedalus Fund, please contact:

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JOHN ABBOTT

The torch is passed: Entrepreneur Jessica Bibliowicz, a Cornell University alumna, is the new chair of Weill Cornell's board.

Bibliowicz Leads Board of Overseers

Jessica Bibliowicz, a successful entrepreneur in the financial services business for nearly three decades, has assumed the role of chair of the Board of Overseers. She succeeds her father, Sanford I. Weill, who will hold the title of chairman emeritus.

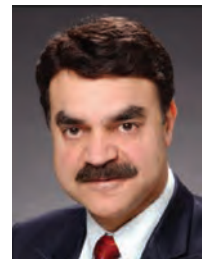
A Cornell University trustee and a 1981 graduate of the Ithaca campus, Ms. Bibliowicz has served as a Medical College overseer since 2004. "It's an honor and privilege to be able to support Weill Cornell Medical College's tremendous efforts to educate, innovate, and heal," Ms. Bibliowicz says. "As a Cornell University alum, it's especially meaningful to me to try and help take this distinguished institution to the next level of excellence in New York and beyond. Our ever-changing healthcare landscape has sparked exciting opportunities to help shape national conversation, and I'm eager to work with Dr. Glimcher and the Board of Overseers as we strive to improve and prolong human health."

After working in financial services for nearly two decades, Ms. Bibliowicz became CEO of National Financial Partners, which specializes in benefits and wealth management. The company went public in 2003 and was sold to Madison Dearborn in 2013. A member of the Cornell NYC Tech Campus Task Force, Bibliowicz is currently a senior advisor at Bridge Growth Partners and serves on the board of directors of Sotheby's, Realogy, and the Asia Pacific Fund. She is a board director-trustee of Prudential Insurance Funds and is

on the board of Jazz at Lincoln Center. Says Sanford Weill: "I could think of no one better than Jessica to shepherd Weill Cornell into the next stage of its evolution."

WCMC-Q Creates Six-Year Curriculum

The Qatar branch is restructuring its curriculum to integrate its premedical and medical programs into one cohesive, six-year program. Under the new system, students will no longer have to go through a separate admission process to make the transition from the two-year premedical program to the four-year medical one. Instead, a single admission process will determine entrance to a six-year program; students will progress through the curriculum according to such criteria as academic performance, professionalism, and commitment to the profession of medicine. "This important innovation preserves the content, academic rigor, and quality of our highly regarded premedical and medical programs," says WCMC-Q Dean Javid Sheikh, MD, "while providing additional flexibility to our students and at the same time advancing their preparedness for the medical profession."



Javid Sheikh,
MD

\$25 Million Gift Establishes Drukier Institute for Children's Health

A \$25 million gift from Gale and Ira Drukier will establish a cross-disciplinary institute dedicated to understanding the underlying causes of diseases that are devastating to children—and rapidly translating research breakthroughs into advanced therapies. The gift, which establishes the Gale and Ira Drukier Institute for Children's Health, will enable Weill Cornell to recruit a team of leading scientists, secure the latest research equipment (such as sequencing and informatics technology), and develop an infrastructure for a biobank. To be headquartered on the twelfth floor of the Belfer Research Building, the Institute will enhance the Medical College's research and clinical care programs in treating such ailments as asthma, autism, cancer, cardiovascular disease, infectious diseases, and schizophrenia. "We are greatly appreciative of Gale and Ira Drukier, whose remarkable gift will enable Weill Cornell to expand its world-class research and clinical care programs for children, who can't be treated like little adults," says Dean Laurie Glimcher, MD. "The Drukiers' generosity is critical in allowing us to attract the best and brightest minds in pediatric research, who will lead the way as we pursue innovative treatments and therapies that will ensure the health of children now and in the future."

Longtime Cornell University philanthropists, the Drukiers have provided generous support to the Johnson Museum of Art and the College of Architecture, Art, and Planning. An engineering alumnus of the Ithaca campus, Ira Drukier, PhD, is co-owner of BD Hotels, LLC, a real estate development company that owns and operates



Gale and Ira Drukier

ABBOTT

more than two dozen properties in New York City. Gale Drukier, EdD, had a long academic career in audiology before joining BD Hotels. "As parents and grandparents, Gale and I appreciate the tremendous impact medicine can have on growing children," says Ira Drukier, a member of the Board of Overseers. "When you cure children, you give them their entire life back. It's with immense pride that we are able to make this investment, which will empower Weill Cornell to focus and direct all of its outstanding pediatric research under the auspices of one institute and provide vital resources to develop tomorrow's treatments and cures."

FROM THE BENCH

EEG Could Aid Brain Injuries

Electroencephalography (EEG), a widely available technique that measures electrical activity in the brain and is mainly used as a diagnostic test for epilepsy, could offer a more accurate way to characterize consciousness in brain-injured patients. In a study led by Nicholas Schiff, MD '92, the Jerold B. Katz Professor of Neurology and Neuroscience at the Feil Family Brain and Mind Research Institute, and published in *Annals of Neurology*, researchers report that EEG detected potential cognitive function in patients that was typically imperceptible at the bedside or through other imaging techniques such as fMRI. The technology could help detect awareness in thousands of patients previously classified as unresponsive—and make vital differentiations among patients who are comatose, in a vegetative state, or minimally conscious.

A Drug to Stop Hearing Loss?

Researchers from Weill Cornell and the Gladstone Institutes in San Francisco have found a way to prevent noise-induced hearing loss in a mouse using a simple chemical compound—nicotinamide riboside (NR)—that is a precursor to vitamin B3. As described in *Cell Metabolism*, the researchers used NR to protect the nerves in the cochlea that are damaged by loud noise, finding it was effective at preventing both short- and long-term hearing

loss; furthermore, it was equally effective whether it was given before or after noise exposure. Study authors include Samie Jaffrey, MD, PhD, professor of pharmacology, and Anthony Sauve, PhD, associate professor of pharmacology.

Resident-on-Resident Abuse Common in Nursing Homes

Inappropriate, disruptive, or hostile behavior between nursing home residents is a sizable and growing problem, finds a joint study by the Medical College and the Ithaca campus. Mark Lachs, MD, co-chair of the Division of Geriatrics and Gerontology and the Irene F. and I. Roy Psaty Distinguished Professor of Clinical Medicine, and Karl Pillemer, PhD, a professor of gerontology in medicine at Weill Cornell and of human development in Ithaca, randomly selected ten skilled nursing facilities in New York State. They found that nearly one in five residents were involved in at least one negative and aggressive encounter with one or more fellow residents over the previous four weeks. The researchers reported their results at a meeting of the Gerontological Society of America in November.

Exercise Combats Heart Disease and Depression

In *Clinical Therapeutics*, researchers report that exercise is key to improving health outcomes for patients who suffer from both cardiovascular disease and depression. A year-long study—led by Janey Peterson, EdD, MS '07, associate

professor of clinical epidemiology in medicine, in cardiothoracic surgery, and in integrative medicine—comprised 242 patients who had recently undergone a non-surgical procedure to open narrow or blocked coronary arteries; eighty-nine of them had high levels of depressive symptoms. Investigators found that patients who walked 4.2 miles or more per week for a year had lower rates of cardiovascular morbidity and mortality. Patients with high depressive symptoms who achieved that activity benchmark were nearly nine times less likely to experience a major cardiac complication or death.

For Toddlers with Autism, Parent Intervention Is Best

Toddlers with autism showed significant improvement after intensive intervention by parents rather than clinicians, reports a study published in *Pediatrics* and led by Catherine Lord, PhD, director of the Center for Autism and the Developing Brain, a DeWitt Wallace Senior Scholar, and a professor of psychology in psychiatry and in pediatrics. "The treatment model shows that parents can learn to support their child's learning in everyday activities," Lord says, "and that this can result in improvements in the child's overall development and specifically in social communication and autism symptoms." Social communication includes eye gaze, facial expressions, gestures, sounds, sharing of emotion, and listening—things that children with autism have difficulty with.

Talk of the Gown

Insights & Viewpoints



Making change: Activist Prabhjot Singh, MD '11, in his Harlem neighborhood

Hope & Faith

Sikh advocate Prabhjot Singh, MD '11, works for social justice, globally and locally

In August 2012, Prabhjot Singh, MD '11, co-wrote an opinion piece in the *New York Times* in which he argued that the FBI should keep separate statistics on hate crimes against Sikhs. After months of work by activists and the convening of congressional hearings, the agency complied. "Ultimately the FBI did change its hate crime tracking system," says Singh, a human rights advocate active in the Sikh community. "And just a few months later I was attacked, so I was one of the first people to

enter that system. It became personal very fast."

It happened one evening when Singh and his brother were taking a post-dinner walk near Central Park in Harlem, where Singh—an internal medicine resident at Mount Sinai and an assistant professor of international and public affairs at Columbia—lives with his wife and toddler son. A group of young men chased them down and surrounded them, assaulting them amid cries of "Osama!" and "Terrorist!" Singh was left with a fractured jaw—and an even



JOHN ABBOTT

greater resolve to combat the sort of hatred, intolerance, and misunderstanding of which he'd become a victim.

Sikhism is the world's fifth-largest religion, with some 24 million followers worldwide. About half a million live in the U.S.—and since the September 11 terrorist attacks, they've been the target of crimes spurred not only by ethnic hatred but by garden-variety ignorance. Sikhism is an independent monotheistic religion founded in fifteenth-century India—but the turbans and untrimmed beards they wear as articles of their faith have put them in the crosshairs of people who not only equate Islam with terrorism, but see anyone who looks like them as the enemy. Just four days after 9/11, a Sikh gas station owner was murdered in Arizona by a man who went hunting for Arabs in the name of vengeance. In the wake of that incident and others, Singh began working with civil rights organizations that promote understanding and aid victims of discrimination.

"Even today," Singh says, "we still are chased by the ghosts of misinformation in ways that range from benign to quite hurtful, physically and verbally."

The worst attack of its kind happened long after 9/11, when a white supremacist murdered six worshipers at a Sikh temple in Wisconsin in 2012. Singh points out that Sikhs also face institutional discrimination: due to their turbans and facial hair, they're not accepted in either the NYPD or the U.S. military (though, he notes, a few Sikh soldiers have gotten exemptions and served with distinction). And for Singh, like many male Sikhs, air travel remains an ordeal. "It's something that I struggle with, although I can't do anything about it in particular," he says. "I'm occasionally treated quite rudely just on the basis of what I look like. My turban is patted down like I'm a terrorist; it's wanded for bombs every time I go through. If there's a false positive—which there occasionally is in all systems—I'm questioned extensively. At the end of the

day, you're faced with the fact that you look like somebody suspicious. And if your government tells you that, it's not surprising that some days, in a violent way, your neighbors tell you that."

Singh was born in Nairobi to parents that had immigrated to Kenya from India; the family moved to the U.S. (for his father's postdoc in entomology) when he was ten. He studied biology and history at the University of Rochester before entering the Tri-Institutional MD-PhD Program; in addition to his Weill Cornell degree, he holds a doctorate in neuroscience from Rockefeller. It was during grad school that Singh became more observant and was formally initiated into the Sikh faith; the religion is non-proselytizing, has no priestly class, and requires adherents to choose initiation as adults. "Its core tenets are to remember the universal, that we're part of a greater force that connects us all; to be proactive in your community; and to always give to others," Singh says. "It believes that there are many paths to achieving oneness with the universe and emphasizes love, compassion, and justice." The religion's principles, he notes, dovetail with those of medicine. "Sikhism emphasizes working in one's community for the betterment of all, regardless of background—and in concrete, practical ways, being a doctor can be a wonderful way to do this," he says. "At the same time, my faith guides me to reframe the doctor-patient relationship from a hierarchal one to that of achieving a shared goal of bettering health in ways that lead to a more caring society."

Singh's activism has been both global and local. Through Columbia's Earth Institute, he's director of systems design and chairman of the One Million Community Health Worker Campaign, which is hosted by the African Union. He's an advisor to City Health Works, a nonprofit (founded by his wife, a Columbia-educated MBA) that aids Harlem residents coping with chronic disease. In 2012, the Robert Wood Johnson Foundation named him one of ten Young Leaders, people under forty who've made exceptional contributions to improving the nation's health. "For the most part, in a professional setting, my beard and my turban have been an asset," Singh muses. "People remember me. I have the opportunity to make the first move and set the precedent for what type of person I am. I'm basically asked, 'What's your deal? Why do you wear that?,' which I welcome. I think all the questions are opportunities."

— Beth Saulnier

'Sikhism emphasizes working in one's community for the betterment of all, regardless of background—and in concrete, practical ways, being a doctor can be a wonderful way to do this.'

Insurance Exchange

Three students on the front lines of community care weigh in on what healthcare reform means for patients

As Weill Cornell students witness the effects of healthcare reform on patients, the rollout of expanded insurance coverage is simultaneously shaping their identities as twenty-first-century physicians.

For the Weill Cornell Community Clinic's three co-executive directors—MD-PhD students Hannah Huang, Lisa Noble, and Jonathan Steinman—the approximately 100 patients they treat are the clearest examples of why lawmakers passed the Affordable Care Act more than four years ago. Because of the circumstances of their jobs, finances, or immigration status, these underserved and uninsured New Yorkers have historically slipped between the healthcare safety net's holes.

But now the Affordable Care Act and its key provisions—an expansion of Medicaid and federal subsidies to defray the cost of private insurance—have been fully implemented. Since January, Huang, Noble, and Steinman have watched healthcare reform play out in the student-run clinic, which provides free primary care and women's health and mental health services, and have been struck by the ACA's surprising ramifications. "I've manned the front desk and had patients come to me telling me they've 'graduated,'" Noble said about patients who, now with health insurance, are able to receive care at Weill Cornell Internal Medicine Associates, the Medical College's primary care practice. "They were absolutely thrilled about it and it wasn't just about the system working. They felt empowered by their success, and they were prepared to take care of themselves."

Here, Huang, Noble, and Steinman share their perspectives on how healthcare reform is affecting patient care and healthcare delivery at the clinic—and their emerging professional selves.

— *Alyssa Sunkin-Strube*

Hannah Huang

It's pretty terrifying to not have health insurance. My family and I were uninsured for a period of time when we first moved to the United States from Taiwan, simply because we could not afford health insurance. I was five or six years old at the time, and my father was a student and didn't yet have a stipend. I remember him having to go to the ER for a fever—something you'd go to a primary care doctor for unless you didn't have one. It can be very scary to fall into the gaps. And it's just as terrifying knowing you are going to get a bill but not how you are going to pay for it. You don't know when you'll need health insurance, which is the point of giving it to everyone—so you have that net. Once he started getting his stipend, we got insurance.

Last year, the leadership at the Community Clinic met and talked about how the Affordable Care Act is being implemented and what we should do to help people get insurance. One of the things we discussed was having our team of social workers continually evaluate our patients for programs across New York City, including Medicaid and other insurances. Of the seventy-seven patients who have come in between January and early September, our social workers have seen sixty-nine of them. Some forty of them were eligible for insurance for the first time; they would have been ineligible before this year. We also send out flyers with a basic fact sheet explaining to our patients what their insurance options are and how we can help them. And we've partnered with NADAP's In-Person Assistance Navigator Program, a non-profit that helps our patients get around New York's health insurance marketplace and fill out the necessary forms.

At the last meeting of the Society of Student-Run Free Clinics, the keynote speaker talked about how all of the news about the ACA, whether good or bad, has raised awareness for health insurance and access to care and more people are asking about it. Go to a restaurant and the next table over is talking about the ACA and "Should I sign up for the marketplace?" I think that's been one of the most positive things this debate has done: it has made health insurance a topic worth talking about.

Jonathan Steinman

As far as I can see, healthcare reform has been positive. I can't think of many ways I can call it negative. The biggest change is that many more low-income patients that we see can now get Medicaid. Five times more people have been successfully enrolled in the past nine months than in the previous four years I've worked in the clinic; we've had fewer people coming to us for long-term, routine care. It sounds like bad business for us, but that's a positive thing because people are getting formal insurance with a regular provider. Our experience is that, while many patients have transitioned to coverage through the ACA, there are still so many uninsured people in New York City that our services are constantly in high demand. So while we're happy to help patients move away from our clinic once we've helped them access coverage, we'll continue to provide care for the many patients who, for whatever reason, remain uninsured.

One of the reasons why I've stuck with the clinic is that every person is a great example of the need for healthcare reform. There are so many mundane things that an insured person doesn't even think twice about. There was a patient of ours who had a growing sore and she knew about it, but also knew there were limitations as to what we as a free clinic could do. She refused to show it to us. It was tough to say if it was just anxiety that caused her to hide it, but it did turn out to be bad news—it was cancer—and if she hadn't waited on it, she would've been in a better position to fight it. There's one person with type 1 diabetes who only monitored his glucose levels once a day because the lancets are too expensive.

Most medicine happens well outside the realm of Dr. House. Very few people show up on



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Good medicine: MD-PhD students (from left) Lisa Noble, Hannah Huang, and Jonathan Steinman at the Weill Cornell Community Clinic

a first visit and have these crazy findings. Mostly, the human body wants to fight to survive, and it takes years to break the body down. That's why insurance is so important, because you can intervene while the process is still ongoing and not terminal.

The continual legal battles will go on, but I think that, for people in an ostensibly non-political position, our job is to speak up when a matter of policy impacts what we do. We have to put our heads down and contribute and let the politics boil over. Four years is so short in the span of history, but it's ages in politics. It takes longer than four years to recognize whether or not a massive program like this will be a success or failure.

At the end of the day, there are a million human factors for every individual that impacts his health and access to health. Then multiply that by millions—that's a Herculean challenge if I've ever heard of one. I think we need to think about why the ACA isn't giving us all what we want. The simple answer is that providing healthcare is really hard, and that maybe our expectations that it should be easy without a political fight may be too much to ask.

Lisa Noble

I was born in London and moved to the United States when I was two. I was exposed to the U.K.'s National Health Service and despite all of its woes and the waiting lists, everyone has care. I think it should be a human right to receive medical care; it's one of the reasons why I went into medicine. My work in the clinic and my future career as a physician both give me a chance to make a difference

in the structure of the profession, and I think the ACA gives us an opportunity to make some strides in equalizing healthcare access.

As a free clinic in New York City that sees strictly uninsured patients, we have the opportunity to really look at the numbers and see how many of our patients are getting insurance, either through the Affordable Care Act or the expansion of Medicaid. We feel like there's been an overall national push to help people get insurance now. It's crucial for free clinics to determine whether they helped their patients get insurance and if they continued to get care as they transitioned into private practices.

Some of our patients feel like they are graduating when they get insurance. They are absolutely thrilled, and it isn't just about the system working. They feel empowered by their success, and they are prepared to take care of themselves.

As new doctors, we have a responsibility to help define what it means to be a doctor in the twenty-first century. Medicine is very compartmentalized: doctors take care of the patients, and the billing department will figure out the money. It shouldn't be that way. It's very stressful for patients to sit with these bills and not know what to do. So we need to help them navigate the system.

Medical students are asking questions: "How will the ACA affect me?" Those who are involved in the clinic—which is just about every student, even if they only volunteer for one night—definitely get a better idea of what patient care is really like since the ACA has been implemented. While we don't have all the answers—the industry is changing, and we need to wait and see what happens—we're all in it together.

Wake-Up Call

The 'mesocircuit' may be the key to treating brain-injured patients

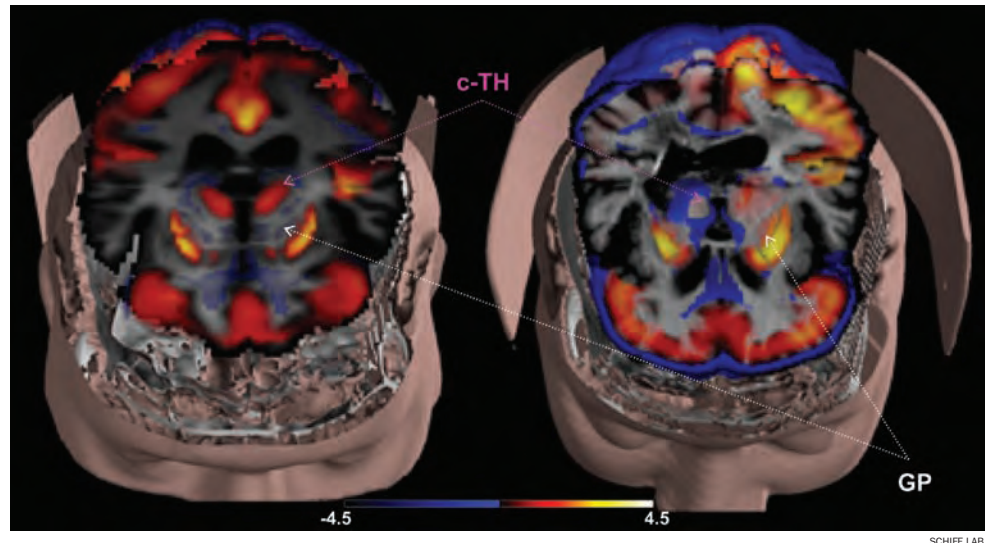
Esteban Fridman, MD, PhD, was frustrated. As head of the neurorehabilitation service at a traumatic brain injury (TBI) clinic in Argentina in the 2000s, he often felt like he was flying blind. Despite decades of research into brain science, no one had been able to figure out the underlying chemistry that caused patients to fall into a vegetative or semi-vegetative state after an accident—or more importantly, how to reverse the process.

Then one day, Fridman had a breakthrough: after years of trial and error with various drugs, he treated the victim of a motor vehicle accident—a twenty-five-year-old man who'd been in a vegetative state for four months—with apomorphine, which increases dopamine levels. Within just a few hours, Fridman got a call from the patient's mother that he had moved his fingers. The next day, he was starting to speak—and within a few months had made a complete recovery. "When I left Argentina, he drove 300 miles just to tell me goodbye," says Fridman, now a neuroscience postdoc in Weill Cornell's Feil Family Brain and Mind Research Institute. "I have pictures of him playing polo. This is the most spectacular response I have had, but not every patient responds this way. Sometimes you see a lot of improvements, and sometimes you don't."

The question of why some but not all TBI patients respond to drug therapy has vexed neuroscientists, who have long debated whether there is an underlying mechanism common to all cases of low brain awareness. Now, Fridman and Nicholas Schiff, MD '92, the Jerold B. Katz Professor of Neurology and Neuroscience in the Feil Family Brain and Mind Research Institute, have begun to answer that question. In 2010, Schiff proposed a mechanism called the "mesocircuit"—a feedback loop in the brain that controls our basic level of awareness.

In a paper published in the *Proceedings of the National Academy of Sciences* in April 2014, Fridman and Schiff provided the first evidence that such a mechanism exists—raising hopes that doctors may be able to jump-start consciousness. "If you know that there are particular parts of the brain that are involved during consciousness," explains Fridman, "then you can experiment with how to stimulate them."

The loop starts in the central thalamus, a structure buried deep inside the brain. Schiff proposed that it was key in sending signals to excite the frontal and parietal cortices, parts of the brain associated with higher cognitive functioning. Signals then return through the striatum and the globus pallidus, parts of the basal ganglia system at the base of the forebrain, which inhibit the central



Reading the signs: A rendering showing a common pattern of metabolic activity in a severely brain-injured patient (right) compared to a healthy one (left). Weill Cornell scientists found the same pattern of low activity in twenty-four patients, no matter how they were hurt, pointing to a new way to assess such cases.

thalamus so it doesn't overload.

Comparing PET scans of brain-injured patients with those of normal volunteers, Fridman and Schiff found dramatic differences. The injured brains showed reduced metabolism in the central thalamus, striatum, and cortices, but increased metabolism in the globus pallidus—suggesting that it was overly inhibiting the central thalamus and causing the loop to short-circuit. "Because of damage to the neurons, they cannot maintain the background synaptic activity needed to become aware," Fridman says. He and Schiff are now measuring dopamine receptors in the brain, in hopes they can spur a release of dopamine that will excite the mesocircuit and return it to normal function. Eventually, that may lead to the development of drugs that can directly spur this response. At the same time, Fridman and Schiff are experimenting with deep brain stimulation, which could engender the same outcome.

If they are successful, then one day the kind of recovery by Fridman's accident victim may become standard medical practice. "If we can better understand the role of the different neurotransmitters involved in consciousness and different approaches to brain stimulation, then we will surely find a better therapy for these patients," says Fridman. "You can imagine what that means not only for the patients, but also for their families."

— Michael Blanding



JOSH ANDRUS

Matters of the Mind

Allan Ropper '70, MD '74, offers notes from the front lines of neurology

When neurologist Allan Ropper '70, MD '74, set about writing a general-interest book about his specialty, he had one main goal in mind: to put readers at the patient's bedside. The result—*Reaching Down the Rabbit Hole*, published in September by St. Martin's Press—does just that. In the book, subtitled *A Renowned Neurologist Explains the Mystery and Drama of Brain Disease*, he and his co-author offer an up-close look at life in a busy neuro ward, where Ropper treats a dizzying variety of patients—from those who've suffered strokes or aneurysms to those with even more dramatic and exotic ailments.

There's the college student whose psychotic behavior is due to encephalitis triggered by a rare ovarian tumor. And the twenty-something PR executive whose inability to speak proves to be due not to epileptic seizures, but emotional distress over a recent break-up. And the mom in her

fifties with severe hydrocephalus, whose life is saved by a code team with nerves of steel and an expertly wielded cranial drill. "The practice of my craft, the clinical part of it, is the systematic, logical, deductive method that was in the past applicable to all branches of medicine, but now resides mainly in neurology," Ropper observes in the book. "The paradoxical part of it, the unique challenge, is that my primary sources of information—my patients' brains—are quite often altered, sometimes bizarrely, as a result of disease. This creates an incredible and self-referential conundrum. How do you begin to understand a sick brain? The only viable answer... is that you do it by engaging the person inside, and you do it on a case-by-case basis." Or, as *Publisher's Weekly* observed in its review: "Perhaps the biggest takeaway from Ropper's work is that every individual's mind, both in sickness and in health, is as unique as the proverbial snowflake."

The Raymond D. Adams Master Clinician at

Deep thoughts: Neurologist
Allan Ropper '70, MD '74

Boston's Brigham and Women's Hospital and a professor at Harvard Medical School, Ropper is a leader in his specialty. He helped found the field of neurological intensive care and co-authored the widely used textbook *Principles of Neurology*; past patients include actor Michael J. Fox, whom he treated for Parkinson's disease. He wrote *Reaching Down the Rabbit Hole* with Brian David Burrell, a mathematician and science writer, who shadowed him on the neuro ward for two summers during the research process. The title, Ropper explains, refers to Alice's adventures in Wonderland—"a bizarre realm in which nothing is what it seems, where everything bears little relation to the outside world." As he puts it: "Every one of our patients has, in effect, fallen into a hole, and it's our job to get them out again."

Crafted in the same narrative non-fiction genre as works by Oliver Sacks, MD, the book offers a taste of life on the front lines of neurology—which, Ropper repeatedly emphasizes, still relies heavily on personal observation even in the age of high-tech scans such as the MRI. "It's a specialty in which the clinician can be of

tremendous value," observes Ropper, who holds an undergraduate degree in math from the Ithaca campus. "You have to communicate with another individual's brain on a level that isn't always tangible, using your cleverness, experience, and understanding of human nature. It's ever-changing and infinitely interesting."

Reaching Down the Rabbit Hole is crafted as a series of vignettes accessible to the lay reader. There are dozens of anonymized case studies, anecdotes about Ropper's residents and their training, and some historical and cultural context—including, for example, a frank discussion of how different countries approach psychosomatic illness. "I didn't want to pontificate or theorize," Ropper says. "I wanted people who read fiction to enjoy this book. So you have to aim for a certain lyricism; it can't just be a list of cases. But I also wanted it to be a little like the clipped, noirish mystery novels that I grew up with—the idea that there are 'eight million stories in the naked city.'" *Kirkus*, which praised the book for its lively narrative and lack of jargon, wrote that Ropper and Burrell "make an intellectual, sympathetic team: one brings the meat

and potatoes to the table, the other, a measure of distance. They exhibit both a hungry curiosity and an elegant writing style married to the humbleness that comes from standing at the edge of the rabbit hole."

Ropper devotes a chapter to Parkinson's and his treatment of Fox, who became a prominent patient advocate and fundraiser after being diagnosed with the disease in his thirties. He also shares some medical school memories. Most vividly, Ropper recalls a second-year physical diagnosis course taught by Elliot Hochstein, MD—who, on the first day of class, surprised his students with the title number from the hit musical *Hair*, performed live by the Broadway cast. "The trick to medicine is to have it be an active experience, not to be a passive observer," Ropper quotes Hochstein as saying, in a lesson that has stayed with him for decades. "Get in there fully with your senses, and then you'll be a great clinician. Look, listen, feel! Don't just stand there. Leave a big mental opening, because if you go into an encounter knowing what you're going to find, you will find it, and yet you'll miss the important stuff."

— Beth Saulnier

Behavioral Science

A screening tool proves a key weapon against pediatric delirium

Amy Reiling has watched her eight-year-old son, Lucas, endure many complications associated with the brain cancer he was diagnosed with six years ago. But the New Jersey mom had never seen anything like what Lucas went through last year, as he recovered from respiratory failure in the pediatric intensive care unit at NYP/Weill Cornell. Doctors sedated Lucas to insert a breathing tube, but once he regained consciousness, his odd behavior alarmed his family. "He'd flail and yell, but not a normal yell—a weird yell you don't expect to come out of your son. But then he was also withdrawn and shut down. He wouldn't look you in the eyes, or at anything in particular. He would be in a ball in the corner of his bed," Reiling recalls. "I was in shock."

Right away, Chani Traube, MD, associate professor of clinical pediatrics, knew what was wrong. Lucas had delirium, an acute brain dysfunction usually triggered by a critical illness or the effects of treatment, which can sometimes be accompanied by hallucinations. Though temporary, delirium in adults has been linked to higher death rates, longer hospital stays, and possible cognitive impairment after discharge. Some studies suggest similar outcomes

for children—but firm data, including figures on prevalence, is slim. Traube says pediatric delirium has long been overlooked in the medical community, largely because there isn't a standard protocol for evaluating children.

Traube is trying to change that. For the last eighteen months, nurses in the pediatric intensive care unit in the Phyllis and David Komansky Center for Children's Health at NYP/Weill Cornell have been checking patients twice a day using the Cornell Assessment for Pediatric Delirium (CAPD), a screening tool developed by Traube and Gabrielle Silver, MD, assistant professor of clinical psychiatry and Traube's research partner. In that time, Traube says, delirium was identified in about 20 percent of children admitted to the unit. With some 200,000 pediatric intensive care admissions across the country every year, Traube estimates that more than 40,000 youngsters are affected by this condition annually. "It has been a dramatic culture change," Silver says, "from there being almost no recognition of delirium to this." Adds Traube: "If you're not screening for it, you're going to miss it, and missing it is not benign. We owe it to these children to detect it and do what we can to minimize it, and hopefully improve long-term outcomes."

For Lucas, the symptoms subsided once he was given an antipsychotic drug. (Although delirium is not a mental illness, this type of medication has been found to be effective.) But Reiling wonders what would have happened if her son wasn't properly diagnosed. "Would he have had unneeded discomfort for who knows how long?" she wonders. "This was just a side note to what else we were dealing with, but to see your child in that state is devastating."

Silver began studying this condition four years ago, when an eight-month-old girl with a neuroblastoma—a cancer of the nervous system found in infants and young children—came into the pediatric ICU with extreme side effects from chemotherapy. Despite pain medication, the baby was inconsolable, repeatedly pulling out IVs and endotracheal tubes, and so agitated that her own mother described her as "possessed." Her doctors finally contacted Silver, who pinpointed delirium. Like Lucas, the girl got better after receiving an antipsychotic. "It got us thinking," Traube says. "This had been missed by really good doctors at a really good ICU for well over a week, and the reason it was missed was because most hospitals don't screen for delirium routinely."

Silver and Traube teamed up to figure out why. The gold standard for diagnosis is an assessment by child psychiatrists, since they are best equipped to gauge mental status. Yet in a busy ICU, Traube says, obtaining psychiatric consults for every child "is just not a practical way to manage the problem." They looked at a screening method created at Vanderbilt University, but it wasn't fit for very young children or those with developmental delays, because it required the child's participation. "The tool was only really useful in the older, more cooperative child, who is also the child least likely to be delirious," Traube says.

So Silver modified another tool used to spot delirium after anesthesia. The resulting CAPD is a checklist of eight questions nurses use to score a child on various observable behaviors, such as eye contact and restlessness. It's a process that takes less than two minutes. "The beauty of the CAPD is that it's so easy," Traube says. Over a ten-week period in 2012, she and her colleagues validated the tool by using it to evaluate 111 patients, who were assessed for



ABBOTT

Relieved mother: Amy Reiling with her son, Lucas, who recovered from delirium

delirium using the CAPD score and then examined by a psychiatrist. Results were consistent, and the screening has since become part of the unit's standard of care.

These findings have had a ripple effect beyond Weill Cornell. Once Traube and Silver's study was published earlier this year in *Critical Care Medicine*, other institutions began to adopt the CAPD, including Columbia University Medical Center and Seattle Children's Hospital. Says Traube: "It's just the start of the movement toward widespread screening."

— Heather Salerno

On Two Fronts

An infectious disease specialist battles HIV using both science and religion



PROVIDED

When Jennifer Downs, MD '04, MS '11, arrived at Weill Bugando Medical Centre in Tanzania as a resident in 2007, she saw women her age and younger dying of AIDS—an experience that prompted her to devote her career to preventing and treating HIV. Now an assistant professor of medicine and of microbiology and immunology at Weill Cornell's Center for Global Health,

she notes that in Africa—unlike in much of the world—women make up the majority of HIV infections. Her attempt to understand why has led her to a surprising culprit: schistosomiasis, a parasitic tropical disease that affects at least 200 million people worldwide, 85 percent of whom are in Africa.

Also known as Bilharzia, schistosomiasis is an old disease; evidence of it has been found in Egyptian mummies. It results from worms that infect the urogen-

ital and intestinal tracts, from which the worms' eggs can be easily excreted. When waste from infected humans reaches water sources—such as the streams and ponds where people (predominately women) wash dishes, clothing, babies, and themselves—the eggs hatch and the parasite can penetrate unbroken skin to infect another person. In Mwanza, the region of many small villages in northwestern Tanzania where Downs lives part of the year, some 30 to 40 percent of women of reproductive age have schistosomiasis—which, she has found, may make them four

In Africa—unlike in much of the world—women make up the majority of HIV infections.

to six times more likely to get HIV. “Schistosomiasis,” she says, “has been hypothesized to be one of the reasons that HIV took off in Africa as compared to other parts of the world.”

One theory is that the lesions the worms cause within the body make an individual more susceptible to HIV. But Downs suspects another mechanism, which she has received NIH funding to investigate: that the parasitic infection provokes changes in the immune system of the body's mucous membranes. “There seems to be tight communication between the mucosal immune system in the rectum and the genital mucosa,” she says, “so the hypothesis is that inflammation, even in the rectum, can alter the mucosal system in the genital tract and therefore make women more susceptible to HIV.”

As that work progresses, Downs is battling HIV on a wholly different front: religion. This summer, she and her husband, David, a New Testament scholar, won a Grand Challenges Explorations grant from

Protection plans: Jennifer Downs, MD '04, MS '11 (center), does outreach for her work on schistosomiasis and HIV in Tanzania.

the Bill & Melinda Gates Foundation for a project to harness the influence of churches to increase circumcision rates in men. Male circumcision, she notes, has been shown to reduce the risk of HIV acquisition by 60 percent in heterosexuals, but its acceptability follows religious lines: whereas more than 80 percent of Muslim boys are circumcised by adolescence, less than 20 percent of Christian boys in Mwanza are, and Christians make up some 65 percent of the population.

Informed by David's field of study, the couple suspected that the interpretation of scriptural texts—particularly those in which the Apostle Paul rejects or spiritualizes the physical rite of circumcision—might be discouraging Tanzanian Christians from the practice. The Downses conducted a study and found that, indeed, religious-based objections come into play. Many Christians perceive male circumcision as a Muslim practice, so much so that some were afraid public health workers supporting it were trying to trick them into converting to Islam. Others believe circumcision matters only to the sexually promiscuous and is therefore irrelevant to the devout.

As the Tanzanian Ministry of Health rolls out a circumcision campaign in Mwanza, the Downses' project will compare the government's secular education efforts alongside a church-based curriculum they developed and previously validated. It trains church leaders to teach parishioners the medical, historical, religious, tribal, and social aspects of circumcision, and to conduct such discussions in contexts that are culturally appropriate within their organizations. "By empowering local leaders to talk about it in their church context," Downs says, "we believe we can increase the nationwide rates from 70 to 90 percent." Phase Two of the study expands training across Tanzania, Kenya, and Uganda.

Both of Downs's approaches have the potential to reap major benefits. Raising circumcision rates by 20 percent, she says, would prevent 200,000 new infections in Tanzania alone. And understanding the connection between schistosomiasis and HIV susceptibility could have an even greater effect. Schistosomiasis, she notes, represents a winnable battle: it's treatable by the inexpensive de-worming medication praziquantel and preventable by access to clean water. "It's potentially a very important factor in HIV prevention," she says, "and it's just not on the table right now."

— Andrea Crawford

Protected Time

Program helps junior faculty navigate academic medicine



GETTY IMAGES

Breast surgery specialist Tracy-Ann Moo, MD, has a full schedule and then some. As an assistant professor of surgery and assistant program director of surgical education at Weill Cornell, she doesn't have a lot of time on her hands. But last year, she carved out nine half-days for what she considered an eminently worthy goal: enriching her development as an academician.

Moo was one of twenty-five participants in the 2013–14 session of the Leaders in Academic Medicine Program (LAMP), designed to help junior faculty thrive at Weill Cornell. "I wanted some sort of structured mentorship program to put me on the right path in terms of progressing in academic surgery," Moo says, arriving at the Belfer Research Building for the penultimate meeting last spring. "I'm getting a lot of things that will help me in the next five years to structure my practice, as well as my research activities, in a way that's most productive for my long-term goals. I've gotten a lot of resources for how to manage time, people, and conflicts—different aspects where you'd normally be sort of winging it."

Founded and directed by Lia Logio, MD, the Herbert J. and Ann L. Siegel Distinguished Professor of Medicine, LAMP consists of monthly meetings where faculty in their second to fourth years learn about the promotion process, how to seek out mentors and research collaborators, networking techniques, ways to structure a practice, and much more. "Medical doctors don't get any formal training in how to be an academician—what the cycle of life is—and there's a real need to help junior faculty understand the world they're in," says Logio. "Healthcare and academics are both complex environments. When you merge these two different cultures, it's difficult even for very smart people to succeed without some guidance and coaching."

Started as a seventeen-person pilot project in the Department of Medicine in 2012–13, LAMP expanded to the Medical College at large last year as part of Dean Laurie Glimcher's overall effort to enrich faculty development. "The structure of the program is to give junior faculty time away from their hectic day-to-day world, so they can reflect and figure out, 'How can I be the best academic physician or physician-scientist possible?'" says Barbara Hempstead, MD, PhD, the O. Wayne Isom Professor of Medicine and associate dean for faculty development. "Most people, particularly junior faculty, feel that they're racing just to stay in place. They don't have the luxury of time and a 'safe space' to dream about their academic aspirations. This program lets them do that."

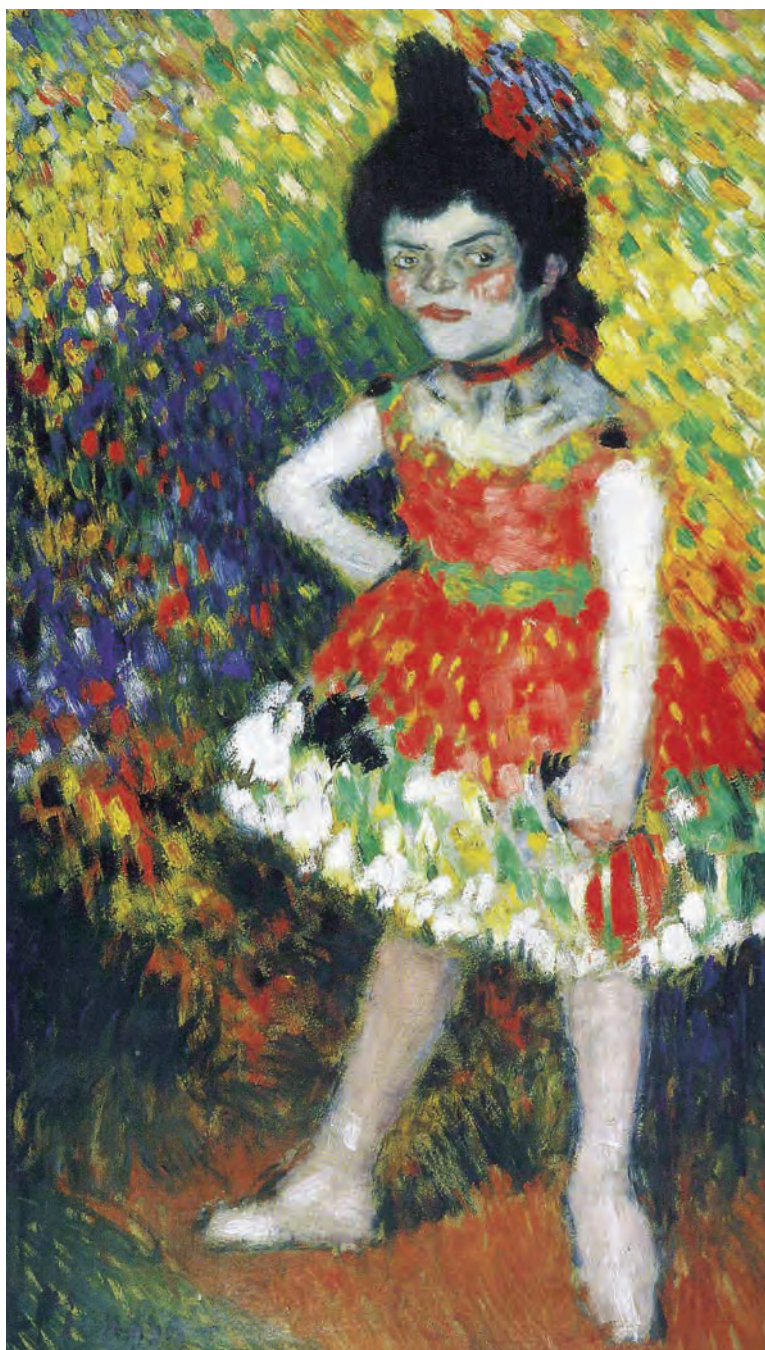
In addition to bringing in several speakers from outside Weill Cornell, LAMP taps senior academicians from within the institution to share their career experiences. "Physicians need to be leaders for healthcare, for investigative work, and for education—the three missions of an academic medical center," says Logio. "We need to groom people to be leaders, and in the

course we broadly define leadership as ‘influence.’ We want you to influence your system, be it clinical care, investigative science, or medical education, because that’s what society expects from us. That’s what scholarship is about.” LAMP also includes activities that promote self-assessment, like a Myers-Briggs personality test and an in-class “desert survival simulation” exercise. Each participant develops and presents a capstone project, a mentored scholarship effort which he or she is expected to continue after LAMP concludes.

The course has proved popular: last year there were forty-seven applications for the twenty-five spots, with participants representing fifteen departments. For 2014–15, the program is expanding to forty faculty, with more than fifty-five applications received; for consideration, hopefuls must be nominated by their department chairs. “This is an unbelievable program,” says Hempstead. “It provides a framework for our brightest young clinicians and scientists to visualize their development into academic leaders and

gives them the tools and long-term networking support to realize those goals.” Divya Gupta, MD, assistant professor of ob/gyn, says she jumped at the chance to join when the program debuted. “After my first faculty year, I started looking at what the next steps would be in terms of promotion and leadership opportunities, and I realized the information was not in one place,” she says. “These are questions that all junior faculty have—they just don’t know who to ask.”

— Beth Saulnier



Museum Qualities

Art book surveys
endocrine conditions
in classic paintings

In Raphael’s painting *The Transfiguration*, which depicts a scene from *Matthew 17*, the white-robed figure of Jesus floats above a crowd that has gathered to witness him cure a boy afflicted with lunacy. Dating from 1520, the masterwork hangs in the Vatican Museums, where it has been viewed by millions. But when Orlo Clark ’63, MD ’67, looks at it, he sees something specific: the telltale signs of an endocrine disorder.

The “mad” young man who stretches a beseeching arm heavenward has bulging eyes, a goiter, and prominent breasts—all clinical manifestations of Graves’ disease, a type of hyperthyroidism that can cause temporary psychosis. In the Bible, the boy’s insanity is attributed to demonic possession; somehow—be it through coincidence or divine providence—Raphael chose a model with a medical condition that offers a more earthly explanation. “And Graves’ disease can disappear spontaneously,” Clark notes. “So the ‘miracle’ might have been based upon a true story.”

The painting is one of dozens of classical works that Clark, a professor of surgery at UCSF, explores in *The Remarkables: Endocrine Abnormalities in Art*. Co-authored with his wife, Carol, an English teacher and independent scholar of art history, the handsome coffee table volume includes the works of such masters as Rubens, Botticelli, Hieronymus

Bosch, Fra Filippo Lippi, Piero della Francesca, and many more.

Published by the University of California Press, the book is divided into chapters according to endocrine condition. Two chapters explore the goiter—first as a beautiful symbol of purity and femininity, then as a grotesque element signifying treachery or humble status—while others survey representations of dwarfism and gigantism. The fifth and final chapter covers how certain endocrine disorders can affect gender identity and sexual function; the works explored include the book’s cover image, *The Bearded Woman Breast-feeding* by Jusepe de Ribera (1631).

The Clarks spent the better part of a decade researching the book, touring cultural institutions throughout Europe, including the famed Wellcome medical history museum and library in London. “A lot of it was pleasure, and a lot of it was a learning experience,” Orlo Clark says. “Looking at famous paintings, you become a better observer of the human condition.” A number of medical schools agree; more and more are offering programs that integrate medicine and art. They include Weill Cornell, which has taken students to the Frick Collection to practice visual diagnosis, held a mock competency trial for the title character in *King Lear*, and offered opera outings that underscore the importance of listening carefully to patients’ stories.

Classical art, Clark says, can be a valuable teacher—sometimes offering keener insights than the medical texts that were produced contemporaneously. “At the time, artists were better observers of human anatomy and pathology, as well as of the social stigma of disease,” he says. “They captured the human condition better than the clinicians did.”

— Beth Saulnier



Art and science: *La Nana* (opposite page) by Pablo Picasso depicts dwarfism. Left: *The “Hair Man” Petrus Gonsalvus* by an unknown German artist shows the patriarch of a family that suffered from hirsutism. Above: In *The Transfiguration*, Raphael painted a boy (seen at bottom right) who may have had Graves’ disease.

The Visionary

Chairman Emeritus

Sanford I. Weill reflects on his
transformative tenure as chair
of the Board of Overseers

In December, Weill Cornell's foremost benefactor, Sanford I. Weill, announced his retirement as chair of the Board of Overseers after twenty years of visionary leadership. During his tenure, Mr. Weill spearheaded the effort to make the Medical College a driving force in basic, clinical, and translational research, and to create a new paradigm for global engagement and medical education. Under his leadership, Weill Cornell has built bridges nationally and abroad—forging an affiliation with Houston Methodist in Texas; establishing a branch of the Medical College in Qatar; and creating a formal affiliation with a hospital and medical school in Tanzania that are named in recognition of his support and that of his wife, Joan.

The chairman emeritus of Citigroup, Mr. Weill guided the Medical College through a dramatic expansion of its physical plant, including the creation of a flagship pair of clinical and research facilities: the Weill Greenberg Center, which opened in 2007, and the nearby Belfer Research Building, unveiled in early 2014. With his wife and their family foundation, Mr. Weill has given more than \$550 million in gifts to the Medical College, which was renamed in their honor in 1998. The Weills' generosity has also inspired other donors: in his twenty years as chair, the Medical College has raised some \$3 billion. As Dean Laurie Glimcher, MD, said when Mr. Weill's retirement was announced: "His unwavering leadership, profound magnanimity, and steadfast resolve to enhance medical education, advance discoveries, and enrich clinical care is his lasting legacy."

Mr. Weill, who will hold the title of chairman emeritus, is succeeded as chair by his daughter, Jessica Bibliowicz, a successful entrepreneur in the financial services business and a Cornell alumna who has served on the board since 2004. *Weill Cornell Medicine* brought them together for a chat in the Belfer Research Building, where Mr. Weill shared his thoughts on a ground-breaking term of service that has transformed the institution.



Jessica Bibliowicz: Your tenure at Weill Cornell has been incredibly successful, and also a great labor of love for you. Why did you choose Cornell—and the Medical College—as the premiere focus of your philanthropic leadership efforts?

Sanford Weill: I wanted to do something for Cornell, but I found it very difficult to find the time to go up to Ithaca for two or three days for trustee meetings, and the Medical School is here in New York, so I volunteered to go on that board. And then I found out that while I'm afraid of needles and I don't like the sight of blood, I have a passion for healthcare and breaking down the "doctor talk" code, which a lot of people can't understand. And that just grew and grew over the next thirty-some-odd years, and now this place is part of my family. It's been fun and deeply gratifying getting to know the doctors and really making a difference in people's lives. We have a great clinical and research staff—the best.

J.B.: Out of all the wonderful accomplishments, and there were

so many, what was the biggest one to you? What do you feel the closest to?

S.W.: I'd have to say several. First, getting the school to think about being global, and having education be a powerful force that could bridge cultural and political divides. When one thinks about it, we probably have a bigger global presence than any other medical school today. We're the only U.S. school that gives an American MD degree outside the United States—and it's in an Arab country in the Middle East, in Qatar. It's about 40 percent the size of our school in New York; the students are every bit as good academically, and their terrific residency matches speak to how strong they are as rising physician-scientists. By raising the quality of education in Qatar, especially during a charged period in world history, we are helping to lift all boats in the Middle East, one country at a time.

Second—and this is in no specific order—is my now seventeen-year partnership with Tony Gotto. Over that period, the school really began to move ahead in education, in research, and in build-



Fun and fundraising:
The Weills at a Cabaret
gala to benefit the
Medical Center.



In their honor: Sanford and Joan Weill at the renaming of the Medical College in 1998. Right: Greg Petsko, DPhil, the Arthur J. Mahon Professor of Neurology and Neuroscience, lectures in the Weill Education Center.

ing a great clinical enterprise. And as we did that, we held three campaigns that raised over \$3 billion, which gave us the money to really make a difference, like this building we're sitting in today. That gave us the chance to do what I think is the third of the really transformative things, which was hiring Laurie Glimcher to succeed Tony—getting somebody who's indefatigable, who really understands research. From her experience in over a decade on the board at Bristol-Meyers Squibb, she has recruited terrific people and is building our reputation in an area that was our weakest—research—while not forgetting the other two parts of our mission, education and clinical care.

J.B.: It's all about recruiting the best talent, right? And raising the funds for them to do their work and be successful.

S.W.: That's right—it's all about the people. When I got involved here, I was amazed by the quality of the faculty. With the clinicians and scientists that Tony and Laurie have brought on, the bar has

only continued to rise, and it is truly an honor for me to be in their presence. I have meaningful relationships with faculty that have made my life richer; I know more because of them, and I can take better care of myself. There is no greater joy for me than connecting the people in my personal life with those in my professional life. My thirty years at Weill Cornell is the nexus of that convergence.

J.B.: Speaking of which: What leadership qualities do you look for in a Weill Cornell physician or scientist, and what should we continue to look for?

S.W.: You want to look for people that have a passion about our mission, people who really think that medicine is important and that good medicine can improve the quality of life of people while they're on this planet. People who will be willing to spend their time and energy in trying to help us raise the money that is needed to accomplish the mission. When you think about philanthropy and charities, the biggest money user of all is medicine and research.



The builders: Mr. Weill and Hank Greenberg (left), benefactors of the Weill Greenberg Center (below). Bottom left: A patient visit at the Center, the Medical College's premier ambulatory care facility.



J.B.: Do you think that being located in New York makes a big difference to this institution? And do you think you've made a difference, not just to the Medical College but to this city, by having such an incredible facility here?

S.W.: New York is one of the great cities in the world. It's home to seven major academic medical centers, so it's a very competitive environment. We have flourished in that environment over the past eighteen years. And now Cornell's partnership with the Technion, and building Cornell Tech on Roosevelt Island, is going to be very good for the medical school. We'll have the best and the brightest engineers in the world just across the river, and some of those people will want to have dual appointments at the Medical College. When David Skorton said he was going to leave and go to the Smithsonian—which I think is a great opportunity for him—we had a cadre of candidates for the new president of Cornell that I think was much better than it might have been had the tech campus not come in.

J.B.: Getting a little more personal: How important did you think it was to take the skills you've gained from your incredibly successful business career and bring them to the Medical College?

S.W.: Obviously, it's very, very important. I'm proud of the fact that when it looked like our country was going to go into a serious recession—which ended up happening—Weill Cornell prepared for it in advance. We cut our expenses before things got really bad, so we were able to go through a period of the downturn being profitable every year. We announced a big fundraising campaign just as the world was going to come to an end, and we finished that ahead of time. Ours was believed to be the first medical school to announce a campaign of over \$1 billion, and we ended up raising \$1.3 billion. More than 130 donors gave gifts of \$1 million or more during that campaign, which is a testament to the commitment our supporters have to help advance Weill Cornell's mission.



To your health: Toasting the Weills' \$250 million gift in 2007 are (from left) Cornell President David Skorton, MD; then-Dean Antonio Gotto, MD, DPhil; Sanford and Joan Weill; and Peter Meinig, then chair of the University's Board of Trustees.



Sound advice: The steering committee for the *Discoveries that Make a Difference* Campaign gathers for a portrait during the 2010 groundbreaking for the Belfer Research Building.

J.B.: And it was pretty gutsy to put stakes into the ground for this building in the middle of all that—but you took the opportunity.

S.W.: It was a terrific thing to do, and a tremendous show of faith by Cornell University in our donor base—and by Weill Cornell's philanthropists in translational research as the future of medicine. Except for the World Trade Center site, we were the biggest project going on in the city through the downturn. It gave us a chance to expand our footprint, to buy the steel and the cement and the other products cheaper, and to make the Belfer Research Building bigger than it might have otherwise been.

J.B.: How about your own relationship with the doctors at Weill Cornell, and how they've treated you, your family, and friends? What has it been like to have that experience from the inside?

S.W.: Well, my family is still healthy, and most of the people I know are still alive, so that's a good sign. [He laughs.] I think I'm a

very lucky person that I'm not allergic to any pills, and I can still remember the ones I have to take and when. I've had great doctors, and I'm trying to be a role model for one who concentrates on metabolic diseases, diabetes, and obesity. Louis Aronne [the Sanford I. Weill Professor of Metabolic Research] helped me get rid of 20 percent of my weight. I know if I gain it back it's going to be bad for him, so I have extra motivation.

J.B.: In your time here, the relationship between NewYork-Presbyterian and the Medical College has grown much stronger, as has Weill Cornell's own clinical enterprise. Why is the Medical College's relationship with the hospital so important, especially with healthcare funding in a time of transition?

S.W.: We're really joined at the hip. Every doctor who's a head of the department at the medical school is head of that same department at the hospital. You can't have a position on the 68th Street



'I'm proud of the fact that when it looked like our country was going to end up in a serious recession, Weill Cornell prepared for it in advance.'

Global vision: Joan and Sanford Weill with dignitaries celebrating the dedication of Weill Bugando Medical Centre and Weill Bugando University College of Health Sciences in Mwanza, Tanzania (top). Above: A procedure in one of the hospital's operating rooms.

campus of NewYork-Presbyterian unless you have an affiliation with our medical school. They partner with us. They've helped us in funding some new positions over the past several years, both in research and on the clinical side, because we all benefit. And now we're among the best academic medical centers in the world.

As for how the system is funded: the healthcare bill is still a work in progress, and we don't know how it's going to turn out, but we keep on preparing ourselves, and our practice is growing. I think we've grown in the high single digits for the last several years. In our clinical practice we've welcomed offices all around the city, especially in Lower Manhattan, where NewYork-Presbyterian took over New York Downtown Hospital.

J.B.: As you mentioned previously, your partnerships with two incredible deans, Tony Gotto and Laurie Glimcher, led to enormous growth and change. In that time, the stature of the Medical College has increased among its peers and internationally. What has it been like working with Tony and

Laurie, and what have you gained from the experience?

S.W.: I think the world of their professional skills and achievements, but those aside, I consider Tony and Laurie to be among my closest friends. Tony and I have built a unique partnership. He contributed so much to my understanding, and I hope I contributed a little to his. But we never tripped over each other; we didn't always start at the same place, but over time we always came to the same conclusions and were on the same page, so that has been marvelous. And

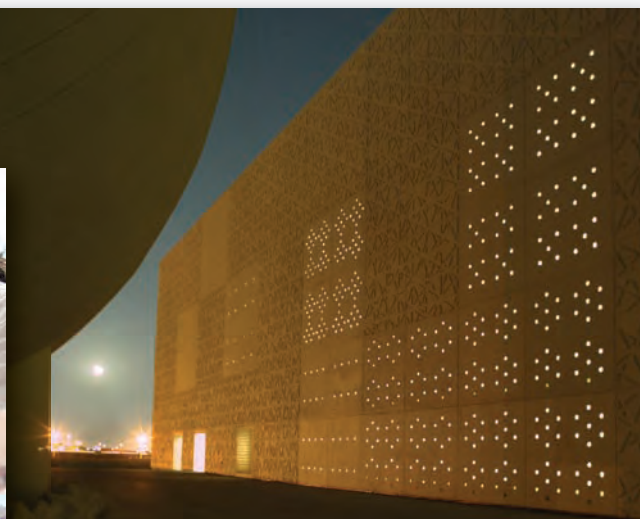
Laurie is really phenomenal. If you were to go around the school—whether in education, the clinical area, or especially in research—you'd see that she is respected by everybody. Everybody can have time with her. She has very good judgment. She drives hard, and I think she's going to take the school to the next level, with your help.

JB: And what has it been like to work with David Skorton? It's nice that he was a cardiologist coming into the role; since he's a doctor, you knew he'd have a piece of his heart at the medical school.



Studies abroad: Mr. Weill and Sheikha Mozah bint Nasser Al Missned at a celebration of the Qatar branch's first commencement in 2008. Bottom right: The Doha campus, where students (bottom left) receive an education as rigorous as that in New York.

'I hope Weill Cornell continues to be the kind of place that never feels comfortable with its current position.'



S.W.: I've gotten to know him really well. I've watched him grow in the job and become an incredible president of Cornell University and a fundraiser like I've never met. He's a very good human being whom I'm proud to call a friend. I think he's a terrific leader who'll do great things for the Smithsonian.

J.B.: Earlier, you mentioned that Weill Cornell's global focus and reach have expanded immensely. Why did you consider that so important, both for the institution and the world?

S.W.: It's very simple: we live in a global world. Weill Cornell has more than twenty global medicine programs on six continents, in countries like Haiti, Brazil, Tanzania, and Qatar. One of the things we are thrilled about is that we, in partnership with the Catholic church and the government of Tanzania, built a medical school in Mwanza, which is the second-largest city there. The school's presence has had surprising ripple effects: it's lifted the esteem of the whole country. You can see the pride in the faces of Mwanza

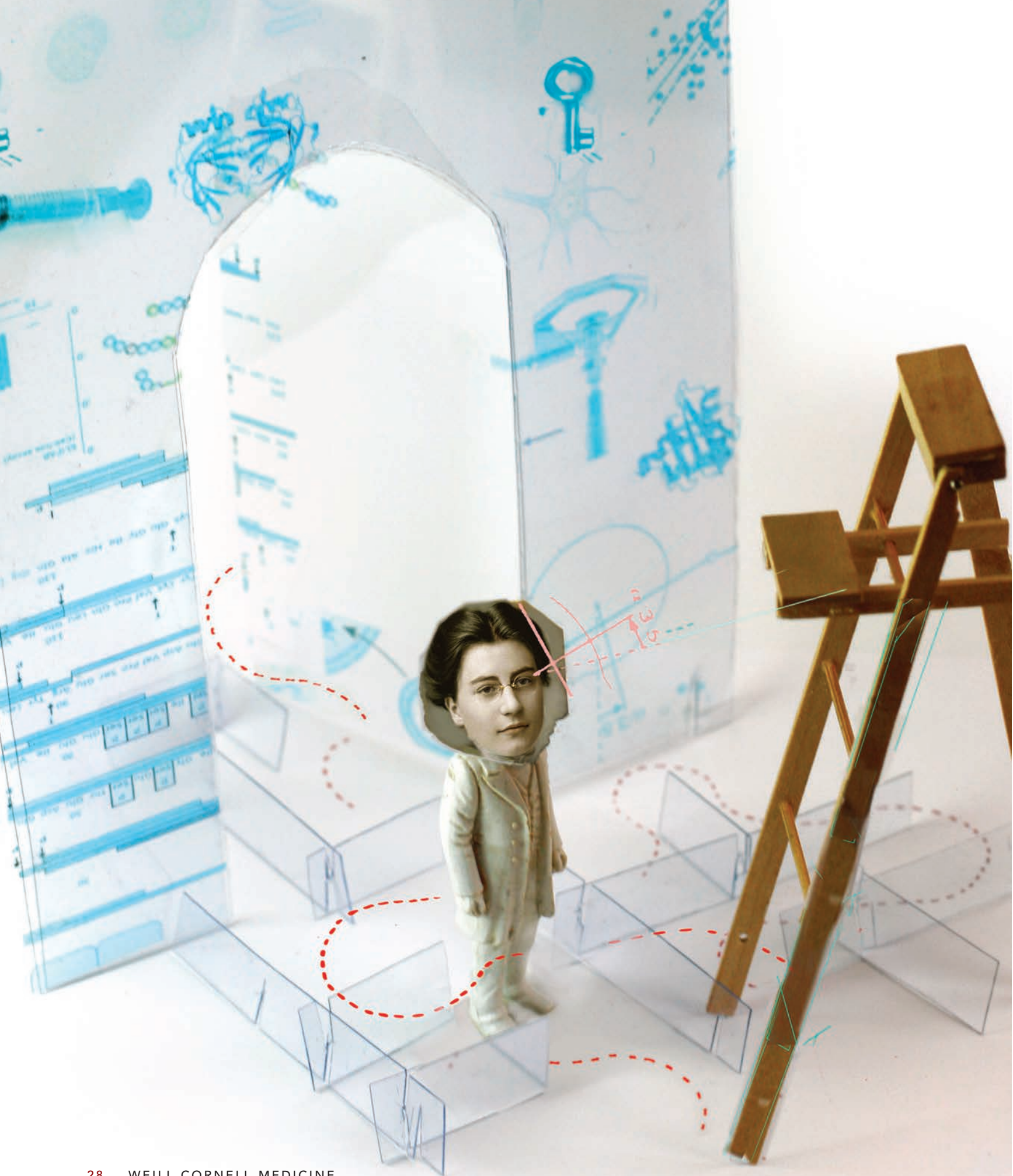
schoolchildren when they're wearing their uniforms. They are so excited to show you that they're getting an education. The medical school has set an example of what's possible for them: today it's graduating 100 doctors a year. Some of Weill Cornell's residents and students from New York go to Tanzania for a month or two, and they come back understanding why they picked medicine, and academic medicine especially, as a career: it's because you can do these great things, and you know you are making a difference.

J.B.: Where do you think Weill Cornell will be in a decade or a century? What do you hope will be accomplished because of the seeds that have been planted today?

S.W.: I hope it continues to be—and I think it will be—the kind of place that never feels comfortable with its current position, that looks at change as an opportunity, and that will continue to be a leader, to move forward, and to be the best among the top institutions at our tripartite mission of education, research, and clinical care. ●



Building boom: The ribbon cutting for the Belfer Research Building in January 2014. The building (below left) has an open floorplan and state-of-the-art labs (middle left). Below: Mr. Weill with Dean Laurie Glimcher, MD.



Entrepreneurship in Action

From allergy-curing toothpaste to an artificial retina, startup firms thrive on faculty research

By Beth Saulnier

Allergy sufferers know that their symptoms can be miserable—but the treatment is no picnic either. Traditionally, a cure requires regular injections over four to five years, initially on a weekly basis. While a complete course is 80 to 90 percent effective, less than 5 percent of patients opt in. “Allergy immunotherapy is a phenomenal treatment,” notes William Reisacher, MD, associate professor of otolaryngology, “but many people don’t want to go through with it, or find themselves unable to complete the course.” One alternative to injections—drops under the tongue—is more commonly used in Europe. Although it is self-administered at home, Reisacher notes, it has some disadvantages, including being hard to remember consistently; only about 10 percent of patients complete three years of it. A few years ago, an idea struck him: what if patients could get the same allergen extracts in a toothpaste? Excited, Reisacher set about creating a prototype. “I quickly realized that I did not know how to make toothpaste,” he recalls with a laugh. “Although I did succeed in creating mint-flavored soup.”

So he contacted Weill Cornell’s branch of the Cornell Center for Technology Enterprise and Commercialization (CCTEC), one of several programs at the Medical College that spur the translation of faculty discoveries into patient therapies by facilitating collaborations with the private sector. The Center’s staff, led by Brian Kelly, put him in touch with the two people—one with business and financial acumen, the other with experience in the pharmaceutical industry and knowledge of the patent system—who would eventually join him as co-founders of his start-up, Allodate. Since its first product, Allerdent, is a toothpaste base to which doctors and pharmacists add pharmaceutical ingredients, no regulatory approval was required (though the company does plan to develop drug-containing products in the future). A study comparing Allerdent’s safety, efficacy, and adherence to that of sublingual drops is under way; Reisacher reports anecdotally that volunteers who’ve used it say that their seasonal allergies have been much reduced. The current formulation is for patients with airborne allergies, such as those to dust, mold, and pet dander; Reisacher expects a version for food allergies to be on the market within five years. “Immunotherapy is the only disease-modifying treatment for allergies that’s available,” says Reisacher, who has an equity ownership in Allodate and serves as an unpaid consultant to the company. “There’s a real need for something that will keep people in the program.”

Allodate is just one of many success stories in which industry has harnessed discoveries made by Weill Cornell faculty—endeavors that Dean Laurie Glimcher, MD, has encouraged since her arrival. With “translation” now the watchword of biomedical research, more physicians and scientists are exploring their entrepreneurial sides. “These last five years have seen so many advances in basic science that we’re at a point where ‘going bench to bedside’ is not just a buzzword. We are actually now in a position to make it a reality,” Glimcher says. “We need to harness those advances and translate our basic discoveries into therapies that make a difference for patients. That is the goal—and we need to call on the expertise of whomever we can to get it done.”

In addition to CCTEC, which is University-wide, the Medical College has a number of programs that facilitate collaboration with industry. Last fall, Weill Cornell, Sloan Kettering, and Rockefeller University

It's a classic Catch-22: researchers need funding to show that their discoveries have merit, but they can't get funding until they prove their worth.

teamed up with the pharmaceutical company Takeda to form the Tri-Institutional Therapeutics Discovery Institute (Tri-I TDI), designed to expedite early-stage drug development. The Medical College is contemplating establishing formal incubator space on or near campus, offering easy access for participating faculty. "It's very innovative that our dean thought of this," says Shahin Rafii, MD, director of the Ansary Stem Cell Institute, whose lab is just a few floors above the headquarters of his start-up, Angiocrine Bioscience. "The advantage is tremendous."

Another recent initiative is in biopharma alliances and research collaborations, led by Larry Schlossman, whom Glimcher recruited from Harvard as part of her drive to foster Weill Cornell's translational efforts. As Schlossman describes it, the program lies at the intersection of business, science, medicine, and law. "We can accelerate the rate at which Weill Cornell faculty interact with the private sector," he says. "The Medical College aims to maximize those opportunities, to seek out collaborations with industry, and to structure and negotiate strategic alliances."

Schlossman notes that although researchers in the physical sciences and engineering have long been comfortable with the idea of translational work, "in the life sciences, in some circles, it was felt that applied research might detract from the mission to do basic science." That sensibility has shifted in recent years, due in part to necessity; with public sources of research support shrinking, private funding has become more attractive. "With the way federal funding is now, it's not possible to bring a treatment to patients just with research grant money," says Sheila Nirenberg, PhD, the Nanette Laitman Professor in Neurology and Neuroscience, whose firm, Bionic Sight, is developing and testing an artificial retina. "So I had to start a company and raise money from investors, because to get through a clinical trial I need about \$7 million. You can't get that with standard research grants, which are typically \$250,000."

Researchers grappling with reduced funding are painfully aware of the term "valley of death," which many use to describe the abyss where promising ideas can disappear between conception and the establishment of proof of principle. It's a classic Catch-22: researchers need funding to show that their discoveries have merit, but they can't get funding until they prove their worth.

To close the gap, the Medical College has established the Daedalus Fund for Innovation, which supports promising early-stage research by Weill Cornell faculty with the aim of making the work ready for partnering with industry. In drug development jargon, its aim is to "de-risk"

a technology. "Nurturing a project with great potential is usually not terribly expensive," Glimcher points out. "Sometimes with \$50,000 to \$100,000 you can fund the necessary experiments in a scientist's lab and say, 'Do what you need to bring this discovery to the stage where it has achieved proof of principle, so it will be viewed as an attractive candidate for investment and development by the private sector.'" The first round of Daedalus funding was awarded this summer. (See sidebar.) "Why do we publish all these papers?" muses Rafii. "It's to cure disease. But if you don't commercialize it, it'll never go to the clinic."

Both Glimcher and Schlossman acknowledge that partnering with industry requires vigilance and rigorous standards. Glimcher, who has often stressed the importance of transparency, is an adherent to Justice Louis Brandeis's belief that "sunlight is the best disinfectant." "The major stumbling blocks in what you might call the bad old days—although we're long past them—come down to two key issues," Schlossman says. "The first is that for a university, the right to publish research results is sacrosanct and non-negotiable. Some companies have a hard time wrapping their minds around that idea, but these days the sophisticated ones understand it. The other thing is ownership of intellectual property. We don't do research for hire; our principal investigators are in charge, and no outside person or entity can dictate the course of research."

In cases where companies like Allovate license university-held patents based on faculty work, the researchers must disclose their involvement and remuneration. But Glimcher stresses that as long as proper procedures are followed, there's nothing untoward about a scientist benefitting from his or her labors. "The idea that industry contaminates the purity of the academic mission is outmoded to say the least. To my mind, our alliances with the pharmaceutical industry are the most effective way to get our discoveries from the bench to the bedside," she says. "It's certainly a plus if our hard-working, dedicated researchers, like other inventors in other careers, can earn some personal compensation from their discoveries. Business people earn a lot for what they do; if a scientist makes a discovery, why shouldn't he or she profit from it?" But given the often stressful and unpredictable life of the academic researcher—for whom failed experiments, rejected papers, and unfunded grants is a way of life—Glimcher notes that most are hardly in it for a big payday. "For the scientists and physicians I know, the overwhelming motivation is doing something for human beings," she says. "That's the thrill—that by virtue of your creativity, you come up with a discovery that actually helps people."



Francis Barany, PhD

Small Molecules, Big Dreams

Coferon

Because only small-molecule compounds can get inside cells, they've long been the focus of drug discovery efforts. But their larger cousins—molecules big enough to bind to proteins—could thwart many diseases, if only researchers could find a way to deliver them. “Most of what goes on inside cells is proteins talking to each other; it’s called protein signaling. That’s what usually goes awry in cancers,” says Francis Barany, PhD, professor of microbiology and immunology. “But no cell-permeable drugs are really good at interfering with protein-protein interactions.” The essential problem, he says, is that “small molecules are too small to bind on the shallow surfaces involved—and big molecules can do it, but they can’t get inside cells.” A few years ago, Barany and some colleagues conceived an approach that’s as elegant as it is ingenious. “We decided to start with small molecules and get them inside a cell,” he explains. “Then we’d have them assemble on the target to form a bigger drug.”

The technology has broad applications, offering promise in treating a wide variety of diseases. Weill Cornell filed a patent on the work in 2008, and Barany and his colleagues aimed to license it by creating a start-up firm. “We tried to get funding for it,” he recalls, “but nobody would fund us.” So Barany—whom Larry Schlossman lauds as one of faculty’s most prolific inventors—turned to private sources, raising \$7 million from angel investors to create Coferon the following year, with himself and two colleagues as cofounders. “We were able to show that the idea worked,” he says. “It was pretty amazing because up to that point, everyone we talked to gave us one of two answers: either ‘It’s impossible’ or ‘Come back when it’s working.’ But of course, without any funding, how can you get it to work?” Based at an incubator site at Stony Brook University, the firm has demonstrated preliminary proof of concept and raised additional funds, including \$10 million in venture capital. Another Barany start-up, which Schlossman says could revolutionize cancer diagnostics, is currently in the works.

Regenerative Remedy

Angiocrine Bioscience

It’s the beginning of therapeutic vascular medicine,” says Shahin Rafii, MD. “If it works, it’s going to revolutionize organ regeneration.” The director of the Ansary Stem Cell Institute is talking about research he published in *Cell* in 2012: a potentially game-changing method of coaxing amniotic stem cells into becoming endothelial cells, the essential building blocks of the vascular system. The ultimate hope is that such stem cells—which, obtained through routine amniocentesis, don’t pose the same ethical dilemmas as embryonic ones—will help repair damaged organs or even create new ones.

Rafii is the founder of Angiocrine Bioscience, which is developing the technology with an eye toward transforming untold lives. In a world where tens of thousands die or suffer disability each year for want of

donor organs, the possibility of repairing their existing ones is attractive indeed. “We hope that by transplanting these cells intravenously, they’ll circulate home to the injured tissue,” says Rafii. “They’ll engraft in the blood vessels and produce growth factors that help the stem cells to regenerate lungs in emphysema patients, or cardiac tissue after heart attack.”



Shahin Rafii, MD

With funding from angel investors, the company is working toward testing the method

in patients within a year or two. The first goal: phase-one clinical trials for lung disease. “Right now it’s mostly the basic science aspects,” Rafii says. “We’re eventually going to apply for pre-R&D approval from the FDA to bring the technology to the clinic.” Angiocrine is already doing a brisk business providing mouse and human versions of the cells, known as organ-specific endothelium, to investigators in academia and the biopharma industry. Says Rafii: “We’re getting orders from all over the place.”



Thomas Fahey, MD '86

Building a Better Biopsy Prolias Technologies

In about a quarter of patients who undergo needle biopsy to diagnose thyroid cancer, the results are inconclusive. For them, the next step is partial removal of the thyroid—and if that tissue proves malignant, a complete thyroidectomy.

For more than fifteen years, Thomas Fahey, MD '86, professor of surgery and the Frank Glenn Faculty Scholar in Surgery, has worked to find a better way. With the help of collaborators including Olivier Elemento, PhD, associate professor of physiology and biophysics, Fahey has developed a test, based on micro RNA profiling, to more efficiently and accurately characterize a thyroid nodule. “A test that can better discern between benign and malignant nodules will allow some patients to forego an operation for diagnosis,” he says, “and allow patients who do have cancer to avoid a second surgery.”

Fahey is on the scientific advisory board of Prolias, a start-up that has licensed the technology from Cornell. The firm, based in Manhattan’s downtown tech corridor, is currently working with two other companies to validate the method via a multi-center trial. If all goes well, the diagnostic test should be available in about a year; the technology could apply to other endocrine tumors as well.



New Light on Movement Disorders

Lucerna

Numerous diseases, many of them movement disorders, have their roots in misplaced RNA within cells. Known as trinucleotide repeat disorders, they include myotonic dystrophy, Huntington's disease, and fragile X-associated tremor/ataxia syndrome (FXTAS). In recent years, Samie Jaffrey, MD, PhD, professor of pharmacology, and colleagues have published papers describing new ways to visualize the behavior of RNA in living cells—presaging powerful new weapons in the battle against such disorders. “Because we can now see those RNAs,” Jaffrey explains, “we have a unique way to study, understand, and potentially discover therapeutics for diseases caused by misplaced RNA.”

Their approach involves creating short tags that exhibit fluorescence, then attaching them to engineered cells that express disease-causing RNAs. One tag, which glows green, is called “Spinach.” “It’s basically a hundred-nucleotide-long RNA that exhibits a bright green fluorescence,” Jaffrey says. “We engineer disease RNAs to have a Spinach tag on them, so when the cells are cultured, we can see where the RNA is.”

In 2011, Jaffrey cofounded Lucerna to market those visualization methods and develop therapeutics for diseases of RNA mislocalization. Housed at a tech incubator on the Upper West Side, it got initial support through \$2 million in Small Business Innovation Research grants from the NIH. The company also earns revenue by supplying its technology to other labs. “Our major goal right now is to obtain proof of principle that compounds identified using our screening technologies are effective in animal models of these diseases,” Jaffrey says. “That would validate the entire approach.”

Samie Jaffrey, MD, PhD



ABBOTT

Flying High

Inaugural Daedalus awards granted

Last summer, Weill Cornell awarded the first grants from the Daedalus Fund for Innovation, named for the ingenious inventor described in Greek myth. They went to:

Peter Goldstein, MD, professor of anesthesiology Goldstein is testing new compounds in animal models to see if they can relieve the symptoms of chronic and intense nerve pain as successfully as the anesthetic propofol but without any of the powerful drug’s side effects.

Gang Lin, PhD, associate research professor of microbiology and immunology Lin is studying the efficacy of a new class of compounds based on a tuberculosis drug design he developed to see if it can successfully reduce the inflammation characterized by inflammatory bowel diseases.

David Lyden, MD, PhD, the Stavros S. Niarchos Professor in Pediatric Cardiology Lyden will study whether molecules isolated from the blood of melanoma, breast cancer, and prostate cancer patients can provide accurate measures of treatment efficacy, and if they can also be predictors of future metastasis.

Stefano Rivella, PhD, associate professor of genetic medicine in pediatrics Rivella is developing a gene therapy for the blood disorders sickle cell anemia and beta-thalassemia that is designed to enable the body to produce normal and abundant oxygen-carrying molecules without the use of matched bone marrow transplants.

Enrique Rodriguez-Boulan, MD, the Charles and Margaret Dyson Professor in Ophthalmology Research Rodriguez-Boulan is investigating a new drug to see if it preserves sight for patients with Stargardt disease, the most common form of inherited juvenile macular degeneration.

A True Visionary

Bionic Sight

Sheila Nirenberg, PhD, always considered herself a basic scientist, dedicated to exploring the fundamentals of how the brain encodes visual information. Then her work took a translational leap. “I was working on neural coding for many years,” says Nirenberg, the Nanette Laitman Professor in Neurology and Neuroscience in the Department of Physiology and Biophysics, “and then advances in optogenetics made it possible to use what I was working on as a treatment for blindness.”

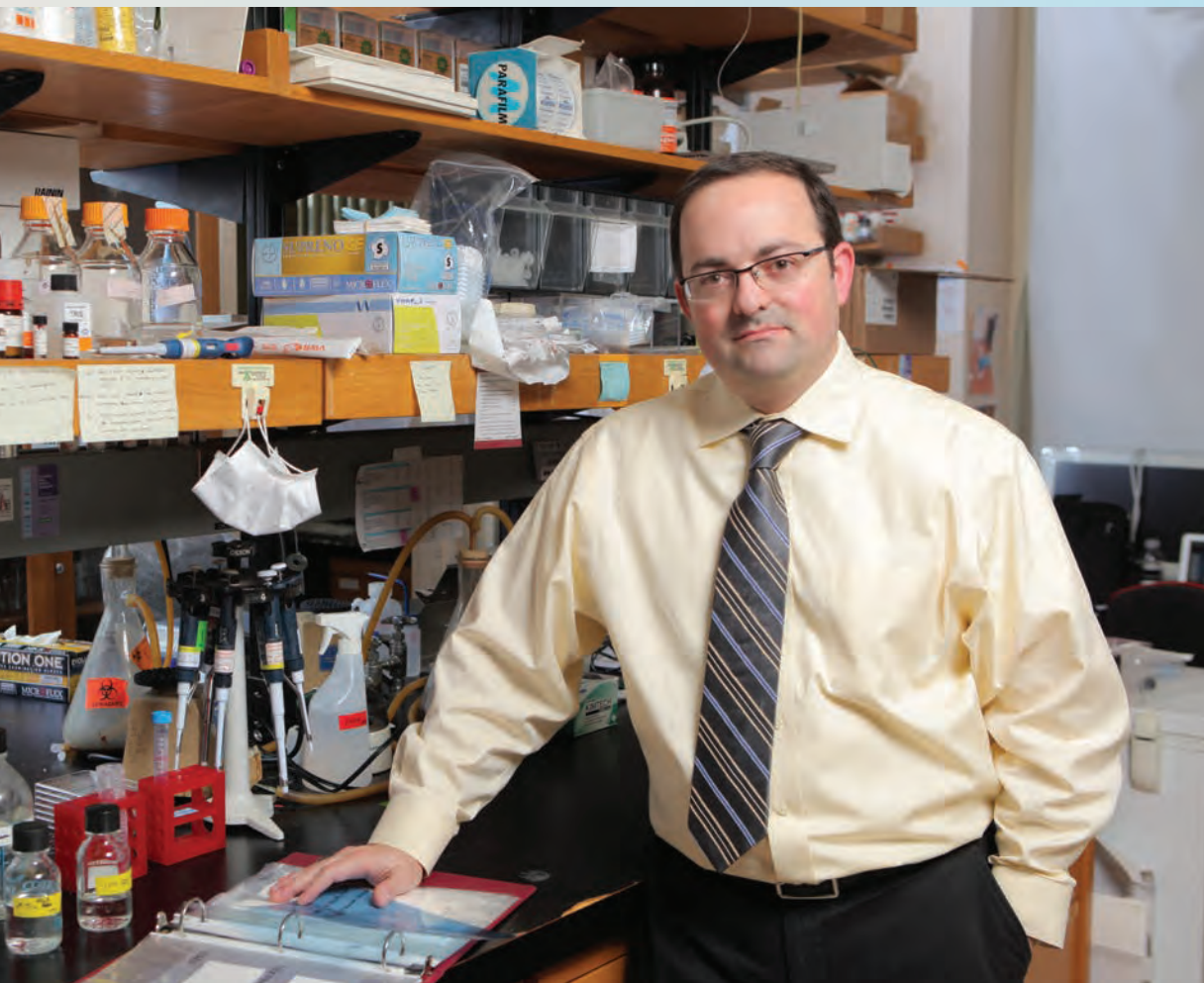
As the MacArthur Foundation recognized when it awarded her a “genius grant” last year, Nirenberg’s work could represent a quantum leap in vision treatment. In eye diseases like macular degeneration and retinitis pigmentosa, patients lose vision when photoreceptor cells deteriorate to where they can no longer take in signals. Rather than trying to replace them, as others have attempted, Nirenberg found a way to bypass the damaged receptors and interface directly with retinal ganglion cells. Having deciphered the neural codes representing visual stimuli, she designed computerized prosthetic eyeglasses that encode images and transmit the data to ganglion cells, which send it to the brain.

Two years ago, Nirenberg established Bionic Sight, a virtual company based out of her lab. With funding from angel investors, she aims to do the FDA-required safety studies that will allow her to conduct clinical trials. “There are two million people with macular degeneration in the U.S. and many more worldwide,” she notes. “If we can make them able to see, have mobility, and recognize faces, it would be life-changing.”

Sheila Nirenberg, PhD



ABBOTT



Jonathan Zippin, PhD '05, MD '06

'sAC' Marks the Spot CEP Biotech

The inspiration for CEP Biotech came from work that Jonathan Zippin, PhD '05, MD '06, did during his graduate and postdoctoral training on a signaling protein named soluble adenylyl cyclase, or sAC. "A lot of proteins stay in one place," explains Zippin, an assistant professor of dermatology, the Ellen and Gary Davis–Melanoma Research Alliance Young Investigator, and the Clinique Clinical Scholar in Dermatology. "What's unique about this one is that it moves around in the cell, and its location seems to be associated with different cellular states, like growing fast, growing slowly, living, or dying." Given that property, it struck Zippin that sAC could be a handy biomarker; if it were in the nucleus, for example, it indicated that the cell was growing quickly. "And cancers grow fast," he notes. "So if a particular biopsy from a patient had a lot of this protein in the nucleus, it might help a pathologist determine whether or not it's cancer. That was the hypothesis that drove the research."

After testing the concept over the course of two years, Zippin found that the approach worked well in certain cancers such as melanoma. He's currently exploring other types of cancer. "The location of this protein informs the pathologist in different ways," he adds. "Sometimes it's for diagnosis, sometimes for prognosis."

To commercialize the technology, Zippin founded CEP Biotech with longtime mentors and collaborators Lonny Levin, PhD, and Jochen Buck, MD, PhD—who discovered sAC and created the antibodies to study it—and Cynthia Magro, MD, who helped him establish the use of the antibodies in pathology. The firm is licensed to sell the antibodies—each of which works best in a particular cancer—for research purposes; it's now seeking approval to develop them for clinical use. "We're selling enough as research-use-only reagents that we're a solvent company, and we were able to hire a firm to help us develop a business plan," Zippin says. "But it's not enough to pursue FDA approval. For that, we will need outside funding." ●

Mind Meld

I don't even get to tell the cool story that I was diving to save the goal," Brandon Swersey says with a chuckle. "A kid who couldn't skate fell on me."

It happened in March 2012, when the Westchester County native was a high school freshman playing hockey on a travel team. They were in the semifinals at a tournament in Massachusetts when Brandon got checked, lost his balance, and landed on the ice. Then, he says, "a very large kid lost his edge and fell on my head."

At first, he didn't think there was anything amiss. "I remember feeling OK, just a little shocked," recalls Brandon, now a seventeen-year-old senior. "I'd been hit before, and there was always that 'whoa' factor. I didn't really think anything of it."

By Beth Saulnier

The Weill Cornell Concussion and Brain Injury Clinic offers comprehensive care, from pediatric patients to pro players



Smooth skating: Brandon Swersey is back on the ice after recovering from a concussion. JOHN ABBOTT

'The thing that makes this program unique is that it doesn't only look at assessment. It's providing a mechanism for complete recovery.'

Brandon's team scored, and the players assembled for the next face-off—but he lined up on the wrong side of the ice, facing the opposite direction, and his coach berated him for it. He didn't play much more—he started feeling tired and headachy, which he attributed to the fact that it was the second game of the day—but he was buoyed by his team's victory. That evening he ate dinner, got a good night's sleep, and wrote a perfectly cogent paper for a science class. The next morning he still had a headache, so he took a Motrin—and decided to play in the finals. "I got cross-checked in the neck that game," he says. "I don't know if that was a tipping point, but it definitely didn't help. The whole ride home I remember feeling really tired and lights seeming a little brighter. But I just chalked it up to being sleep deprived."

Flash forward to the next day at school, when Brandon—a top student and AP scholar—couldn't make out words on the chalkboard. "I didn't forget how to read, but it hurt," he says. "It was really hard to focus. Something didn't seem right." His mother took him to his pediatrician, who did some basic neurological tests; Brandon was able to follow a finger with his eyes, but when it came to counting backward by sevens, he ran into trouble. The doctor diagnosed a concussion and told the boy to go home and rest. "I stayed out of school for a few days, just sat on the couch in the dark," he says. "I tried doing a little schoolwork, but I couldn't. I just sat home and ate. It wasn't good."

Brandon's dad, Kevin, sought advice from friends and colleagues in tracking down a leading concussion specialist in the New York metro area. That's how Brandon wound up at the Weill Cornell Concussion and Brain Injury Clinic, where he was seen by Barry Kosofsky, MD, PhD, the Horace W. Goldsmith Foundation Professor of Pediatrics and a professor of neuroscience in the Feil Family Brain and Mind Research Institute. A neurologist with a specialty in traumatic brain injury (TBI) in children, Kosofsky is director of the clinic's pediatric section. He examined Brandon, finding subtleties that the other physician hadn't been trained to detect; for example, while Brandon could indeed follow a finger, his eye movements were jerky and halting. "He basically said, 'Yes, you've got a concussion—and you have to shut down,'" Kevin Swersey recalls. "No TV, no reading, no school—nothing that could cause a headache."

Concussion has become a subject of national discussion, as former professional athletes—football players, boxers, hockey linesmen—have gone public about the long-term damage they've suffered after years of sports-related head injuries. Ills such as dementia, depression, and cognitive deficits are increasingly being linked to

the tackles, knock-outs, and cross-checks of bygone sports careers—even if an injury didn't seem devastating at the time. And the concern extends to kids' sports as well. "The real challenge is that we can't predict from a given hit who will be symptomatic in a week, a month, or six months," Kosofsky says. "That's what makes this so complicated. You're trying to figure out if somebody has had a problem that's going to require an intervention—and as clinicians, we're just not smart enough yet." Plus, Kosofsky stresses, although concussion among the pros may draw the most headlines, it's just the tip of the neurological iceberg. "For every one professional athlete, there are 1,000 in college—and for every 1,000 in college, there are 100,000 in high school," he says. "So the base of the concussion pyramid is really the younger kids in sports."

At Weill Cornell, clinicians and researchers are at the forefront of work on concussion—striving to create a gold standard for patient care as well as to understand the condition's physiological underpinnings. Faculty are practicing on the sidelines of marquee match-ups (including the 2013 Super Bowl); working to establish better ways to assess TBI both on the field and in the clinic; treating patients from pediatrics to the pros; and advancing research on the subject, including investigating ways to identify concussion through new imaging techniques. "The thing that makes this program unique—the overarching thing, besides the fact that it's completely integrated—is that it doesn't only look at assessment," Philip Stieg, MD, PhD, professor and chief of neurosurgery and director of the Weill Cornell Brain and Spine Center, says of the clinic. "It's providing a mechanism for complete recovery."

In a concussion, the brain is injured at least twice—at the initial point of impact, and again as it rebounds against the skull. The condition is considered a mild form of TBI—one that, using conventional technologies, often can't be detected on an MRI or CT scan—but it's still serious, potentially causing a kaleidoscope of symptoms including headache, temporary amnesia, vertigo, insomnia, and an inability to concentrate. Some half a million children go to emergency departments with TBIs each year; the injuries are the most common reason for ED visits among adolescents. In addition to sports mishaps, children suffer brain injuries through falls, accidents, and abuse; in adults, the most common source of concussion is motor vehicle or bicycle accidents. One basic challenge, clinicians say, is convincing them to take it seriously. While parents may be increasingly willing to bring their kids to the ED for the merest bump



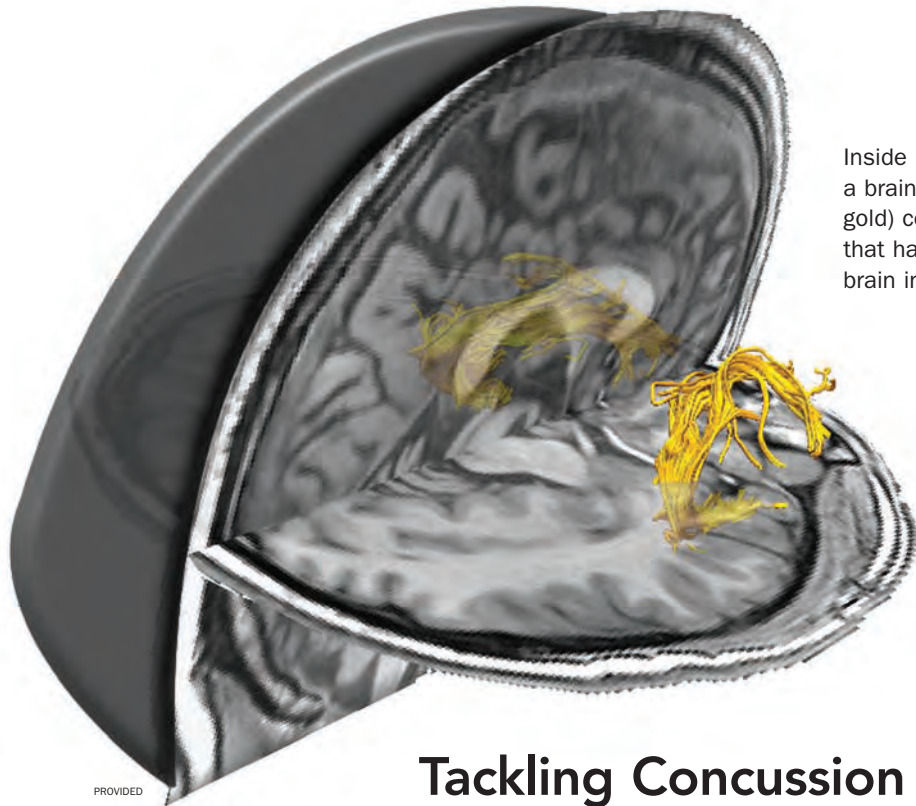
ABBOTT

Goal oriented: "Everything revolves around hockey," says Brandon, a left wing who aims to play at the club level in college.

on the head, adults can be more reticent when it comes to their own crania. "Most Americans don't want to look at the brain as another organ in their body; they want to treat it as some mystical entity," Stieg says. "And to admit that there's some injury to it means admitting that there's some fundamental flaw in their personality. We need to get Americans over that concept. If you had a heart attack, how resistant would you be to be taking medicine?"

Overall, about 70 percent of people who suffer mild traumatic brain injury (mTBI) recover fully within four to six weeks. It's the other 30

percent that clinicians and researchers are most worried about. The issue is also on the radar of the policymakers coping with concussion's socioeconomic costs: in late May, President Barack Obama hosted the Healthy Kids and Safe Sports Concussion Summit, bringing league commissioners, scientists, and former professional and amateur players to the White House. "I think this is going to end up being like the American Heart Association or the American Cancer Society," Stieg says. "The only way we're going to be able to affect this in the short course is by altering behavior. So, making people aware: getting mom and



Inside look: A three-dimensional reconstruction of a brain MRI depicts a white matter pathway (in gold) connecting the frontal and temporal lobes that has been shown to be vulnerable to traumatic brain injury.

PROVIDED

Tackling Concussion

In addition to the Concussion Clinic, Weill Cornell faculty are addressing the condition on a variety of fronts. They include:

On the sidelines—Numerous clinicians work with professional sports teams, offering on-the-spot evaluations using instruments such as the SCAT (Sport Concussion Assessment Tool) that test cognition, motor response, and more. “There are specific protocols we follow on the sideline, and then if we think it’s severe we take the player into the locker room and do a much more formalized exam,” says Philip Stieg, MD, PhD, professor and chief of neurosurgery, a longtime consultant to the NFL. “Once you take them into the locker room, they’re pretty much out of the game. It’s at the sideline where you can make the decision about whether it was a concussion or just a head bump.” Stieg was on the Seahawks side at last year’s Super Bowl; though the team had no concussions, the opposing Broncos had one. “Being on the sideline of the Super Bowl is kind of a surreal experience,” he says. “At the end of the game, it was virtually blinding with all the confetti coming down.” Other faculty who work with pro teams include Roger Härtl, MD, professor of neurological surgery and co-director of the Weill Cornell Spine Center (the New York Giants), Kenneth Perrine, PhD, assistant professor of neuropsychology in neurological surgery (the New York Jets and Islanders), and Nitin Sethi, MD, assistant professor of clinical neurology (the Giants, as well as the New York State Boxing Association).

In the radiology lab—A team led by P. David Mozley, MD, professor of radiology and chief of the Division of Nuclear Medicine, is working under a challenge grant from the NFL and General Electric. The investigators are using nuclear medicine and advanced MRI techniques to diagnose head injuries in athletes immediately after they occur. The team will compare scans from former professional boxers with known, long-term head injuries against those of NFL players in whom a concussion is suspected.

Collaboration and data gathering—In addition to keeping comprehensive data on patient treatment and outcomes that may prove invaluable for future research, the Concussion Clinic is collaborating with a Stanford neurosurgeon and Weill Cornell alumnus—Jamshid Ghajar, MD ’81, PhD ’83—on a promising avenue for assessing concussion. Under a grant from the Department of Defense, Ghajar is studying the efficacy of eye-tracking as a method of diagnosis. Says Barry Kosofsky, MD, PhD, the Horace W. Goldsmith Foundation Professor of Pediatrics: “It turns out that in combat—and they’re now looking in sports—traumatic brain injury correlates with an inability to visually follow a dot around a circle.”

dad to stop their kids from running into each other with their football helmets, and telling college players that they can’t spear-tackle anymore. That will change the natural history and the incidence of this disease. Once we’ve maximized that, there’s still going to be the need for a blood test, urine test, or imaging test that quickly tells us, ‘Yes, you’ve had a concussion.’ And hopefully whatever that test is will also be reversible—because the other big question that the trainers and coaches want answered is return to play. We need a test that tells us if you’ve got it, how bad it is, and when it’s over.”

At the Concussion Clinic, patients like Brandon Swersey get comprehensive care by specialists who meet regularly to integrate their treatment. The clinic has a dedicated hotline, where a nurse triages the query and directs it to a clinician for an initial phone consultation. “Then, depending on how serious it is, the patient is referred to an emergency department or to one of us,” says Kenneth Perrine, PhD, assistant professor of neuropsychology in neurological surgery. “We’ll see the patient in twenty-four to forty-eight hours and do an intake and an assessment, and then the services follow from that.” Those services can range from imaging scans (to rule out more serious brain injury) to cognitive testing to appointments with specialists in headache, vision, and balance. Patients are closely followed, and those who have lingering problems with attention and memory—what’s known as post-concussion syndrome—can undergo a process called cognitive remediation that includes concentration exercises and psychotherapy. “We get a lot of people who are six to eight to twelve weeks post, and they’re still symptomatic and complaining of cognitive issues that impact their work functioning—and there can be a big psychological piece to that,” says Amanda Sacks, PhD, assistant professor of neuropsychology in neurological surgery. “We offer complete, multi-faceted treatment that addresses both the cognitive and emotional consequences of brain injury.”

Kevin Swersey calls the neuropsychology component the “back end” of treatment, and one that was essential to helping his son recover fully. After missing nearly two weeks of school, Brandon went back, at first for half days. “That was a disaster, because I couldn’t manage,” he says. “The symptoms were still there.” He tried a more reduced schedule, minimizing eye strain by taking tests orally and listening to audiobooks. “It was really depressing,” Brandon recalls. “Dr. Kosofsky was saying, ‘I don’t know if you’re going to play hockey again,’ and that was terrible, because it’s so much of my life. Everything revolves around hockey. I told him, ‘I will play again, one way or another.’”

A basic challenge for Brandon’s treatment was one that’s common to his fellow patients everywhere: as of now, there’s no magic pill to treat concussion. Doctors prescribe a period of rest and reduced activity, and a gradual return to a normal schedule. While the old-school antidepressant amitriptyline has shown some success for treating post-concussion headaches—Perrine and Nitin Sethi, MD, assistant professor of clinical neurology, are planning a trial on the subject—Brandon says it didn’t help him. And in any event, headache is just one symptom of many. “We really don’t have a good way to treat concussion right now,” Sethi admits. “The way we treat it is to treat the predominant symptoms. If patients have headaches, we treat the headaches. If they have sleep problems, we treat that. There’s no specific drug.”

For Brandon, a breakthrough came in the form of an experimental treatment based on research by the U.S. military, which has seen a huge rise in TBI cases due to the post-9/11 wars. Neurology resident Baxter Allen, MD ’10, who was working in the pediatric concussion clinic as a research assistant, had read that some patients had improved after taking high doses of omega-3 fatty acids—fish oil—along with magnesium, a cocktail thought to help rebuild brain proteins. Since Brandon’s symptoms had lingered longer than anticipated and the treatment had no downside, the family decided it was worth a try. “That’s what really helped me in the end,” Brandon says. “I had stayed at the same point for a month and nothing was improving, even though an MRI came out clean. I tried the fish oil, and after a couple of weeks I actually started feeling a lot better.” Says

his father: “It was almost like a miracle.”

After months on the couch during which he’d packed on forty pounds and grown increasingly forlorn, Brandon was finally able to go back to school full time in June. The following month, he returned to the ice—albeit just doing laps during public skating hours. He was eventually allowed to take some hockey lessons, as long as there was zero contact. By August he was back in the game, training at a camp in Minnesota. And though he admits that his return to full-contact play was a bit scary—“I played very cautiously, because I didn’t want the whole thing to happen again”—he’s been going full-steam ever since. In November, he was elected captain of his high school varsity team, for which he plays left wing. But these days, he has taken on another role: as a reality check for his peers on the potential dangers of concussion. “Not so much in hockey, but a lot of my friends who play soccer take the concussion thing as a little bit of a joke; they take it lightly,” Brandon says. “To a certain extent I get it, because it sucks to be out of a game. But I don’t want anybody to go through what I did.”

His father, too, has become something of an evangelist for concussion awareness. Last summer, Kosofsky and Stieg hosted a continuing medical education course on concussion, and Kevin Swersey attended to provide a parent’s perspective. “There has been some progress, but parents really have no clue,” he says. “People hear ‘concussion’ and they think if you don’t black out it means you’re OK, but that’s not the case. For the general parental population in varsity and club-travel sports, the naiveté and lack of education is shocking.” He recalls another parent telling him about a varsity soccer game in which a player was knocked down; when the teenager got up, he was moving slowly and clearly groggy as he made his way to the bench. “The coach and the athletic director asked his *parents* if he could go back into the game,” Swersey says, sounding incredulous. “Since when is it acceptable to ask parents a medical question like that? Why aren’t there better protocols in place? The minute Brandon lined up in the wrong spot, why didn’t the coach pull him off the ice and not put him in again? It’s just common sense.” The bottom line, Swersey says: “You need to seek out the proper, medically trained staff to help you get through this.” ●

‘There has been some progress, but parents really have no clue. People hear “concussion” and they think if you don’t black out it means you’re OK, but that’s not the case.’

Notebook

News of Medical
College and Graduate
School Alumni



PROVIDED

Spencer Kubo, MD '80

Dear Alumni,

I am honored and thrilled to be the president of your Alumni Association. I follow the rich tradition and great leadership of past presidents including Thomas McGovern, MD '74 (2002–04); the late Kenneth Swan, MD '60 (2004–06); Gene Resnick '70, MD '74 (2006–08); Hazel Szeto, MD '77, PhD '77 (2008–10); Michael Alexiades, MD '83 (2010–12); and R. Ernest Sosa, MD '78 (2012–14). They and many others have been friends and inspirations to me.

For me, the Alumni Association is all about making a connection to your alma mater. My own connection comes from frequent reflections on many gratifying medical moments that highlight the great joys of being a physician. This is followed by the realization that these rewards are connected, in part, to great relationships with Weill Cornell classmates. Working with the Alumni Association over the past ten years has been a great way to express my joy and appreciation. Certainly one of the capstones of this work was celebrated at Reunion 2014 in October. We not only established an all-time record for attendance (391 alumni and a total of 489 attendees!), but, during the panel discussions, we heard many classmates spontaneously share their deeply personal “true north” experiences about mentorship, leadership, compassion, and empathy. It was a moving experience that perfectly captured the fulfilling nature of volunteer work with the Alumni Association.

Another memorable Reunion 2014 moment: I had the honor to present a Special Achievement Award to Father Peter Le Jacq, MD '81. I spent hours with Peter in anatomy lab way back in 1976. From this humble beginning, he went on to help establish Weill Bugando Medical School in Tanzania. In 1990, there were only fifteen physicians in a nation of 10 million; now, the medical school graduates more than 100 doctors annually. Its teaching hospital, Weill Bugando Medical Centre, has treated thousands of people who never before had access to medical care. Peter's stories about treating the children and how they related to watching *The Lion King* were riveting and touching.

Many alumni have spoken about circumstances that keep them from reconnecting. My goal is to enhance the experience of reconnecting with Weill Cornell so that all feel welcome and even “recruited.” One obstacle is distance: while many alumni live in the New York metropolitan area, a great many more live farther away. To this end, please look for our outreach events. Last year, the Office of Alumni Relations sponsored dinners in Los Angeles, Providence, Baltimore, Washington, D.C., Chapel Hill, New Jersey, and Westchester. These intimate gatherings are a fantastic opportunity to get updates on Medical College developments and meet alumni in your area.

Another major goal will be to continue the passion for supporting our current students. We want to support our alumni from cradle to grave, and one of the best times to insert the DNA of the Alumni Association is while the students are in the proverbial cradle. For example, we support Alumni to Student Knowledge (ASK) sessions, which bring speakers in different specialties to campus so students can ask them candid questions in a relaxed environment. For those who attended Reunion 2014, you will remember the panel discussion on “What did you learn after medical school that you wished you learned during medical school?” We want to foster that discussion when there is still time during school. The Alumni Association also supports student programming organized by the Medical Student Executive Committee (MSEC), the White Coat Ceremony, the Stethoscope Initiative, Family Day, and, this year, a welcome reception during orientation for incoming medical students.

The opportunity to serve you over the next two years is very exciting. If you have a concern—or perhaps an idea that will help you connect with Weill Cornell—I hope that you will contact me, or any of our great staff in Alumni Relations.

Warm regards,

Spencer Kubo, MD '80
spencer.h.kubo@gmail.com

1940s

Richardson K. Noback, MD '47: "Nan and I are living in a retirement community in Kansas City, MO. We both are active and enjoying the cultural resources here. Visits to Hospital Hill and the University of Missouri, Kansas City main campus provide continuing connections to our pre-retirement life. Among six grandchildren we have one in the doctoral program at Hopkins and one in the MD/PhD program at the University of Berlin. All the best to classmates of '47 of the Medical and Nursing colleges."

1950s

Stanley Birnbaum, MD '51: "I am now 91, but still doing some teaching at WCMC. This must be some kind of record!"

Russel H. Patterson, MD '52: "Julie and I are still in good shape except for mild memory loss and lack of energy. We go back and forth between NYC and Vermont quite often and also attend several neurosurgical meetings each year. Between visits to children and some time spent in Paris, we keep busy. If anyone would like to get together in NYC, do send us an e-mail."

Joseph E. Plastaras, MD '53: "Still alive and well."

Steven Schenker '51, MD '55: "I retired from the faculty at the University of Texas Medical School at San Antonio as emeritus professor of medicine. I'm still active in teaching house staff and students. I'm a consultant to the pharmaceutical industry. With seven children and 19 grandchildren I lead a busy family life. Most recently I enjoyed a ten-day trip to the Galápagos Islands."

Bernie Siegel, MD '57: "I'm still very active lecturing and writing to assist people facing life-threatening illnesses by teaching survivor behavior, as well as their self-induced healing and not what doctors call spontaneous remissions. We need to learn from our patients who do well. Two of my latest books are *A Book of Miracles* and *The Art of Drawing*. The latter contains 60 drawings and reveals therapeutic, somatic, and diagnostic information from the patient's unconscious awareness."

John Baldwin, MD '59: "I'm operating only: no office, no ER, no paperwork. I spent most of June guiding big-game fishing expeditions to Alaska. 635 pounds was our biggest halibut from Sitka this June—just one of many. At \$29.95 per pound, you do the math. Beats a triple bypass by a mile. Recently I've been shoveling snow, clearing gutters, keeping up with my 2-year-old chocolate Lab, taking daily four-mile hikes in our High Sierras, and finding fun things to do with my wonderful wife, Jeannie. What I remember most about our class: we loved each other. There was no competition. We were a team, all in it



SIGURD FISCHER

together, no jealousy, and great friendships."

1960s

John Ziegler, MD '64, was awarded the Burkitt Medal, given by Trinity College, Dublin to recognize people who embody the "integrity, compassion, and dedication" of Denis Burkitt. Dr. Ziegler directed a research team in Uganda that developed curative therapies for Burkitt's lymphoma and other indigenous cancers and established a cancer institute. Denis Burkitt was his mentor in the early years of his medical work in Uganda. Dr. Ziegler headed a cancer genetics clinic at UCSF and is the founding director of Global Health Sciences Graduate Programs Education and Training at UCSF.

Mark M. Sherman, MD '66: "This is my 38th consecutive year of active practice in thoracic/vascular surgery in western Massachusetts. My first son, Keith, is starting a PhD program in ethics and philosophy at SUNY Albany. Brian, my second son, is starting his post-doctoral studies in clinical psychology. Thompson Daniel Sherman, my first grandson, was born July 9, 2014 at Lenox Hill Hospital. My wife, Jane, may retire soon from 40 years of active nursing with never a medication error."

Bygone building boom: The Medical Center under construction in the Thirties

'What I remember most about our class: we loved each other. There was no competition. We were a team, all in it together.'

**John Baldwin,
MD '59**

'What a privileged education I received at Weill Cornell! I still feel like a kid in a candy store and very grateful to be a doctor.'

**Nina C. Ramirez,
MD '78**

Edward L. Goodman, MD '68: "I was recently seen or heard on three nationwide news conferences discussing the first case of Ebola diagnosed in the US, which arrived at our hospital. It was a hectic time, but things have returned to normal. In January I will receive the Max Cole Leadership Award of the Dallas County Medical Society for 40 years of service to the community. I'm a hospital epidemiologist at Texas Health Dallas, where I have practiced and taught for 40 years."

Jerold B. Graff, MD '68: "I am happily retired from 34 happy years practicing dermatology. Keeping busy and having fun playing golf and with my Lionel trains, travel (Turkey and Greece recently), auditing Princeton courses, etc. I organized an annual dermatology CME cruise/meeting. The next one will be to Alaska in July 2015 (www.dermtopicsinthetropics.com). I also created a collection of funny car stickers, responding to those compelled to tell the world on their cars where they vacation (www.whocaresllc.com). Everyone is invited to buy a few hundred!"

1970s

Louis Bartoshesky, MD '70: "I'm practically retired, but still doing public health genetics in Delaware."

Allan Gibofsky, MD '73, was recently elevated

to the status of Master by the American College of Rheumatology. He is professor of medicine at Weill Cornell and attending rheumatologist at Hospital for Special Surgery, where he is co-director of the Clinic for Inflammatory Arthritis. He is also adjunct professor of law at Fordham University School of Law, where he is a member of the Health Law faculty.

Nina C. Ramirez, MD '78: "Greetings and happy holidays. I really enjoyed seeing my colleagues and making new friends at the reunion. It was truly a memorable event. I just received the news that I passed the board certification exam in allergy and immunology. I am now a proud Cornellian triple-boarded physician with certification in pediatrics, pediatric pulmonology, and now adult and pediatric allergy-immunology. What a privileged education I received at Weill Cornell! I still feel like a kid in a candy store and very grateful to be a doctor. Wishing all of my friends and colleagues at Weill Cornell the very best of health and harmony."

1980s

Patricia Boiko, MD '80, and **Karl Weyrauch, MD '80,** were in Minneapolis for the screening of Patricia's new documentary, *Game Show Dynamos*. While in Minneapolis, they were splendidly hosted for dinner by **Spencer Kubo, MD '80,** and **Adele Della Torre,** "who still look



STUDIO BROOKE

exactly the same as they did in 1980! Visit www.gameshowdynamos.com to see the trailer, connect with us on social media, and ask for screenings.

Robert Naparstek, MD '80: "My family and I are doing well. I'm living and practicing public health in Providence, RI. I have recently been elected president of the Rhode Island Philharmonic Orchestra and Music School. I'm very honored—stay tuned."

Stuart Knechtle, MD '82: "I'm moving to Durham, NC, in January 2015 to be executive director of the Duke Transplant Center. Duke is where I trained in general surgery after Weill Cornell, where I met and married Mary Banks, and where our first two children were born. We are coming full circle and welcome classmates to visit."

Richard M. Daum, MD '83, is associate professor of medicine at the University of South Florida and medical director of cardiology services at Florida Hospital Heartland Medical Center.

Marshall Partington, MD '83, was named Best Plastic Surgeon in Western Washington by "The Best of Western Washington."

David Haughton, MD '84, will have artwork on display at the Visual Space Gallery's new location at 3352 Dunbar St., Vancouver, BC, near 17th and Dunbar. The show will continue until January 31.

Scott Schafrank, MD '86: "I recently celebrated 20 years in practice with my classmate Mike Damiano, MD '86."

Peter Hotez, MD '87: "We have been in Houston now for over three years working to create a new National School of Tropical Medicine at Baylor College of Medicine and Texas Children's Hospital, together with the Sabin Vaccine Institute. I still try to get to New York City whenever I can. My oldest daughter, Emily, is working on her PhD dissertation on childhood autism at CUNY and teaching at Hunter College. She was inspired by her younger sister, Rachel, who struggles with a number of disabilities and lives with us. Our son Matt is working toward his master's and leading a number of interesting reggae-jazz-ska-world music bands in the Washington, DC, area, while our youngest, Dan, is a senior in high school and wants to become a petroleum engineer. So everyone is doing interesting things. Ann and I are going on 27-plus years. Both our human hookworm and schistosomiasis vaccines are in clinical trials in Brazil and Africa. I was recently named by the White House and State Department as a U.S. Science Envoy for 2015, a role focused on the Middle East and North Africa, which might allow me to implement some of the concepts in 'vaccine diplomacy' I have been writing about for a long time."

Anne J. Lipton, MD '87: "I have been living in Holden, MA, and working as a staff physician



JULIE KIM EINGER

at the Worcester V.A. primary care clinic. I love my job and am blessed to be caring for the men and women who have courageously served our nation. I have patients ranging from 21-year-olds who served during Operation Enduring Freedom and Operation Iraqi Freedom and have just returned from tours, all the way to patients over 100 years old who are World War II vets, as my late father was himself. I'm lucky to also be on faculty at UMass Med School, so I'm still connected, albeit by a string, to academia. My children, Zev, 8, and EmmaChaya, 9, are both happy in school, active on soccer teams, playing baseball and basketball, taking music lessons, and skiing at Mount Wachuset, which is ten minutes from us. Anyone who wants to catch up and is living in the Boston or central Massachusetts region, please get in touch. I'd love to hear from you! My e-mail is ajliptoncat@msn.com or anne.lipton@va.gov."

Marlene Wust Smith '85, MD '89: "I've been working in rural Pennsylvania as a pediatrician for the past eight years. Prior to that I worked primarily in New York City and the Hamptons. Living in a rural community, especially after years in New York City, reminds me of my time in Ithaca—a simple life, great people, and a small community. *Parents Magazine* recently named me as a favorite pediatrician. My 14-year-old daughter, Madison, hopes to follow in my footsteps if Cornell could develop a good softball team."

Daniel H. Sterman, MD '89: "After 25 wonderful and productive years at the Hospital of the University of Pennsylvania, I'm headed back to NYC to be chief of the Pulmonary and Critical Care Division at NYU Langone Medical Center. There I will be joining fellow WCMC

Coats on: Members of the Class of 2016 in mid-commute

'Our oldest headed off to college this year with eventual plans for medical school, leading to opportunities to fondly reminisce about Olin Hall, CPC, Christmas shows, and anatomy class.'

R. Hal Baker '86,
MD '90

colleagues **Mark Pochapin** and **Cheryl Pegus**, Class of **1988**, and **Steve Galetta** and **Ben Neel**, Class of **1983**, among many others. I'm very much looking forward to this new adventure."

1990s

R. Hal Baker '86, MD '90: "May will mark my 20th year at WellSpan Health in south central Pennsylvania. My role expanded last year to include oversight of clinical quality as the senior vice president of clinical improvement and chief information officer. While it grows harder to balance administrative duties and clinical work, I'm fortunate to have supportive physicians in my office who allow me to practice one day a week as a primary care doctor. Our oldest headed off to college this year with eventual plans for medical school, leading to opportunities to fondly reminisce with him about Olin Hall, CPC, Christmas shows, and anatomy class."

Timothy H. Dellit, MD '97, has been appointed associate dean for clinical affairs at the University of Washington. He will also continue to serve as associate medical director at Harborview Medical Center in Seattle, WA.

2000s

Kathleen D. Keeffe Hough, MD '00: "I am currently a full-time attending physician in emergency medicine in Baltimore, MD. When not at work, I enjoy my life as a wife and mother of two amazing children, age 7 and 4. Other activities include my work with MedChi, the Maryland State Medical Society, where I am on the legislative council and chair of the Disaster Preparedness Committee. I also represent my state as a counselor for the Maryland American College of Emergency Medicine."

Richard T. Logue, MD '02: "I was recently made chief of emergency medicine at Metropolitan Methodist Hospital in San Antonio, TX. My daughter, Charlize Ireland Logue, was born August 6, 2013."

Kavita Parikh-Agrawal, MD '04, and Shantanu Agrawal, MD '04: "Here are some updates for my husband and me. I'm an assistant professor of

pediatrics at the George Washington School of Medicine and work as a pediatric hospitalist at Children's National Medical Center. I have an interest in value-driven healthcare by improving evidence-based practice to reduce unwarranted variation. About ten months ago, my husband, an emergency medicine physician, was appointed by the Obama Administration to be deputy administrator at the Centers for Medicare and Medicaid Services and director of the Center for Program Integrity. His focus is to improve healthcare value by lowering the cost of care through the detection and prevention of waste, abuse, and fraud in these programs. As a political appointee in this exciting time of healthcare reform, this is an incredibly inspiring and challenging opportunity. We have two rambunctious daughters and live in the Washington, DC, area."

Sonali "Allie" Sharma, MD '04: "After two years working globally in post-conflict mental health for an NGO and as a WHO consultant, I serendipitously found myself as deputy director of psychiatry and director of psychiatric emergency services at Lincoln Hospital in the South Bronx, and more currently as chief of psychiatry at Union Community Health Center (UCHC) in the Bronx, both sites of which I rotated through during medical school. I am grateful for the early exposure to population health in the Bronx and, in general, the breadth and depth of education I received at Weill Cornell. Wish me luck as I begin the process of integrating mental health into primary care in UCHC's five settings and fulfilling my passion to extend mental health care to all."

C. Anthony Lim, MD '05: "I would like to announce the birth of Julien Philip Lake-Lim, who was born on September 15, 2014. He's confirmed the fact that pediatricians are not automatically good daddies, but has been a wonderful addition to our family."

Tameka Walker-Blake '01, MD '06, was named by EmCare's South Division as the 2014 Site Medical Director for Emergency Medicine. She is the site medical director at Emory Adventist Hospital of Smyrna, GA. For the second year in a row, the Adventist emergency department was awarded top ED thanks to her work.

Howard Heching '03, MD '07: "I am completing my fellowship in pediatric cardiology at Morgan Stanley Children's Hospital of New York, and will be starting to work as an attending pediatric cardiologist at Cohen Children's Medical Center in New Hyde Park, NY. My wife, Rachel, and I are thrilled to announce the birth of our first child, Eliana Bayla, on May 20, 2014."

Melissa Frey, MD '09: "I graduated with the Class of 2009, but was really in the Class of 2008 (I took a year off for research). I had a son named Ace born September 9, 2014."

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In Memoriam

'29, '32 MD—Mary Ridgway Tinker of Brooktondale, NY, November 5, 2014; practiced family medicine for 64 years; set up well-baby clinics; 1961 Outstanding General Practitioner of the Year, New York State Medical Society; active in community, professional, and religious affairs.

'38 MD—William I. Glass of Fairfield, CT, November 28, 2014; ophthalmologist; chief of ophthalmology, Bridgeport Hospital; served in the US Army Medical Corps in World War II; took part in military research to evaluate penicillin; final wartime assignment as chief of general surgery, 22nd General Hospital, Blandford, England; golfer; tennis player; track athlete; participant in the Connecticut Senior Olympics; active in civic, community, and religious affairs.

'50 MD—Arthur S. McLellan of Lebanon, NH, December 4, 2014; family practitioner; chief of family practice, president of the medical staff, director of emergency medicine and community medicine, division director of community health, and VP of community and environmental health at Overlook Hospital in Summit, NJ; founder, Overlook Hospice; director of the Center for Addictive Illnesses; faculty member, UMDNJ-Rutgers Medical School and the Center for Alcohol Studies; board member of Alina Lodge; woodworker; active in community, professional, and religious affairs.

'51 MD—Edith Lechner Murphy of Montoursville, PA, October 4, 2014; family practitioner; medical director of Lysock View Nursing Home; also worked for a well-baby clinic; gardener.

'48, '52 MD—John U. Lanman of Munster, IN, August 4, 2014; internist; veteran; volunteer for Habitat for Humanity; active in community and religious affairs. Chi Phi.

'52, '56 MD—Richard A. Antell of Flint, MI, November 19, 2014; internist; physician for Flint Goodwill; former president, Michigan Heart Association; Air Force flight surgeon; teacher and mentor to young physicians; active in professional affairs.

'57 MD—John W. Casper of Idaho Falls, ID, July 18, 2014; psychiatrist; Bonneville County physician and director of public health; medical officer, Fort Totten Indian Health Clinic; chemist, American Cyanamid Co.; veteran; hunter; mountain climber; active in professional and religious affairs.

'60 MD—Richard E. Clark of Cranberry Township, PA, October 22, 2014; retired heart surgeon and researcher; former director, National Heart, Lung, and Blood Institute; designed artificial heart valves; helped develop the AB-180 left ventricular assist device; former chairman, Society of Thoracic Surgeons; author; veteran; race car driver; model airplane aficionado.

'61 MD—Robert F. Lindberg of Ketchum, ID, April 30, 2013; orthopaedic surgeon, Sun Valley Orthopaedic Clinic; veteran; hiker; runner; sailor; skier; horseman; singer; active in community and professional affairs.

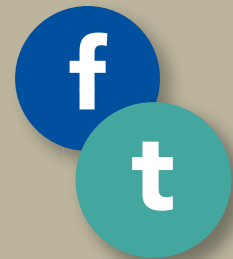
'63 MD—William F. Brereton of Erie, PA, November 11, 2014; oncologist/hematologist; helped establish Regional Cancer Center; staff physician, Hamot Medical Center; president of the medical staff at St. Vincent's Health Center; commanding officer, US Army's 24th General Dispensary, Giessen, Germany; winemaker; cross-stitcher; author; ukulele player; active in civic, community, and professional affairs.

'72 MD—Thomas J. Crawford of Santa Clara, CA, June 26, 2014; physician.

We want to hear from you!

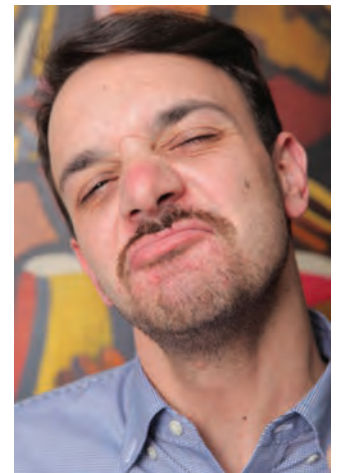
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Hair Apparent

The men—and women—of Weill Cornell celebrate 'Movember' by adorning their upper lips for a good cause



PHOTOS BY JOHN ABBOTT

Moustache mania: The Medical College's 2014 Movember team (a.k.a. the Wild Weill Cornell Mos) raised some \$6,500 for medical research and helped spread the word about prostate cancer and other diseases. "People will ask the guys, 'Why do you have that moustache?' and that raises questions about men's health," says team captain Himisha Beltran, MD (seen second from left in the women's group photo), assistant professor of medicine in urology and a so-called "Mo Sista." Among the avid 'stash-growers was hematology-oncology fellow Bishoy Faltas, MD (seen front row right in the men's group photo). "One enjoyable thing is that you can touch it and pretend that you're thinking," Faltas says. "That was my favorite. You put your hand on your moustache, and you look pretty pensive."

Roland Balay's Legacy: A Portrait of Giving



Felicie Balay's home is filled with beautiful artwork. But ask her what the most beautiful treasure ever to enter her home is, and **she will say: the team from Weill Cornell Medical College's EGL House Call Program, who cared for her late husband, Roland.**

The EGL House Call Program is a group of Weill Cornell physicians and nurse practitioners who bring the doctor's office directly to elderly patients who are homebound. To help ensure that the program continues, Mrs. Balay has made a planned gift in her will that supports the House Call and Palliative Care programs in the Division of Geriatric and Palliative Medicine.

"The continued success of this program is vital to me, so I have chosen to support it in a variety of ways and include it as a charitable beneficiary of my estate," Mrs. Balay explains.

Roland spent his career working as a modern art dealer and was the former president of the New York gallery Knoedler & Company. In 2002, at the age of 100, he seriously injured his back and was unable to walk or travel easily to doctor's appointments. That is when Mrs. Balay turned to the EGL House Call Program.

Because of the House Call team, Roland walked again and lived happily, under their care, to the age of 102. Thanks, in part, to Mrs. Balay's planned gift, House Call physicians will continue to make several hundred visits each year to homebound seniors throughout New York City.

Planned giving provides a unique opportunity for you to support Weill Cornell in a way that maximizes your charitable goals while minimizing the after-tax cost to your estate. By making a planned gift, you can provide a significant donation now that will support the future of the Medical College.

For more information, please contact:

Vikki Jones
Planned Giving Officer
Phone: (646) 317-7400
Email: vej2003@med.cornell.edu



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