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SPRING 2006

THE MAGAZINE OF THE JOAN AND SANFORD I. WEILL MEDICAL COLLEGE AND GRADUATE SCHOOL OF MEDICAL SCIENCES OF CORNELL UNIVERSITY



Parasite Fighters

Weill Cornell research offers
new hope in the worldwide
battle against malaria

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18 SMALL WONDER

SHARON TREGASKIS

As the technology for keeping premature babies alive has improved, the threshold of viability for the tiniest infants has crept down to twenty-four weeks—before lungs are mature and brains are fully developed. At Weill Cornell's neonatal intensive care unit, exploring that dangerous frontier of life is the job of doctors who must balance the long-term implications of their interventions with the hopes of family members who ask for—and sometimes receive—miracles.

26 FEVER PITCH

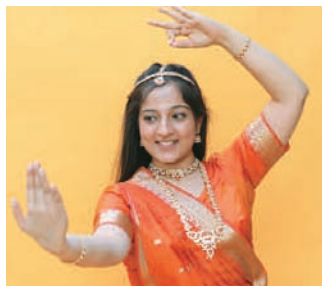
C. A. CARLSON

Malaria—once the target of worldwide eradication efforts that all but eliminated the disease from the developed world—now kills 2,000 children a day in Africa alone. A major grant from the Bill & Melinda Gates Foundation has brought the disease back into the headlines, but Weill Cornell researchers have long battled the resourceful parasite. Now they are bringing the latest tools from genomics and immunology to bear in the struggle against one of humanity's most ancient and lethal foes.

34 ALTER EGOS

BETH SAULNIER

Early morning and after hours, Weill Cornellians manage to find the time to express the sides of their lives outside of medicine. The hobbies, sidelines, and assorted consuming passions of these weekend warriors include creating online art installations, figure skating, singing in gospel-bluegrass groups, climbing frozen waterfalls, and practicing *bharatnatyam*, a classical southern Indian dance.



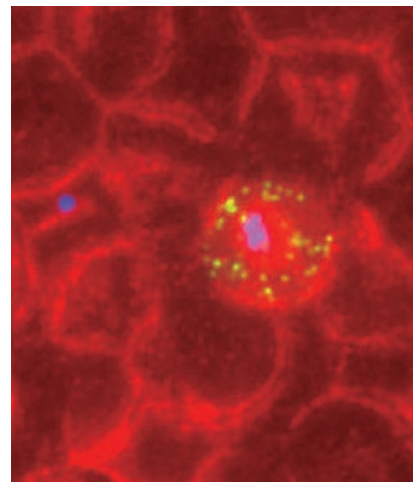
34

2 DEANS MESSAGES

Comments from Dean Gotto & Dean Hajjar

4 SCOPE

Going for three. *Plus:* New vice dean, public health professorships, kudos for Dr. Rosenfeld, and farewells to Dr. Barnes and Dr. Kernberg.



26

9 TALK OF THE GOWN

The decider. *Plus:* Culture clash, a back breakthrough, a surgeon on the edge, and sex ed for nervous parents.

40 NOTEBOOK

News of medical college alumni and graduate school alumni

47 IN MEMORIAM

Alumni remembered

48 POST-DOC

The road to Doha

Cover illustration by Raymond Verdaguer

The Lifelong Pursuit of Learning

ANTONIO GOTTO JR., MD
Dean of the Medical College

*I do solemnly vow . . . that I will
recognize the limits of my
knowledge and pursue lifelong
learning to better care for the sick
and to prevent illness.*

– Hippocratic Oath, Weill Medical
College of Cornell University

mEDICINE IS A DYNAMIC profession, defined by technological advances, research breakthroughs, and new procedures that allow physicians to better fulfill their responsibilities to patients. As medical care becomes increasingly sophisticated, a thorough education that inspires a lifelong enthusiasm for continued learning will play an even more crucial role in the lives of physicians.

Each spring during commencement, I am reminded both of the responsibilities of physicians and of the role of education in the lives of teachers and students. In May, 101 graduates from the Medical College began their careers, leaving behind the classroom and advancing their training as they took one step closer to becoming attending physicians.

The eagerness and excitement that our graduating students feel about the added responsibilities and opportunities of this next phase of their careers illustrate the values instilled by Weill Cornell's progressive approach of self-inquiry and active learning.

One of the cornerstones of Weill Cornell's medical education is early exposure to one of the most diverse patient populations in the world. Students participate in clinical rotations at a variety of public, community, and/or research hospitals, including NewYork-Presbyterian Hospital/Weill Cornell Medical Center, the Medical College's chief clinical partner and one of the premier academic medical institutions in the country. With this background, and the Medical College's emphasis on small-group learning and problem solving, our graduating medical students are well qualified to succeed in the challenges of their residency programs.

The Class of 2006 continues Weill Cornell's tradition



of internationalism, with students originally from Saudi Arabia, Mexico, and Ukraine, among other countries. This year's class also has three students who entered medical school with advanced degrees: two with doctorates of philosophy and one with a doctorate of jurisprudence. Another ten students will graduate this year with two advanced degrees as part of the Medical College's Tri-Institutional MD-PhD Program in partnership with the Rockefeller University and Memorial Sloan-Kettering Cancer Center.

The diversity in educational backgrounds exemplifies Weill Cornell students' drive and pursuit of knowledge. It also underscores their broad approach to practicing medicine, as they prepare themselves for professions not only in translational medicine, but also for positions in health-care administration and business.

Commencement is also a chance to reflect on the joys of teaching. The dynamic exchange between student and teacher is at the foundation of a lifelong pursuit of learning. And that continual pursuit is one of the central tenets of a career in medicine. As we bid farewell to the Class of 2006, we can be confident that they are well prepared to lead the next generation of physicians.

— Dean Antonio Gotto

The Next Generation

DAVID HAJJAR, PHD

Dean of the Graduate School of Medical Sciences

OUR JUST-COMPLETED RECRUITMENT SEASON speaks to the success the Graduate School has had in recent years attracting outstanding students from top undergraduate institutions to pursue a doctoral degree with us. More than 100 students made the trip to New York City in February to meet faculty and students, visit laboratories, and take in the sights and sounds of New York City.

Our recruits come to us with impressive records. Many are completing their undergraduate studies at Ivy League schools and have already done substantial research at the bench. Some have published papers. In every case, these students are ready to take on the new challenges offered by the Graduate School. They know that the rigorous curriculum, the challenging ACE examination, and the long hours in the laboratory are part of the next phase of their scientific careers, and they come to Weill Cornell for the best training possible. Students arrive here prepared for hard work, and they join a unique community of scientists who share their passion for research and commitment to making significant contributions to the biomedical enterprise.

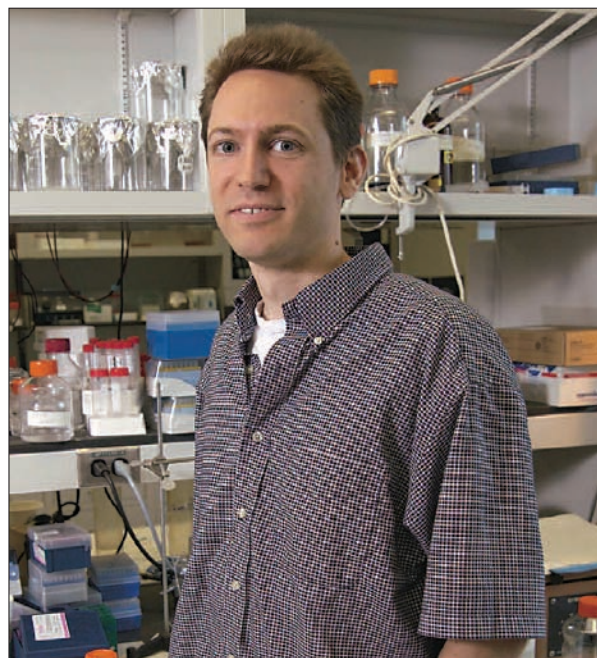
Feedback from our recruitment weekend consistently shows that students appreciate the breadth and depth of our programs, as well as the collaborative atmosphere, which opens up possibilities for new discoveries. Students feel they can make a real contribution at the Graduate School, where they will be encouraged by a faculty committed to the next generation of biomedical researchers.

A student who applied to the Allied Program in Biochemistry & Structural Biology, Cell Biology & Genetics, and Molecular Biology (BCMB) this fall, summed it up nicely when he wrote, "[The Graduate School] . . . is really the best of all possible worlds. The BCMB program is the most diverse one I've seen, and I'm thrilled about the potential to work in one of the many labs. This is the only place I can see being happy."

Ryan Heller, who is in his final year in the BCMB program, would surely endorse that notion. Here at the Graduate School, we were glad to learn that Ryan has received the prestigious Harold M. Weintraub Graduate Student Award from the Fred Hutchinson Cancer Research Center. He traveled to Seattle to accept the award and presented his work to a scientific symposium honoring the late Dr. Weintraub, an internationally known scientist whose contributions to molecular biology revolutionized biomed-

ical research. The award was established in 2000 to recognize his work and celebrate the achievements of young scientists. It is given each year to only sixteen graduate students chosen for the quality, originality, and significance of their scientific research.

Although Dr. Weintraub was only forty-nine years old when he died, he was known at the Hutchinson Center as both a great scientist and a leader who nurtured other researchers, including graduate students, and created a collaborative environment to foster scientific breakthroughs.



Ryan Heller

Ryan benefited from a similar atmosphere during his five years at the Graduate School. In fact, he singles out that support as the strong suit of Weill Cornell. "The other researchers in the lab make it an incredible working environment," he says. "We are able to discuss science and help each other by talking about results and coming up with new ideas."

The Weintraub Award is one of the highest honors a graduate student can receive, and we congratulate Ryan Heller on this recognition of his accomplishments.

— Dean David Hajar



AMELIA PANICO

Dean Gotto

Five More Years

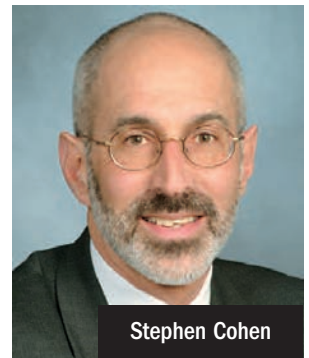
dR. ANTONIO GOTTO JR. HAS BEEN APPOINTED TO A THIRD five-year term as dean of the Medical College. An authority on cardiovascular disease, Gotto was first named to the post in 1997. During his tenure, the College's growth has included the establishment of the Qatar branch, construction of the new \$230 million Ambulatory Care and Medical Education Building, and the completion of a \$750 million capital campaign, as well as the institution's renaming in honor of benefactors Joan and Sanford Weill. Research has been expanded in such areas as stem cells, genetics, nanomedicine, and bioengineering; NIH funding has more than doubled, while faculty publication in peer-reviewed journals has tripled.

A former Rhodes Scholar, Gotto is a past president of both the American Heart Association and the International Atherosclerosis Society. He has published more than 500 scholarly articles and books; his titles for a lay audience include *The New Living Heart Diet* and *The Living Heart Cookbook*. "With characteristic energy, integrity, and vision, he has strengthened the education and financial health of Weill Cornell, helping to revitalize the medical school's curriculum, expand and improve facilities, and enhance patient care," says Cornell Board of Trustees chairman Peter Meinig. "And, in achieving these goals, he has forged partnerships and expanded the scope of the Medical College locally, nationally, and internationally."

Cohen Named Vice Dean

THE FORMER VICE PRESIDENT AND CHIEF FINANCIAL OFFICER OF THE Howard Hughes Medical Institute has been named Weill Cornell's associate provost and executive vice dean for administration and finance. Appointed in March, Stephen Cohen is the senior executive responsible for the day-to-day management of the college's non-academic operations, reporting directly to Dean Gotto. He will serve as liaison to the financial and administrative offices of Cornell University, as well as to the administration of NewYork-Presbyterian Hospital.

Cohen holds a bachelor's degree from Pennsylvania State University and an MBA from New York University. He succeeds Steven Rosalie, who has been appointed executive vice dean and associate provost for international initiatives. Prior to his tenure at Hughes, Cohen was associate dean for finance and administration at the Yale University School of Medicine. Chairman of the Board of Overseers Sanford Weill praised Cohen's appointment, saying: "Steve Cohen is the right person with the right background to help us meet the challenges ahead."



Stephen Cohen

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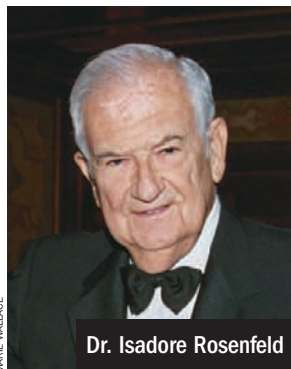
Research & Prevention

AN ASSISTANT PROFESSOR OF CLINICAL MEDICINE HAS BEEN NAMED TO a three-year term as the first Nanette Laitman Clinical Scholar. The endowed professorship will allow Dr. Shari Midoneck, an attending physician at the Iris Cantor Women's Health Center at NewYork-Presbyterian Hospital, to pursue clinical research in the area of preventive health.

The \$4 million Laitman Clinical Scholars Program in Public Health—made possible by a \$3 million gift from the Laitman family and \$1 million in matching funds from the Medical College—will ultimately comprise endowed professorships in four fields: prevention, clinical evaluation, community health, and quality of care research. It is intended to give top junior faculty members the opportunity to meld their clinical expertise with public health research. The professorships are named in honor of Nanette Laitman, the daughter of late Weill Cornell benefactors William and Mildred Lasdon; she has followed in their footsteps as a major philanthropist, with a keen interest in public health.

Honors for Rosenfeld

A WEILL CORNELL CARDIOLOGIST well known to TV audiences and newspaper readers has received the Greenberg Distinguished Service Award, the highest honor NewYork-Presbyterian Hospital bestows on its professional staff. Dr. Isadore Rosenfeld, the Rossi Distinguished Professor of Clinical Medicine, is the author of several best-selling books, including *What Should I Eat?* and *Dr. Rosenfeld's Guide to Alternative Medicine*; he serves as health editor of *Parade* magazine and frequently offers expert commentary on network TV news shows. The Greenberg Award includes a \$50,000 grant made possible by an endowment from Maurice Greenberg.



Dr. Isadore Rosenfeld

Dr. William Barnes, 1912–2006

DR. WILLIAM BARNES, A 1937 GRADUATE OF THE MEDICAL COLLEGE WHO taught at Cornell for four decades, passed away on March 26 at a hospital near his home in Ho-Ho-Kus, New Jersey. He was ninety-four.

Born in New York City in 1912, Barnes attended City College and did his surgical residency at New York Hospital. He retired from Cornell in 1984 as a clinical professor emeritus of surgery, having mentored countless medical students, residents, and younger colleagues. At his private practice on Manhattan's Upper East Side, his prominent patients included cosmetics maven Helena Rubenstein and poet William Carlos Williams. He was active in alumni affairs, serving on the alumni association's board of directors and chairing the Medical College Fund for more than twenty-

five years; the college recognized his efforts in 1982, when it gave him the Distinguished Alumnus award. In addition to his four children and seven grandchildren, he's survived by his wife of sixty years, Dr. Shirley Mayer Barnes.

Dr. Paulina Kernberg, 1935–2006

DR. PAULINA KERNBERG, A CHILD PSYCHIATRIST WHO CAME TO NATIONAL attention when she evaluated six-year-old Cuban refugee Elian Gonzalez, died April 12 of bladder cancer at NewYork-Presbyterian Hospital. She was seventy-one.

An expert on the emotional effects of divorce on children—considering its trauma to be second only to the death of a parent—Kernberg helped found a clinical program for children of divorced families at NewYork-Presbyterian's Westchester site. Her publications included the book *Personality Disorders in Children and Adolescents*.

Kernberg was born in Santiago, Chile, and earned her medical degree from the University of Chile. She became an American citizen in 1968 and came to Cornell in 1978, directing the residency program in child and adolescent psychiatry at the Westchester hospital. In 2000, the Immigration and Naturalization Service tapped her to assess Gonzalez, who was found adrift off the Florida coast after his mother died trying to flee Cuba. He became the subject of a bitter, highly publicized international custody battle between his father in Cuba and his relatives in Miami, and was eventually returned to Cuba. Kernberg is survived by her husband of fifty-two years, Dr. Otto Kernberg, a Weill Cornell professor of psychiatry, as well as three children and four grandchildren.

Silver Named Associate Dean

RANDI SILVER, A NOTED EXPERT ON THE RENAL SYSTEM AND CARDIAC arrhythmia, has been named associate dean of the Graduate School of Medical Sciences. She is currently an associate professor of physiology and biophysics. "Dr. Silver has been on the faculty at the Graduate School since 1991, and she has done a great job," says Dean David Hajjar. "I am looking forward to working with her on a daily basis."

After receiving her PhD from Brown University, Silver completed a postdoctoral fellowship at the Graduate School. She subsequently became an instructor at the Medical College and rose to the position of associate professor in 1997.

She is also a faculty member at the Marine Biology Laboratory in Woods Hole, Massachusetts and is on the editorial board of the *American Journal of Physiology–Renal Physiology*.



Dr. Randi Silver

WEILL CORNELL ART & PHOTO

Correction—Winter 2006: The photo of Dr. Daniel Gardner on page 4 was taken by Amelia Panico.

from the bench

New Stent Combats Stroke

Surgeons at NewYork-Presbyterian Hospital/Weill Cornell Medical Center are the first in the New York metropolitan area to successfully implant a new type of stent designed to treat high-risk stroke patients who have not responded to medical therapy. The Wingspan Stent System is implanted in the brain arteries of people diagnosed with intracranial atherosclerotic disease, or excess plaque buildup. It was specifically designed for the fragile vessels of the brain.

The implantation procedure involves making an incision in the patient's femoral artery; a balloon is threaded through the vessels, expanded to crack the plaque, and then withdrawn; the stent is inserted in the plaque's former location. According to Dr. Howard Riina, associate professor of neurological surgery, recent research has shown that a large percentage of patients with plaque buildup in the brain do not respond to medication. "Without any intervention," he says, "these patients have a significant chance of having another stroke within a year."



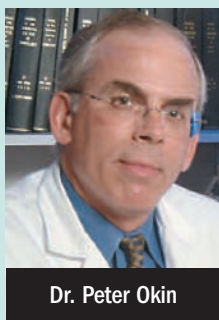
Dr. Howard Riina

WEILL CORNELL ART & PHOTO

'Strain' Signals Congestive Heart Failure

An electrocardiogram is an effective tool for detecting risk of congestive heart failure (CHF) in patients with hypertension, says a study led by medicine professor Peter Okin, MD '80. An analysis of nearly 8,700 hypertensive patients with no history of CHF found that a unique and well-known ECG wave pattern called "strain" was present in 10.6 percent of subjects—tripling their risk of developing the condition over the next five years and quadrupling their risk of dying from it. The findings, Okin says, "suggest that more aggressive therapy may be warranted in hypertensive patients with ECG strain" to reduce the risk of CHF.

Researchers found that patients who developed the condition were: older than those who did not; more likely to have diabetes and a prior history of ischemic heart disease, heart attack, stroke, and peripheral vascular disease; more likely to be black; more likely to be overweight; and more likely to be current smokers. They found



Dr. Peter Okin

AMELIA PANICO

that even after adjusting for these factors, presence of strain was still associated with increased risk of CHF. The study's other participating sites included hospitals in Michigan and Scandinavia.

Promising Treatment for ALS

The drug thalidomide, once vilified for causing birth defects when administered to pregnant women, shows promise in the battle against amyotrophic lateral sclerosis (ALS). Studies on mice conducted by Weill Cornell neuroscientists have found that thalidomide and its derivative, lenalidomide, may extend the lives of patients with the disorder commonly known as Lou Gehrig's disease. The results of the study, lead by neuroscience instructor Dr. Mahmoud Kiaei, were published in the *Journal of Neuroscience* in March.

More than 30,000 Americans, most of them between the ages of forty and seventy, are living with ALS. The disease is uniformly fatal, and there is presently no effective treatment. Scientists are still working to understand its origins, though they suspect that pro-inflammatory molecules called cytokines are involved, and that thalidomide and lenalidomide work to suppress them. "Treatment slowed the wasting and declines in motor control that we typically see with ALS," Kiaei says. "We also saw evidence of reduced neuronal death. Best of all, the mice lived significantly longer than untreated mice."

B-vitamin Treats Fetal Alcohol Damage

A variant of vitamin B3 known as nicotinamide has been found to reduce the molecular, cellular, and behavioral effects of fetal alcohol syndrome in mice, Weill Cornell scientists have found. The results, published in *PLoS Medicine* in February, could hold promise as a preventative therapy to treat the syndrome in humans; they could also have implications for children with other neurological diseases, such as cerebral palsy. "Despite attempts to increase awareness of fetal alcohol syndrome, consumption of alcohol during pregnancy, especially binge drinking, has increased in recent years," says assistant professor of psychiatry Dr. Daniel Herrera. He notes that there are currently no effective treatments for the condition, estimated to be the most common, preventable cause of mental retardation in the Western world.

In the study, ethanol and nicotinamide were administered to mice seven days after birth, an age at which their brain development is



Dr. Daniel Herrera

AMELIA PANICO

comparable to the human third trimester. Researchers found that the beneficial effects of nicotinamide were most pronounced when the vitamin was given at the same time or shortly after alcohol exposure, but that there may be a window of a few hours when treatment remains effective.

Screenings for Smokers

Smokers and former smokers should be screened for lung cancer even if they have no symptoms. The recommendation comes from the largest clinical trial of lung cancer computed tomography (CT) screening ever conducted; its findings represent the first time tumor size and lung cancer stage have been linked in an asymptomatic population. "The smaller the lung cancer is at diagnosis, the more likely it is to be Stage 1 and curable," says radiology professor Dr. Claudia Henschke, the study's lead author. "If small lung cancers are found, they may have a significantly improved chance of a cure."

The disease is the leading cause of cancer death in both men and women, killing more people than breast, prostate, and colon cancers combined. Smokers are at high risk for lung cancer and former smokers remain at risk for twenty to thirty years after quitting. "CT screening has the potential to save lives in both of these groups," Henschke says. "This new information should be most helpful in providing for an informed decision-making discussion between patients seeking CT screening for lung cancer and their physicians." The results of the study were reported in the *Archives of Internal Medicine* in February.



Diabetic Heart-Treatment Gap

The standard treatment to reduce dangerously enlarged hearts by lowering blood pressure is much less effective and beneficial in diabetic patients, says research reported in the journal *Circulation* in March. The findings suggest that treatment for the condition, called left ventricular hypertrophy (LVH), isn't a one-size-fits-all proposition, says lead researcher Peter Okin, MD '80. "We may need to be treating diabetics with LVH differently," says the cardi-

ologist, "understanding that we may not be getting the same 'bang for the buck' with blood-pressure-lowering therapies that we are seeing in non-diabetics."

The results build on earlier work, published by Okin's group in 2004, which found that reducing LVH with the antihypertensive drug losartan improved patient outcomes. The reasons for the "treatment gap" between diabetics and non-diabetics remain unclear. "Perhaps diabetics have simply developed a much more difficult form of LVH over a longer period of time, so they have more damage to make up for," Okin says. "Or, it may be that they experience a greater fibrosis of the heart muscle—a type of tissue growth that's more resistant to blood-pressure-lowering therapy."

Best in Biology

A final-year graduate student has received a prestigious award from the Fred Hutchinson Cancer Center. Ryan Heller, a PhD candidate in the BCMB (Biochemistry & Structural Biology, Cell Biology & Genetics, and Molecular Biology) program, won the Weintraub Graduate Student Award, given annually to up to fifteen students worldwide who have demonstrated outstanding achievement in the biological sciences. In 2005, his work in Dr. Ken Marian's lab at Sloan-Kettering resulted in three papers, published in *Nature*, *Molecular Cell*, and the *Journal of Biological Chemistry*. The award is presented during an annual scientific symposium honoring the late Dr. Harold Weintraub at the Hutchinson Cancer Center in Seattle.

Maxfield has MERIT

A Weill Cornell biochemist known for his breakthrough discoveries in intracellular trafficking has received the National Institutes of Health's prestigious Method to Extend Research in Time (MERIT) Award. The honor gives Dr. Frederick Maxfield a \$2.8 million, five-year research grant to support his efforts to better understand the ways in which cell receptors, transporters, lipids, and other key molecules move within and between cells. His work has implications for treatment of such conditions as heart disease, diabetes, and Alzheimer's.

"This focus on 'endocytic trafficking' helps us understand how nutrients and other compounds get into cells, first of all, and then how they move around inside the cell once they get there," says Maxfield, the Rogosin Professor of Biochemistry. "I sometimes describe it as a microscopic 'mass-transit system' that ferries a variety of cargoes to different destinations, all guided by complex signals." The grant is a five-year renewal of a previous NIH award; it offers streamlined review for an additional five years.

tip OF THE cap to...

Dr. **John Boockvar**, the Murphy Assistant Professor of Neurological Surgery, winner of the 2006 Neurosurgery Research and Education Foundation Young Clinician Investigator Award from the American Association of Neurological Surgeons. The award will provide \$40,000 for one year to support Boockvar's clinical trial exploring the efficacy of the drug Targeva on glioblastoma multiforme brain tumors.

Dr. **Frank Chervenak**, the Given Foundation Professor and chairman of the Department of Obstetrics and Gynecology, among the leading international experts in fetal medicine invited to speak at the Hamad Medical Corporation in Doha, Qatar. He spoke about the similarities between Islamic and secular approaches to obstetric ethics and care.

Dr. **Marta Filizola**, assistant professor of physiology and biophysics, Dr. **Lei Shi**, instructor in computational biology, and Dr. **Harel Weinstein**, the Upson Professor of Physiology and Biophysics and chairman of the Department of Physiology and Biophysics, whose publication was one of the twenty papers most read online in the *Proceedings of the National Academy of Sciences* in 2005. The paper, which describes the first structure-based demonstration of how about half of all currently used drugs target a family of proteins on the surface membranes of cells, was co-written with colleagues from Columbia University.

Dr. **Joseph Fins**, chief of the Division of Medical Ethics and professor of medicine, public health, and medicine in psychiatry, elected as governor of the American College of Physicians. Dr. Fins, who is currently governor-elect, will assume office in April 2007. The American College of Physicians (ACP) is the nation's largest medical specialty society. Its mission is to enhance the quality and effectiveness of health care by fostering excellence and professionalism in the practice of medicine.

Dr. **Kathleen Foley, MD '69**, professor of neurology and neuroscience and professor of clinical pharmacology, winner of the McGovern Compleat Physician Award, presented by the Harris County (Texas) Medical Society and the Houston Academy of Medicine, for her work on pain research and palliative care.

Mark Funk, head of collection development of the Wood Library and the Starr Biomedical Information Center, elected president of the Medical Library Association for the 2007–08 academic year.

Jennifer Hellowell '07, winner of a Fogarty-Ellison Fellowship from the National Institutes of Health. The one-year fellowship will allow her to gain clinical research training at a top-ranked, NIH-sponsored international research center in China.

Dr. **K. Craig Kent**, professor of surgery, who delivered the Roslyn Lecture at the Academic Surgical Congress's first annual meeting. His talk was titled "The Practice of Surgery: Is There Still Time for Research?"

Dr. **Fabrizio Michelassi**, the Stimson Professor of Surgery and chairman of the Department of Surgery, elected director of the American Board of Surgery representing the Central Surgical Association.

Dr. **Richard Silver**, professor of medicine and director of the Center for the Study of Leukemia and Myeloproliferative Diseases, a featured speaker at the Cancer Survivors Hall of Fame Dinner. The event was sponsored by the Cancer Research and Treatment Fund, which Silver founded in 1968 to promote research for the treatment of cancer and other blood diseases.

Dr. **Andrew Talal**, associate professor of medicine, who delivered the keynote address at the Second International Workshop on HIV/HCV Co-Infection, in Amsterdam, the Netherlands. His speech was titled "Immunopathogenesis of Viral Hepatitis in the Co-Infected Patient."

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At What Cost?

DECISION SCIENTIST BRUCE SCHACKMAN TALLIES SOCIETY'S BANG FOR THE MEDICAL BUCK

WHEN BRUCE SCHACKMAN gives talks, he often puts up a slide that says "COST-EFFECTIVE IS NOT EQUAL TO COST SAVINGS." Then the Weill Cornell assistant professor of public health invites people who are interested only in saving money to excuse themselves, because they won't find his lecture all that helpful. "Sometimes," Schackman says with a laugh, "people do get up and leave."

It may sound like semantics, but confusion between the two is Schackman's pet peeve. "Unfortunately," he laments, "in the policy world and the clinical world, these terms are thrown around without understanding the distinction."

As a researcher in the little-known field of decision science, Schackman works at the intersection of mathematics, economics, and medicine. He's a leader in a relatively new discipline, one that has come into its own over the past two decades. As technological advances make medical care ever more expensive—and HMOs seek to manage those costs—it's researchers like Schackman who use mathematical models and computing power to help physicians, insurers, and policymakers figure out how to spend society's medical-care dollars. "The question is, what's the bang for the buck?" Schackman says. "What's the value in terms of improving life expectancy or quality of life?"

Take a recent study in Haiti, where (in an offshoot of Weill Cornell's longstanding involvement in HIV research and treatment there) Schackman and his colleagues have been looking at the value of testing pregnant women for syphilis. Although transmission of the disease from mother to infant is rare in the U.S., in Haiti as many as 3.5 percent of pregnant women are infected. The outcomes can be devastating: nearly

half of the babies infected at birth die.

Schackman analyzed the value of a new rapid syphilis test that—unlike the antiquated lab version—can be done in the field with a small amount of blood from a finger prick. He developed a model that takes into account the higher cost of

the test kit, the time it would take to do the test, the value of preventing the spread of syphilis, and other factors. "For every baby that would die, it would cost only about \$200 to prevent that," says Dr. Daniel Fitzgerald, an assistant professor of medicine who has been involved in

JOHN ABBOTT



Bruce Schackman

HIV research in Haiti for the past eight years. "It's using cost-effectiveness methods to show that some simple new tools can be implemented, and they are going to have an enormous impact in developing countries."

Schackman, who majored in political economy at Harvard (where he also earned an MBA), first dipped into the health policy field while working for the management consulting firm McKinsey & Co.: he evaluated the research portfolios of pharmaceutical, biotechnology, and medical device companies. He started his PhD studies in health policy at Harvard in 1997, the year after the HIV drug "cocktail" was introduced, and focused his dissertation on its cost-effectiveness. "I went back to school at the time when HIV was turning the corner to some major advances after a pretty depressing period in the early 1990s, when we were finding out that what was currently available wasn't working as well as we'd hoped," he says. "There were a lot of people dying, including some close friends of mine."

The native New Yorker has continued to do research in the HIV field since earning his PhD; he's the principal investigator of a four-year study assessing the benefits of information technology on HIV care that received a \$1.6 million Ryan White Grant in 2002. "One of the questions has been, and continues to be, at what stage of disease is it cost-effective to initiate treatment?" Schackman says. "Do you wait until a patient's immune system is relatively suppressed, or do you start earlier—which obviously creates more cost, because the patient is on treat-

ment longer?"

Schackman points out that most medical advances don't save money, they cost money. (Childhood vaccines, he notes, are the rare exception.) The question that he and his colleagues consider is whether, for the money spent, a patient is likely to live longer or enjoy a better quality of life. In another recent study, for instance, clinical assistant professor of geriatrics and public health Dr. Lisa Honkanen looked at the potential benefits of hip protectors—special undergarments the elderly can wear to

'Do you wait until a patient's immune system is relatively suppressed, or do you start earlier—which obviously creates more cost, because the patient is on treatment longer?'

prevent fractures if they fall, but for which Medicaid doesn't reimburse. "A patient might say, 'You know, I can get a pair of underpants for \$3,'" Honkanen says. "'Why should I spend \$30 on a pair you say is good for me?'"

Under Schackman's mentorship, Honkanen created models that considered such factors as how much people would wear the protectors, hospitalization costs

avoided, and such harder-to-quantify benefits as staying out of a nursing home and living independently. Their first results, which indicated that the garments can indeed be cost-effective, were published in the *Journal of the American Geriatric Society* in February 2005. "I can't put into words how helpful he's been," Honkanen says of Schackman. "He's rolled up his sleeves and helped in every part of the process. He knows what he's doing and he's hands-on, but not in the sense that he controls the project."

Schackman has also been active in passing on the tools of his field to the developing world. Last winter, he went to Haiti to teach a short course to people involved in scaling up the nation's HIV treatment programs. In countries like Haiti, he notes, limited resources mean that the cost-effectiveness threshold is very different from what it is in the U.S. "From a clinician's perspective, it can be frustrating," Fitzgerald says. "We find something that works, and the response from donors or the international community may be, 'It's too expensive.' Bruce has been able to use his skills to say, 'Wait a second. It is affordable, and it is going to have a big impact.'"

Fitzgerald holds up Schackman's findings in the rapid syphilis test study as a prime example. "For a small amount of money, you can save a baby's life," he says. "We've been screaming for a long time, saying, 'We've got to get the penicillin, we've got to get new tests out there.' But when you can put it in such stark terms, it creates a much more powerful message."

— Beth Saulnier

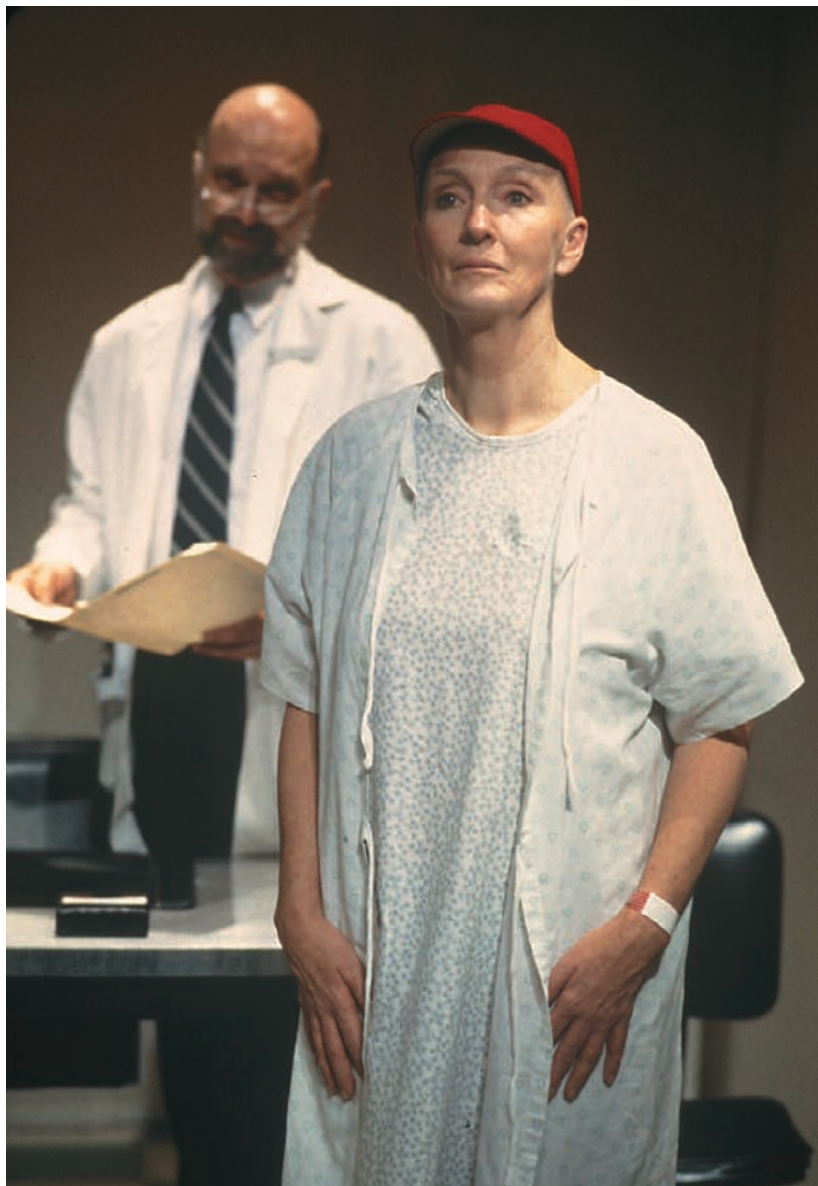
The Physician's Art

HUMANITIES COURSE HELPS STUDENTS BECOME BETTER DOCTORS

VIVIAN BEARING IS A FROSTY, BRITTLE SORT OF person, but she can really get under your skin. A scholar of the seventeenth-century poet John Donne, she has all the time in the world for intricate texts, but little empathy for others. She's content to be alone—until she learns she's dying of ovarian cancer.

Last December, Bearing's story riveted a dozen first- and second-

year medical students who encountered her not as a patient, but as the heroine of Margaret Edson's Pulitzer Prize-winning play *Wit*. As part of a new non-credit course called The Art of Observation: the Patient's Experience, the students read and watched scenes from the play and met with actress Kathleen Chalfant, who portrayed Bearing Off-Broadway and in London's West End. They also talked with a longtime cancer patient and



JOAN MARCUS

Empathy: In the play *Wit*, Kathleen Chalfant portrays Vivian Bearing, a cancer patient whose experience offers much to instruct medical students.

interviewed oncology staff—all aimed at giving them a frank, in-depth look at life from the patient's perspective. "How can we expect students who have never been ill, who have never gone through serious illness with loved ones, to understand the patient's experience?" asks Debra Gillers, associate dean of academic affairs.

Gillers worked with Chalfant to create the class under the Humanities and Medicine Program, established in 1999 to broaden the understanding of patients' experiences through literature and the arts. Over the past six years, the program has featured dozens of staged readings, public dialogues, and music recitals. Chalfant has participated in Humanities and Medicine events since she debuted in *Wit* in the late 1990s; this year, she became the Medical College's first official artist-in-residence. "She was incredibly articulate and smart," says Andrew Olson '09, who attended Chalfant's three-part class. "She had a lot of insight into what it's like to live with cancer, even though she's never been in

that place herself."

The program's power to make meaningful connections isn't limited to students. Dr. Charles Bardes, a professor of clinical medicine and associate dean who has moderated several of the public dialogues, thinks such presentations help Weill Cornell faculty better appreciate the humanities in a place that is "dominated by the sciences." Best of all, he says, they teach doctors "how to pay attention to the subjective experience of human illness, so that it's not just about broken biochemistry."

Last September, Chalfant starred in a Humanities and Medicine presentation of *Miss Evers' Boys*, the Pulitzer-nominated play by Dr. David Feldshuh, an emergency physician and the artistic director of Cornell's Schwartz Center for the Performing Arts in Ithaca. The play, which was made into an HBO movie, is based on the 1932 Tuskegee study in which nearly 400 African American men suffering from syphilis were left untreated for four decades in the name of research. As part of her residency, Chalfant—a Tony winner who has starred in episodes of TV's "The Guardian" and "Law & Order"—also participated in a reading of Arthur Kopit's play *Wings*, about a woman's struggle to regain language skills after suffering a stroke.

The Humanities and Medicine Program has no set curriculum, and it is not an official part of Gillers's duties. However, there is strong institutional interest in the program, and with the support of the dean's office she and her colleagues have presented four to five events each year. Public dialogues have included discussions of cancer (literary critic and novelist Susan Sontag), depression (authors William and Rose Styron), and AIDS (novelist Larry Kramer and playwright Tony Kushner), while music recitals have featured such performers as classical guitarist Sharon Isbin and Dr. Richard Kogan, a concert pianist and co-director of Weill Cornell's Human Sexuality Program.

The program has also offered a course in collaboration with the Frick Collection, in which students use the museum's portraiture to hone their observational and diagnostic skills. "At its best, I see the Humanities and Medicine Program as accomplishing a double goal," says Gillers. "One is that doctors can be more sensitized to what the patient is feeling; the other is that they can integrate into their own lives that same kind of awareness."

For some students, Chalfant's course went beyond helping them get a better understanding of the patient perspective. Lindsey Shultz '09 says the experience also showed her how literature can help doctors deal with the stress of working around terminal illness day after day. "You don't often get to talk about how vulnerable doctors are in these situations," says Shultz. "It was refreshing to hear how candid all the speakers were—how terminal illness affects your job as a physician, and how it's your job to find ways of dealing with what you see."

— Paul Zakrzewski

Disc Drive

SURGEONS AND INSURERS DEBATE THE VALUE OF A NEW SPINAL DEVICE

EARLIER GENERATIONS DID steps with names like the Lindy Hop and the Mashed Potato, but Joseph Brito's hot break-dancing move should have been called the Herniated Disc: twist the lower half of your body in one direction and your torso in the other. As a teenager in the 1980s, the Brooklyn native ruptured the disc between his L-4 and L-5 vertebrae performing the move. A serious car accident in 2001 landed him back in the hospital, where doctors used steel plates and screws

In 2004, Brito's pain specialist at Wyckoff Heights Medical Center recommended that he see Dr. John Boockvar, Wyckoff's chief of neurosurgery and the Murphy Assistant Professor of Neurological Surgery at Weill Cornell. In the past, Boockvar might have suggested spinal fusion surgery to ease Brito's pain. But in October of that year, the FDA had given surgeons another option: an artificial spinal disc. While experts and the insurance industry are still debating whether the device is worth the risk and the money, patients like Brito are willing to try anything to restore their mobility and relieve their pain.

Manufactured by Depuy Spine, the Charité Artificial Disc wasn't approved for use in the U.S. until 2004, but the technology has been available in Europe for more than fifteen years. The device, which consists of a high-density plastic core sandwiched between two chrome plates, is intended as an alternative to traditional spinal fusion. In a fusion procedure, surgeons use bone grafts, sometimes stabilized with metal hardware, to unite two vertebrae. As the body heals, the vertebrae weld together, eliminating motion

between them. Many patients get near-instant pain relief, but some complain that their range of motion is limited.

Every year, U.S. surgeons perform about 200,000 spinal fusion operations to treat fractures, scoliosis, and other conditions in which an unstable spine can cause severe pain. While the outcomes are often good, immobilizing one section of the spine means that other sections bear more stress. The long-term result can be more spinal problems and the need for further

treatment. The artificial disc, on the other hand, is designed to mimic the flexibility of a real disc, thus alleviating some of the problems associated with spinal fusion.

Boockvar, who is also a stem cell and tumor researcher, is one of about a dozen New York doctors trained to perform the surgery, and he was the first neurosurgeon in the area to implant an artificial disc. He's enthusiastic about its potential. "Over the long term, the Charité can get you closer to a normal range of motion than fusion surgery," he says. "In the short term, the patient is going to experience less post-operative pain, because you go in through the abdomen instead of the back."

The procedure may be easier for the patient, but it's tougher for the doctor. A vascular surgeon must go in first and clear a path to the spinal column. Implanting the disc can be difficult, and removal can be even harder. Dr. Roger Hartl, an assis-



COURTESY OF DR. JOHN BOOCKVAR

Backbone: This sagittal CT scan shows the artificial disc (white) that was inserted in the low lumbar spine of Joseph Brito.

to repair a broken pelvis and four fractures in his right leg. Afterwards, the pain in his back got worse—so bad, in fact, that he once spent two days stranded in his bathroom because he couldn't stand up.

"I'm so stubborn that I didn't want to use a cane," says the thirty-eight-year-old paralegal. "But I had chronic spasms, and my left leg was totally numb. I kept tripping and falling. There were so many things I couldn't do. I got tired of not having my life intact."

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tant professor of neurological surgery at Weill Cornell, took the same artificial disc training that Boockvar did, but he has chosen not to perform implantations. "It's interesting technology," says Hartl. "But in my opinion, we just don't have the data yet to prove that it's worth the risks. If something goes wrong, taking out one of

these discs can be a life-threatening operation. And I'm not aware of any studies that show it is superior to fusion surgery."

The FDA approval process confirmed only that the artificial disc could achieve results that were equivalent to fusion. Hartl says smaller studies have investigated whether it provides the advantages promised by the manufacturer, but he doesn't consider the results conclusive.

While the Charité is designed to replace lumbar discs, Hartl says he's more interested in artificial cervical discs, intended for the upper spine, where range of motion is more critical. Such devices are still about a year and a half away from approval, he says. In the meantime, Hartl plans to keep an eye on studies of the Charité. "There's a tremendous push from the companies who make these devices to get them on the market and get surgeons to implant them," he says. "I think that artificial discs are a great idea, but I don't believe we're at the point where I can recommend them to my patients."

Most health insurance companies share his skepticism. Few will approve the \$11,000 device, and Medicare and Medicaid are not backing the treatment. No procedures have yet been performed at NewYork-Presbyterian Hospital. "Patients have been hard to come by," says Boockvar, who has performed only three of the surgeries. "But I think that insurance companies will come around. In time, they'll see that for some patients, this really is a better option."

Joseph Brito believes the artificial disc was the right choice for him. The administrators at Wyckoff Heights Medical Center were eager to have their facility be the first New York-area hospital to perform the procedure; they covered the cost of the device, while Brito's insurance picked up the rest of the tab. Boockvar performed the surgery in January 2005, and Brito was up and around within a week. He still takes pain medication, but he estimates that there has been "an 85 percent improvement" in his pain level since the surgery. "It's been such a wonderful relief, truly a blessing," he says. He is able to move better than he has in years, and he can play with his children again. They're the biggest fans of the high-tech device implanted in their father's spine. "The kids love it," Brito says. "They call me RoboDad."

— C. A. Carlson

Your Temper or Your Life

HOW KEEPING COOL COULD SPARE YOUR HEART

CARDIOLOGISTS HAVE KNOWN since the mid-1980s that expressing intense anger can trigger heart attack and even sudden cardiac death. Now a Weill Cornell psychologist has come up with a program to stop blowing your top—and save your heart.

Anger itself is not the problem, says Dr. Robert Allan, a clinical assistant professor of psychology in psychiatry. But expressing it in the heat of the moment is, because it stymies attempts to find real solutions to frustrating situations. "Psychology has taught us all to share our thoughts, for the purpose of achieving greater interpersonal interconnectedness and intimacy," Allan says. "However, for those with an excess of 'free-floating hostility,' sharing anger interferes with that process in almost all cases."

During thirty years in the field of anger management, Allan has identified two types of circumstances, or "hooks," that lead to explosions of anger. "I call them the two I's," he says. "Injustice and incompetence." People often react angrily when they believe a situation is unfair or a person's performance is less than adequate. Perhaps we *should* feel angry in such circumstances, but how we deal with that anger makes a huge difference in the outcome. "When was the last time you angrily criticized someone for behavior that was unfair or inept and were met with a response like, 'Thank you so much for raising my awareness about that?'" asks Allan.

Allan speaks from personal experience. His father, who terrorized his family with sporadic violent outbursts and emotional abuse, suffered his first heart attack at forty-six. "Although I vowed never to be like him," he says, "unfortunately, earlier in my life I emulated his behavior without realizing it." That is the fate of many who grow up in angry households, he explains: they unconsciously pattern themselves after their parents, becoming their mothers and fathers in their later life. One of the goals of Allan's work is to help break this cycle of generational anger.

Allan has developed a three-step plan for managing anger problems and resolving them, which he describes in his recent book, *Getting Control of Your Anger*. The first step is learning to identify and avoid the "hooks." Second is understanding which of your needs is being frustrated in a situation where you feel angry—often these needs involve being treated with respect or have to do with violations of territory. Third is finding a way to fill those needs, rather than losing your temper. The key is thinking about what you really want: a successful outcome.

The "hook" was rated the single most important tool by participants in the Recurrent Coronary Prevention Project, a large clinical trial that reduced second heart-attack rates by 44 percent. It's also a more efficient way of getting what you want. "Yelling and screaming and jumping up and down is a horribly ineffective way of dealing with one's anger," Allan says. "People ignore what you have to say and, more often than not, respond to the anger rather than the issue."



LISA BANLUKI/FRANK

— Susan Kelley

Il Dottore

SURGEON-IN-CHIEF FABRIZIO MICHELASSI PIONEERS NEW TECHNIQUES

WHEN KATHY MUNRO WENT to the emergency department last fall with stomach pain and bloating that made her look several months pregnant, she knew it was one more skirmish in her long battle with Crohn's disease, an inflammatory bowel disorder that had wreaked havoc on her life for more than two decades. She'd already had two bowel resections, but anti-inflammatory medications offered only temporary relief. She needed surgery—again.

Fortunately, a member of Munro's medical team had attended a seminar given by Dr. Fabrizio Michelassi, the Stimson Professor of Surgery and chairman of the Department of Surgery at Weill Cornell. Michelassi, who also serves as surgeon-in-chief at NewYork-Presbyterian Hospital, has pioneered a technique that dramatically improves the lives of patients suffering from advanced Crohn's. To prevent intestinal obstructions and alleviate symptoms, a procedure known as strictureplasty has traditionally been used to enlarge short narrowings (or "strictures") in the bowel. Michelassi's innovation, now known as side-to-side isoperistaltic strictureplasty (SSIS), involves dividing the diseased loop of bowel in half, moving one half over the other, and joining the two half-loops together to create a larger passageway inside the bowel. "When they opened me up, they found that the strictures were much larger than they originally thought," says Munro, an office manager who lives in Greenwich, Connecticut. "I was very close to total blockage."

Over the past two decades, Michelassi has made a series of significant breakthroughs in the fields of inflammatory bowel disease and cancer by challenging assumptions about classic surgical techniques. He began experiment-

ing with new strategies to preserve the bowel in Crohn's patients at the University of Chicago in 1992.

"I wasn't sure a new technique would work for these advanced cases," he says, "but I knew that taking out a lot of bowel would doom patients to a pretty miserable life. Advances in surgery are more revolutionary than evolutionary, so I forged ahead with this new idea."

Fifteen years and more than 700 operations later, SSIS has emerged as one of the few treatment options for advanced Crohn's, and it has been adopted by surgeons all over the world.

Michelassi has traveled widely, demonstrating the procedure to a new generation

of specialists. But the story doesn't end with the creation of this successful technique. In the course of examining patients who had the procedure, Michelassi discovered that at the site of the enlarged strictures, Crohn's disease quiets down. He published the results in the *Annals of Surgery* in 2000 and is conducting further research. Kathy Munro, who had the procedure in early February, has returned to what she calls an "almost normal" life with her husband, a jazz musi-

**'When I was a young boy,'
says Michelassi, 'my
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caring for.'**

Dr. Fabrizio Michelassi

JOHN ABBOTT



cian, and two sons. "Dr. Michelassi really brought me back from the edge," she says.

Growing up in Pisa, Italy, Michelassi was surrounded by family with deep roots in science and medicine: his father was a physicist, his grandfather and two uncles were doctors. He knew from an early age he'd be a physician. "For me, everything started with my grandfather," he says, noting that he was respectfully called "Il Dottore" by his fellow townspeople. "When I was a young boy, my grandfather would take me along to make house calls in the countryside. I saw the wonderful relationship he had with the families he was caring for and the difference he made in their lives. Those experiences instilled in me an intense desire to relieve human suffering."

Michelassi began his medical training at the Collegio Medico-Giuridico of the University of Pisa, an institution whose early financing was provided by Lorenzo di Medici; its alumni include Galileo Galilei and Enrico Fermi. Michelassi graduated *summa cum laude* in 1975 and completed his internship and residency at New York University, followed by a research fellowship at Massachusetts General Hospital. He then spent twenty years at the University of Chicago, developing a specialty in the surgical treatment of gastrointestinal cancers and inflammatory bowel diseases and becoming vice chair of surgery, before coming to Weill Cornell in July 2004.

Michelassi's vision for the department's future is driven by the technological advances that are transforming medicine. "I am convinced that surgical techniques will advance more in the next five to ten years than they have in the past twenty-five," he says. "Minimally invasive surgery, for example, is entering a new era. The convergence of endoscopy and laparoscopy will make surgery quicker, safer, and more cost-effective than anything we have ever had before."

Mentoring the next generation of surgeons is one of Michelassi's greatest passions. In this role, he draws on the values he learned as a child. "My grandfather embodied many of the competencies we are now teaching and measuring in our residents," he says. "Many of these speak to the human qualities for the optimal exercise of our profession: compassion, professionalism, and respect for others."

— Georgia Tucker

Citizen of the World

FELLOWSHIP WINNER STRADDLES TWO CULTURES



COURTESY OF AMANDEEP SINGH

Bridge to India: Scene from a music video featuring Punjabi vocalist Bikram Singh; the video was choreographed by Soros Fellowship winner Amandeep Singh.

aMANDEEP SINGH, THE WINNER OF A PRESTIGIOUS GRANT CREATED to assist "new Americans," has one foot firmly planted in the United States, the other in India. The fourth-year MD-PhD candidate is one of thirty students nationwide to win a 2006 Paul and Daisy Soros Fellowship, which provides funding for graduate study to resident aliens, naturalized U.S. citizens, and the children of naturalized U.S. citizens.

Singh was born in Amritsar, India, in 1979. He immigrated to America with his family when he was five and grew up near Buffalo, New York, but has always maintained strong connections to his native culture. As an undergraduate at Cornell, the *summa cum laude* biology major co-founded the Cornell Bhangra Club, whose Punjabi pop dance teams placed in eight national and three international competitions under his leadership. He's since choreographed MTV and BBC music videos and performed at the Bollywood Music Awards. At Weill Cornell, he founded the Surat Sikh Conference, where 150 students and young professionals gathered in January to promote community service, a major tenet of the Sikh faith. Singh visits India twice a year to see his extended family. "There's a lot of the culture there that I cherish," he says, "but I'm probably more of an American because I grew up here."

In fact, he has focused his research on that most American of health problems: obesity. Over the past year and a half, Singh's molecular genetics work with Dr. Jeffrey Friedman at the Rockefeller University has shown that the hormone leptin can increase energy expenditure. Now Singh is trying to identify the proteins that leptin regulates. "You have a field that is a major world crisis and relatively few people working in it," he says. "That's what draws me to it."

Singh's family fled India to escape a backlash of violence against Sikhs after then-Prime Minister Indira Gandhi was assassinated by her Sikh bodyguards in 1984. Singh's father, a prominent neurobiologist, was beaten and left for dead. He accepted one of many offers to come to the United States and is now an associate professor at the SUNY-Buffalo School of Medicine.

The Soros Fellowship, Singh notes, is unusual in that it rewards students who are new to the United States. "It's usually a disadvantage, except in this case," he says. "It's kind of refreshing."

— Susan Kelley

Birds, Bees & Britney

A WEILL CORNELL PSYCHIATRIST HELPS ANXIOUS PARENTS TALK ABOUT SEX



MARTIN MAYO

dR. JUSTIN RICHARDSON HAD EXPECTED ONLY A dozen or so parents to attend the discussion of adolescent sexuality he was leading at an exclusive Manhattan girls' school—after all, his talk was scheduled for seven a.m.—but 250 people showed up. That was in the late 1990s, but the adjunct clinical assistant professor of psychiatry still marvels at the size of the crowd. And he remembers one father's query in particular. "How do I teach my daughter to have a healthy attitude toward sex," the man asked, "but prevent her from having any?"

Richardson didn't know quite how to answer him, but that question—and the very fact that so many parents took time out of their workdays to talk about teens and sex—launched a second career. In 2003, Richardson and UCLA pediatrician Dr. Mark Schuster published *Everything You Never Wanted Your Kids to Know About Sex (But Were Afraid They'd Ask)*, which the *Washington Post* called "a cradle-to-adulthood guide for parents who have come to the harsh realization that they're not nearly as hip and broadminded as they thought they'd be."

Now, barely a week goes by when Richardson doesn't get grilled about some aspect of kids' sexuality, be it the perceived prevalence of fellatio among junior high students or a mother's anguish over her twelve-year-old daughter's desire to wear a thong. He's made multiple appearances on the "Today" show as well as "Good Morning America," "20/20," and a host of other

programs, and is regularly quoted in national parenting magazines. "The book has established itself as the authority on the subject," says Richardson, who also holds an academic appointment at Columbia and has a private practice of mostly adult patients. "Mark and I have become 'go-to guys' in the media for these questions."

And there are a lot of questions out there. Few topics can inspire more parental angst than the prospect of teaching their children about the birds and the bees—never mind about birth control, masturbation, homosexuality, sexually transmitted diseases, or some of the things they see on MTV. One line on the book's back cover presents a trio of daunting developmental hurdles, promising that the guide includes advice on such topics as: "What to do when your five-year-old turns up naked with the girl next door, your toddler is rubbing on her teddy bear, or your six-year-old walks in on you having sex."

With such challenges looming, it's no wonder some parents opt to take the coward's way out. Richardson can't help but laugh as he describes one mother who started to give a basic lesson in procreation but panicked when her young daughter asked how the sperm and egg are brought together. The only answer she could come up with was . . . "I forget." And the woman was a biology teacher. "No matter how cool you are about sexuality, it's incredibly difficult to even think about your child as being sexual," Richardson says. "Our aim in writing the book was not only to

give good advice, but also help parents understand why they're so uncomfortable about the topic."

Not that Richardson is immune to some of those taboos. Last year, he was in front of a class of second graders for a reading of *And Tango Makes Three*, a picture book he and his domestic partner co-wrote about a pair of male penguins at the Central Park Zoo who hatched and raised a chick together. One boy asked the title of Richardson's previous book—which is, of course, the sex-ed guide. "I said, 'I don't recall,'" Richardson says, in a tone that sounds equal parts amused and mortified. "I actually didn't feel that I had the teacher's permission to say the word 'sex' to these second graders. And I'm a doctor."

One of Richardson's aims in his role as a sex-ed guru is to let parents know that children are never too young to be educated, as long as the information is imparted in an age-appropriate way. Kids under four, for instance, probably can't grasp the concept of creation; when they ask where babies come from, they're thinking in terms of picking one up at the mall. "Many parents fear that there is a right age to talk about sex—and if they talk before that

age, it'll be harmful," Richardson says. "But at any age you talk to your children about sex, some of it they will know already; some of it they will reach out and grasp; and some of it will be too complex for them."

Richardson notes that today's parents may feel just as awkward about the subject as their own parents did—but unlike previous generations, they feel a duty to get it right. Once upon a time, he says, a little boy might be told, "Don't touch that or it will fall off"—which is what Richardson's grandmother said when she was bathing him at age five. Such a legacy of misinformation gives parents the difficult task of teaching their kids something they didn't necessarily learn themselves early on, at least not from their mom and dad. "Today's parents are much more ambitious when it comes to sex education," he says. "Many of them really do want to give their children a healthy attitude toward sex, and I don't think that's a goal our parents felt they had to live up to. They didn't have a model.

Or rather, they did have a model—and the model was, 'Don't go there.' "

— Beth Saulnier

**'Any age you talk to
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Student Body

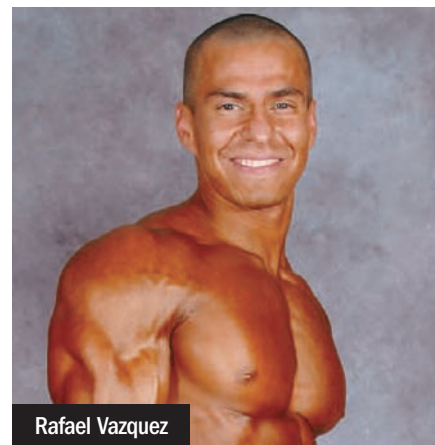
FUTURE DOC HEFTS TEXTBOOKS—AND THEN SOME

RAFAEL VAZQUEZ '06 IS PRESIDENT of his class, making his one of the better-known faces at Weill Cornell. Now his body will be familiar, too—every inch of it, except for what's covered by tiny briefs.

Vazquez is the body behind a new surface anatomy photographic database, which will illustrate muscles in action, that he's developing with associate anatomy professor Dr. Estomih Mtui and curriculum dean Dr. Peter Marzuk. The twenty-five-year-old has the sangfroid to pose in the almost-nude—not only for future students, but also as a contestant in bodybuilding competitions. "When it comes to things like that," says Vazquez, who was born in Mexico and grew up in Newburgh, New York, "I'm not shy at all."

Vazquez placed second in his first-ever contest, a statewide event in June 2005, and in two divisions of the 2006 Tri-State

Natural Bodybuilding Open Championships in March. For that competition, he pared down to 162 pounds by training and dieting for ten weeks, all while completing residency interviews (he matched at Harvard-Massachusetts General Hospital for anesthesiology). His regular regimen includes waking up at 5 a.m. every day to hit the gym, where he runs through posing routines and lifts weights for an hour and a half five days a week. He also jogs for twenty minutes two or three days each week. But just as important, he says, are his habits outside the gym: he goes to sleep at 10 p.m. and spends several hours each weekend preparing his meals for the coming week, with a diet heavy on chicken, broccoli, beans, cottage cheese, and oatmeal. All that hard work paid off in April, when he won the overall title in the novice division at the International Natural Bodybuilding



Rafael Vazquez

COURTESY OF RAFAEL VAZQUEZ

and Fitness Long Island Experience Bodybuilding Championships.

Vazquez would ultimately like to incorporate natural bodybuilding—in which competitors don't take steroids or hormones—into his medical practice, perhaps with a certification in nutrition or as a personal trainer. In the meantime, it balances out his academic life and gives him energy, he says. What it doesn't offer is relief in the one situation where he does feel shy—going out on the town with his friends. "Approaching new people," he says, "that's hard for me."

— Susan Kelley

small wonder

by sharon tregaskis

photographs by john abbott

Thanks to medical advances, the staff of the NICU can treat ever-tinier babies—but ethical concerns remain.

Karen Briggs was halfway through her second pregnancy when it suddenly veered off course. During a routine twenty-week prenatal checkup, the obstetrician found that her cervix had begun to dilate—five months before the baby's October 19 due date. Constant bed-rest was the only treatment that might sustain the pregnancy. Within hours, the thirty-seven-year-old had been admitted to the obstetrics floor at NewYork-Presbyterian Hospital/Weill Cornell Medical Center (NYPH/WCMC), where more than 5,000 babies are delivered each year, many of them the products of high-risk pregnancies—which Briggs's had just become.

Complementary care: Alfred Krauss, MD '63, and a resident rely on information from a variety of sources—from minute details revealed in a physical exam to results of high-tech monitoring and the collected observations of colleagues—to assess an infant's current medical status.







Homecoming: After nine months in the NICU, Jack Briggs joined his family at home in Long Island City in April. A detail of nurses assists mom Karen with Jack's continuing care, including a ventilator.

Briggs's husband would take care of their four-year-old at home in Long Island City; teachers would shoulder the extra load at the pre-school she owns; her interior design consultancy would go dormant. The hospital stay lasted almost five weeks. At the time, it seemed nearly intolerable: being apart from her family, unable to work, doing everything—even eating—lying down. Now, Briggs says, "I'd give anything to go back and stay until thirty-four weeks."

On July 2, fetal distress prompted doctors to perform a caesarean section, and a few days later Briggs went home. Her newborn son stayed behind in Weill Cornell's neonatal intensive care unit (NICU). Jack

Briggs was nearly sixteen weeks premature, weighed only 865 grams, and had a host of physical complications, including profound respiratory distress and an underdeveloped gastrointestinal system. But he was alive. "He's very sick," says his mother eight months later, "but he's beautiful."

One in eight babies in the U.S. are born before the thirty-seven-weeks' gestation that marks the lower limit of a full-term delivery—because of infection, fetal or maternal stress, or the cramped quarters associated with twins and other multiples. Karen Briggs's doctors still aren't sure what caused her body to start preparing for labor so early.

In recent decades, premie-scaled ventilators, surfactants that hasten lung devel-

opment, and improved nutrition have lowered the bounds of viability for very small babies to at least 600 grams and twenty-four weeks' gestation. That's the cusp between the second and third trimesters—before the lungs have matured; before the burst of weight-gain that transforms a lean, wrinkled fetus into a plump, full-term baby; before the brain has finished developing.

Keeping such infants alive and fostering their healthy growth requires extensive expertise and constant attention in neonatal intensive care, where stays can range from a few days to many months. The hospital's level-three NICU accommodates up to fifty babies at a time in the west wing of the Greenberg Pavilion's sixth floor, where a team of doctors, nurse practitioners, nurses, and specialists coordinates their treatment. According to the March of Dimes, costs in the U.S. for such care average \$77,000 per baby, compared to hospital fees associated with a healthy, full-term delivery that hover around \$1,700. Some full-term neonates also end up in the NICU—because of genetic anomalies or birth defects, complications from labor and delivery, and (rarely, at Weill Cornell) problems caused by addiction and withdrawal. In 2005, close to 650 infants and their families passed through the unit.

On this Tuesday morning in late February, Jack Briggs's case is one of thirty that a team of pediatric residents, fellows, attendings, and a nutritionist will discuss on rounds with neonatologist Jeff Perlman, the unit's director and this month's attending physician. The unit's four patient-care rooms sport brightly painted walls and huge windows with views of the Upper East Side and the East River. A few pairs of twins share double-sized incubators, but most of the babies have individual accommodations in long-legged incubators or cribs that put patients within easy reach of their caregivers. "We came from a unit that was extremely crowded," says nurse practitioner coordinator Debbi Perlmutter, whose twenty-six-year tenure spans the unit's location in the old hospital and its move to the Greenberg Pavilion in 1997. "There weren't enough spots for the babies; there weren't enough electrical outlets. When we came to the new hospital, it felt like we were in the Taj Mahal and you could do ballroom dancing, it was so big."

Family Matters

A culture shift makes parents more involved in their babies' care

as paternalistic medical models have shifted to emphasize a family focus, the problem of balancing medical intervention with humanity has gotten both easier and harder. When the medical team faces choices about the long-term goals for a baby's care, they often take their cues from the family. "Parents are very involved in decision making, more so than they used to be," says nurse practitioner coordinator Debbi Perlmutter. "We advise families, listen to them, tell them what their options are, and give them our very best medical advice." For some families, that means pursuing every medical intervention available to save a baby's life. Others decide to abandon heroic measures to spare their newborn a cascade of treatments that may have no benefit. It's up to the medical staff on the unit to help each family understand their baby's chances and navigate the often wrenching choices they face. "There are an unbelievable number of ways things play out," says Perlmutter, "even in fairly similar situations."

For families who lack medical expertise, such conversations can be particularly challenging. "People have a varying understanding of the human body, what it is and how complicated it is," says unit social worker Judith Stadler. "Sometimes you're asking people to understand things that they have no basis for in their experience." Furthermore, says Stadler, because the media focuses predominantly on miracle stories, parents often struggle to grasp a realistic assessment of their child's prognosis. "It's up to us to inform them," says neonatologist Alfred Krauss '59, MD '63, yet each doctor brings his own views to the conversation. "We try to achieve collaboration with the family and the baby, but when you bring your own experience and knowledge to the bedside, that can't help but influence what you say and what you do." Having more sophisticated data on long-term prognoses will go a long way toward facilitating such conversations, says Krauss, noting that gathering such data is a goal of the unit's director, Dr. Jeff Perlman. "The most important thing Dr. Perlman has initiated here," Krauss says, "is getting together a program that will help us assess our outcomes."

When the NICU staff anticipates a baby won't survive its hospital stay, they begin collecting mementos—photos, a lock of hair—for a memory box. "If it appears that a baby's going to die, we try to let it happen on its own terms," says fellow Michelle Meza, MD '01. "We take off all the wires and tubes, so the parents can hold the baby, and we give them as much time as they want." The doctors and nurses try to reassure and comfort parents. "For families whose expectations of a healthy child can't be fulfilled, it's important to acknowledge their loss and help them hold

the memory," says neonatologist William Frayer, MD '72. "Sometimes the fact of a beautiful baby gets lost in the tragedy."

Perlman also suggests that families consider an autopsy—both to confirm cause of death and to help bring closure to an emotionally draining experience. "We go over the findings with the family, make sure we didn't miss anything, demonstrate to them it's nothing they did wrong, discuss the risk for re-occurrence," he says. "Those meetings are invariably important because often the families get the misconception, amidst the stress of babies being sick, that it's their fault."

For families with an infant in the NICU, the experience is an emotional roller coaster. NICU mom Karen Briggs, who personally avoids even relatively benign interventions like cold medicine, says that her son Jack's hospital stay has opened a whole new world. "There are days I'm on top of the world, he's doing so good," she says, "and days you sit on the floor of the shower and cry because you can't let your other kid see you." Long before hers became a high-risk pregnancy, Briggs and her husband had decided to forego an amniocentesis. "We were going to take what we got," she says, "but we didn't know this was an option." It's a sentiment Frayer echoes as he waits for residents to gather for another day's rounds: "Nobody ever expects to see us," he says. "They don't choose us as their doctors, so we're earning their confidence on a daily basis."

Stadler helps parents come to terms with those emotions. "It's basically an issue of mourning," says the social worker, who came to the unit in

the early 1990s after a career as a nurse. "It's not that the baby died, but their dreams died—everything they planned." There isn't enough time in each day for Stadler to offer one-on-one counseling, so she frequently refers parents to local therapists. Briggs hopes someday the unit might add a psychologist to the NICU team. Stadler's role also includes help with practical considerations: reminding parents to add their child to the family insurance plan, requesting a birth certificate, coordinating translation services for non-English-speakers, offering bereavement counseling, coordinating discharge planning, advocating for families in ethics discussions, and translating medical jargon. She no longer offers support groups—"it's all they think about, so they don't want to talk about it." Instead, together with nurse practitioner Lillian Hope, she helps to coordinate activity groups, arranging opportunities for family members to make fleece blankets or photo albums, or offering sessions on nutrition or therapeutic touch. "Life is very abnormal in a NICU," says Stadler. "The activities are nice because you get to do something you would do if you'd gone home with a full-term, perfectly normal, healthy baby."



Picture perfect: Unit director Dr. Jeffrey Perlman and the annual alumni holiday party photo

Two walls of equipment and outlets run crosswise, from the doors to the wall of windows, with babies and their monitoring equipment extending outward. While some hospitals put each patient in a separate room, at NYPH/WCMC each large room holds about a dozen babies. “There are so many ways to do it,” says Perlmutter. “Right now we’re putting the critical babies in one area, grouped together, so you can get to them quickly. The babies of less intensity are in a quieter location.”

While Perlman leads a Socratic session that covers each patient’s weight, gestational age, progress, medications, new symptoms, and long-range prognosis, the nurse practitioners make a reverse circuit, starting with the babies whose gestations lasted the longest, discussing the same particulars of case management. Most of these babies sleep in cribs lined with colorful bumpers. There’s less medical equipment, replaced by a couple of rocking chairs parents move around the room to be close to their babies. While the sickest infants require IVs, blood-oxygen monitors, and wires to track their breathing rates, the healthiest just look a little small and have relatively minor medical con-

cerns. “Unlike a couple of decades ago, odds are the babies will go home,” says second-year fellow Michelle Meza, MD ’01. “Now the questions are development and cognition.”

Most of the patients on Weill Cornell’s NICU are preemies, born at the hospital and brought immediately to the unit. Only 20 percent are transferred from other facilities, in part because growth in the field makes it more likely that even a small hospital will have the resources to treat critically ill infants. At Weill Cornell, staff say that in the last decade they’ve seen far fewer patients with severe congenital anomalies, drug addictions, or preventable disease. “Sending babies home on oxygen now is rare,” says Perlmutter. “Most go home in quite good shape.”

Perlman’s team starts with the most acute cases—babies like Jack Briggs, born in the final weeks of the second trimester. Many remain sensitive to touch, sound, and light, so voices are kept low and the overhead illumination is muted. The babies with high bilirubin wear protective foam goggles to shield their eyes from the treatment: ultraviolet light emitted from the bottom of their incubators. Even so,

parents have taped up photos of siblings and family pets, and several babies have tiny stuffed animals tucked in the corners of their incubators.

Resident Clare Hack consults a print-out for the particulars of three-week-old Isabella, born at twenty-four weeks. Each additional week of gestation conveys enormous benefits, with more than 95 percent survival for the babies who reach the NICU after passing the twenty-seven week mark *in utero*. Here, about 50 percent of the infants born as early as Isabella survive; of those, half will have long-term neurological or physical complications while the other half will be nearly indistinguishable in childhood from their full-term peers. Like gestational age, weight constitutes a crucial indicator of long-term prospects. Full-sized infants are rare, and most of this critical room’s occupants hover at 1,000 to 2,000 grams (between two and four pounds).

Hack runs through Isabella’s numbers—including a sixty-gram weight-gain that inspires a *sotto voce* cheer from the team—while Perlman reaches inside the isolette to palpate her belly. Each of the physician’s long fingers dwarfs the girl’s

More Answers, More Questions

Technological advances spur neonatal research

Each December, the Weill Cornell NICU hosts a holiday party for its “alumni,” who range in age from less than a year to late twenties. The annual event gives staff a chance to reconnect with parents and former patients, and to celebrate each success story. Yet longitudinal data on how such babies fare in adolescence and adulthood has rarely been collected, leaving physicians with as many questions as answers. “Neonatal medicine has undergone significant changes as technology has improved, and more and more smaller babies are surviving,” says Dr. Jeff Perlman, the unit’s director. “But the jury’s still out because we don’t know what the outcome is eighteen to twenty-five years out.”

In a 2003 article in the *American Journal of Perinatology* analyzing NICU patient admission and outcome trends at Weill Cornell over twenty-five years, neonatologist William Frayer, MD ’72, posed similar concerns. “Questions regarding the limits of viability are constantly raised as technological advances are made and increasing amounts of health-care resources are directed toward the care of the extremely premature,” he wrote. “How small is too small—and does the answer to this question change with time?”

Frayer’s own statistics suggest that the answer is yes. Until 1989, the mortality rate for infants born at less than 500 grams was 100 percent. By the end of 2002, when the study concluded, 12.5 percent of

Long view: William Frayer, MD ’72, analyzed twenty-five years of NICU data to assess patient outcomes.





Nursery tales: Brightly colored walls and rocking chairs were part of a recent cosmetic overhaul aimed at making the NICU at NewYork-Presbyterian Hospital/Weill Cornell Medical Center more family-friendly. Big windows flood each room with sunlight and offer views of the East River.

such babies survived. In the late 1970s, 65 percent of babies born in the 800- to 899-gram range died; by 2002, that number had dropped to 17.8 percent. And for infants with a birth weight between 1,000 and 2,000 grams, neonatologists have shaved ten to fifteen days from their stay in the NICU. “Unfortunately, survival of infants [weighing less than 600 grams] at birth remains poor,” stated Frayer, “and [it] continues to be a major cause of ethical concern for all those caring for such infants.” Yet, he noted, “overall survival of all infants improved over time.”

Perlman’s research examines the particulars of neurological injuries due to brain bleeds and oxygen deprivation. He also serves as co-chair of the Neonatal Resuscitation Program, a national effort to implement evidence-based resuscitation protocols and a standardized curriculum on the topic with versions appropriate to the varying levels of expertise of nurses, nurse practitioners, and doctors. “When a baby is born, what happens in those first few moments is critical,” says Perlman. “If you take the wrong step, you can go down a pathway that has significant consequences.”

At Weill Cornell, Perlman has formed a resuscitation SWAT team of sorts, ready at a moment’s notice to assist in the delivery room. Long-term plans include development of a simulation lab equipped with a neonate-sized mannequin that can be intubated and “monitored” with the same equipment used to assess real babies in the NICU. “People will be called to a code and have to follow the cues that come up on the monitor,” explains Perlman. “We’ll videotape the code, and afterwards all the participants will review what they did and see how they can do it better.” Modeled on a similar program at Stanford, the facility will provide

teams with a close approximation of real-world experience. “The goal is to improve our ability to respond to crises,” says Perlman, “like airline pilots training for in-flight emergencies.”

This past year, neonatologist Alfred Krauss ’59, MD ’63, who joined the unit in 1967, has turned his attention to longitudinal assessments of twins, examining whether pairs whose weight varies significantly at birth develop differently over the long run, whether smaller babies tend to catch up with their larger siblings, and which nutritional treatments yield the best outcomes. Medical student Harma Turbendian ’08 spent the summer on the unit, assisting Krauss by going on rounds, collecting data, and conducting literature reviews. In March, the *Journal of Perinatology* published Turbendian’s observations about a genetic anomaly, glucose-6 phosphate dehydrogenase deficiency, that led to jaundice in a set of triplets on the unit.

To foster translational research, Perlman has enhanced the unit’s fellowship program, which funds research and clinical experiences for eight scholars on three-year appointments. Fellow Melanie McGraw spent a year pursuing studies in ethics at New York University, and with this additional expertise she has become a unit-wide resource. Fellow Debbie Suk will launch an investigation of neural stem cells, with the ultimate goal of using them for the treatment of brain injury. Perlman and fellow Michelle Meza have been investigating whether soft music—Mozart and Miles Davis—might provide a soothing effect to compensate for the stresses of intensive care. Says Perlman: “Both the parents and the babies seem to enjoy it.”



Light touch: The youngest preemies have super-sensitive skin. To minimize stress and avoid overstimulation, NICU staff handle them as little as possible and keep their voices low. Once babies have developed enough to benefit from a soothing touch, doctors, residents, nurses, and families comply with plenty of cuddling.

tiny limbs. The baby flinches at each touch, so Perlman moves with gentle efficiency and quickly replaces the small gold and brown tapestry that covers her isolette, shielding her from excess light. "How's mom?" asks Perlman as he finishes. Hack says she's sad, but she's not sure why. Perlman turns to the nearby nurse, who says the mom's doing fine. "It's a relief for Isabella not to have a breathing tube at this stage," he says, "but there's always concern about the unpredictability of it all. It's a little obstacle course."

Jack Briggs has been running that course for eight months now—and at this point he and his mom have achieved veteran status on the unit. Jack has had a tracheotomy and an ileostomy—to bypass a sensitive stomach—that surgeons will reverse sometime after he goes home. A ventilator delivers oxygen to his lungs while a feeding tube makes up for his inability to keep down the formula Karen and his nurses offer by mouth. A few months ago, the baby stopped breathing in reaction to a drug, which resulted in an emergency intubation and resuscitation. "Where do you draw the line?" his mother wonders. "I'd ask doctors and nurses, 'Is this worth it? Are these heroic measures?'"

But second-guessing is a road Briggs has decided not to walk—instead, she takes each day as it comes. This morning, resident Daniela Rafii, MD '04, reports on Jack's status, from urine output and the rate of his ventilator to his caloric intake and a worrisome lack of weight gain. The team has been monitoring a liver mass,

and Perlman notes that a set of elevated markers may indicate that the organ has begun healing. He orders a repeat ultrasound for a week's time and inquires about ongoing plans for Jack's discharge, including home nursing care for eighteen hours a day and a ventilator provided by a local medical supply company.

At each bedside, Perlman quizzes the residents on explanations for symptoms and test results, urges them to think critically, coaches them on physical exams and the meaning of babies' non-verbal cues. In one case, a resident attributes an anomalous test result to lab error. "We'll go down there for a little field trip when we finish here," Perlman tells the group. At another bedside, he and nutritionist Bryn Madden help the doctors-in-training think through the relative merits of changing the nutritional balance of a baby's formula. When a resident suggests too drastic an approach, Perlman offers a corrective. "If you go down that path, it could be a minefield," he tells her. "There's a risk-benefit ratio here."

Throughout the ward, every intervention carries both risk and reward—it's Perlman's goal to strike a balance that offers the best hope for long-term success. At the next bed, seven-day-old AnaLyse has two masses on her liver; she's scheduled for an MRI in the afternoon. The resident covering her case has questions about whether the baby's liver might be further damaged by the sedative necessary to perform the procedure and its potential effect on her situation. Several times over the last thirty-six hours she's stopped breathing, and nurses have had to stimulate her so she would start again. The team knows there's a fine balance between

enough sedation to guarantee a reliable MRI and an amount that might cause further breathing problems. Perlman suggests an increase in the caffeine flowing through her IV and assigns a fellow to accompany the resident and AnaLyse for the MRI.

When Perlmutter came to the NICU, MRI technology was decades off and ventilation for an infant involved a hand-pump and a bag, squeezed by a nurse at the bedside. Along with the improvements in technology, says Perlmutter, there's been a cultural shift on the unit as well—toward a more patient- and family-centered approach. Visitors are still restricted to two at a time at the bedside, but now a grandparent or family friend might join a parent at the baby's bedside. "It could be anyone the mother or father chooses," says Perlmutter. "Everyone has a different family setup. Parents seem to find a good balance between back and forth, or one's here and one's home, or they have a grandparent come and sit here while the parents are home."

Babies whose mothers pump and save their milk have colored construction-paper signs taped to their isolettes announcing "I'm a breast-feeding baby," and nurses arrange for those who tolerate handling and have a good sucking reflex to nurse during visits from their moms or receive feedings from their parents. In their free time, residents and fellows often hold the older, healthier babies. Briggs jokes that she uses donuts as a bribe, to get nurses to allow her to change Jack's tracheotomy tube so she can practice for when he goes home, and sometimes just to hold the little boy, who's become a popular object of affection with the staff. Other than the morning hours when doctors and nurse practitioners go on rounds, families can visit any time and stay as long as they wish. Armchairs flank each bed, and a parent-care room with brightly painted walls and overstuffed sofas gives families privacy or a place to catch a nap if they need a break from the whirring and beeping of the ventilators and monitors.

In addition to comforting families at a particularly stressful time, the family-centric approach confers two further benefits: complementary observations about an infant's status, and shared decision-making when it comes to long-term care. "Our patients can't say, 'Hey, I don't feel well today, look at me,'" says Perlmutter. "We work mostly on symptoms and cues. There are many, many things you can pick up just looking at a baby, examining a baby, and listening to the parents—they may pick up a difference day to day that's really helpful."

Beyond clinical care, the staff of Weill Cornell's NICU pursues ambitious teaching and research goals (see sidebar, page 22). Perlman, a native of South Africa who previously headed NICUs at St. Louis Children's Hospital and Parkland Memorial Hospital in Dallas, took over leadership at Weill Cornell in 2004. He's brought on junior faculty whose research interests complement those of their senior counterparts and placed increasing emphasis on understanding their patients' long-term prognoses.

But there are some questions academic research can't answer: the ethical and emotional considerations everyone on the unit grapples with daily. "There's not a month that I haven't lost a couple of patients, dealt with a devastating injury, counseled parents who've borne a child with some congenital abnormality," says Perlman. "There's nothing more difficult than seeing a sick, vulnerable baby."

Neonatologist William Frayer, MD '72, points to the inherent tension of working with unstable babies. "Some situations are

tune-ups," he says, "and some are life-threatening events." People who don't get a little anxious, Frayer says, don't belong here. "You don't want to be paralyzed, but you're supposed to be nervous. You don't know what you're going to be handed. There are surprises, and you have to be on your toes."

Neonatologist Alfred Krauss '59, MD '63—whose bulletin board is covered with grown-up photos of infants he's treated in the NICU, many now in high school—struggles with the tension between technological advances that improve survival rates and quality-of-life prospects for the smallest, sickest babies. "There's a lot of technology out there," says Krauss, who co-authored a 2001 article on the ethical implications of aggressive obstetric management at less than twenty-eight weeks of gestation with obstetrics chairman Frank Chervenak for the Scandinavian journal *Acta Obstetricia et Gynecologica Scandinavica*. "You run the danger of turning someone's little boy or little girl into a science experiment, just because you have the technology available to do something. Just because you can do it doesn't mean you should."

When Karen Briggs was anticipating the birth of older son Aaron, she prepared his nursery and was feted at a baby shower. With Jack, things are different. Before he leaves the hospital, mother and son will spend a night in the parent care room, practicing for his discharge. "We simulate the home environment and say, 'Pretend we're not here, but if you have a question, you can ask,'" says Debbi Perlmutter. "It calms down people who are going home with lots of meds or equipment."

Aaron Briggs uttered his first word at eight months. Jack remained on a ventilator at that age, and when he finally left the hospital on April 9, he went home in an ambulance. A team of nurses helps his mother care for him at home, and doctors can't say what his long-term neurological or physical prognosis might be. "Don't compare at all, don't expect anything," says Briggs. "That's most important." Statistically, Jack differs from many of his NICU peers, with his ambiguous long-term prospects and complicated discharge. Most leave the unit within a few weeks, some with a touch of asthma or compromised vision as the only sign of their early medical problems. "From the get-go, these little ones weren't expected to make it," says Michelle Meza. "To be born two or three months early and go home—these babies are so resilient."

Each day on the NICU brings new surprises—a healthy, full-term infant with a threatening infection; a premie like Jack, whose long-term prognosis shifts day-to-day and sometimes by the hour. When a baby goes home, everyone celebrates—Perlman threw a party for the Briggs family at the end of their stay. When a baby dies, it's heartbreaking. Each patient challenges the medical staff to grapple with the balance of treatments likely to yield a healthy long-term outcome without creating new problems, effectively deploying new technology yet knowing when to stop. Briggs calls the ethics involved "confusing and scary." Perlman hopes that through a combination of rigorous clinical research, education, and ethical inquiry, patients, families, and their health-care providers will continue improving the experience of every patient. "Despite the challenges, there's the hope of progress in different directions—ethical progress, academic progress, progress in treatment or the environment of the unit. It's the whole spectrum," says Perlman. "We're trying to push the envelope in a variety of aspects to improve the whole family-centered experience, the relationship with the provider, the care we offer." ■

fever pitch

Long before the Gates Foundation shined the spotlight on diseases of the developing world, Weill Cornell researchers were hard at work in the battle against malaria.

by c.a. carlson

photographs by john abbott

■ n the summer of 1979, a ten-year-old Dutch girl stayed with her parents on a barge near Schiphol Airport outside Amsterdam. Sometime during the night, she was bitten by a mosquito. Mosquitoes are common in the Netherlands, a country crisscrossed by canals and rivers. When the girl developed a fever, though, it was the first sign that something unusual had happened: a blood test revealed that she had been infected with *Plasmodium falciparum*. Somehow, in a country that the World Health Organization had declared malaria-free seven years earlier, a child had gotten the disease.

Scientists are still debating how it happened. Did a local mosquito bite an infected traveler from a tropical region and carry the disease to the barge? Or did an insect carrying *P. falciparum* stow away in the cargo hold of a plane, escaping at Schiphol and infecting the girl when it fed? It's not clear whether the particular strain, or isolate, of malaria came from Africa or the Indian subcontinent, but by happenstance it became the subject of study in laboratories

around the world. With recently developed technology, scientists were able to trick the malaria into multiplying outside the human body, within flasks containing human blood. In 1985, parasites descended from the samples found in the Dutch girl's blood were successfully cloned. In 2002, the isolate, now called 3D7, became the first malaria genome to be fully mapped.

Today, in a sunny laboratory on the seventh floor of Weill Cornell's Whitney Pavilion, the legacy of that summer night on the barge lives on: 3D7 isolate parasites, cultivated within human blood cells in flasks or in the guts and salivary glands of mosquitoes, are being propagated in the labs of Kirk Deitsch and Tom Templeton, assistant professors of microbiology and immunology. The researchers, along with colleagues Linnie Golightly, MD '83, in international medicine and infectious diseases and Jochen Buck and Lonny Levin in pharmacology, are among a small but committed group of Weill Cornell scientists who study a disease that has largely faded from the consciousness of industrialized nations—but kills 2,000 African children a day. "If children were dying at that rate in the developed world," observes Golightly, "it would be the biggest news story in history."

Golightly's own research projects include malaria studies in Haiti and Ghana. In the past, her work has focused on phases of the parasite's life cycle that take place within mosquitoes; now she is studying a form of the disease, cerebral malaria, that's especially lethal for children under five. Through the international



PROVIDED BY THOMAS TEMPLETON

Invaders: This microscopic view shows a parasite cyst within the mosquito midgut. When the cyst ruptures, it will release thousands of sporozoites that will invade the insect's salivary glands. When the mosquito takes a blood meal, the sporozoites will be released into the victim's blood stream.

medicine division's travel clinic, the assistant professor of clinical medicine and microbiology also sees some of the dozen or so cases that show up at NewYork-Presbyterian Hospital each year.

The disease was virtually wiped out in the U.S. in the late 1940s, thanks to a vigorous pesticide campaign in the Southeast,

and only a thousand or so cases are reported in this country every year. Most are the result of travel to malarial regions; a few, like the case of the Dutch girl, are suspected to be "airport malaria" caused by mosquitoes that have survived a journey from overseas. No one is concerned that these isolated infections may point toward a future epidemic. Our health-care infrastructure catches most cases, and our mosquito population is too small to spread the disease very far.

Last fall, however, malaria came back into the American spotlight thanks to the Bill & Melinda Gates Foundation. The Microsoft founder's charitable organization, which has made global health one of its top priorities, announced that it would grant more than \$258 million to malaria research, prevention, and control. A press release from the foundation declared: "It's a disgrace that the world has allowed malaria deaths to double in the last twenty years, when so much more could be done to stop the disease."

The money and the Gates name got headlines, but the statistics about malaria were the real news. The developed world was reminded of



Dr. Linnie Golightly

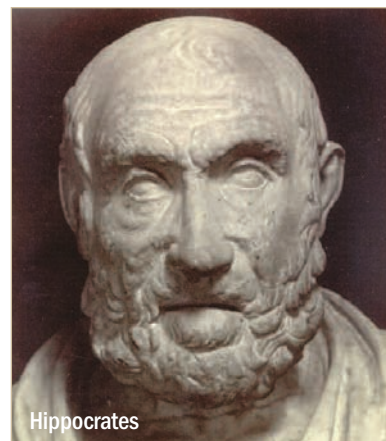
The Many-Year Itch

A malaria timeline

Malaria probably began as a parasite that lived out its life within its mosquito hosts. No one is sure when the protozoa made the leap to humans, but evolutionary scientists speculate that the rise of agriculture in Africa about 6,000 years ago created the right conditions: former rainforests transformed into wet fields; closer proximity between people and the large animals on which mosquitoes liked to feed. This setting encouraged the development of insects with a taste for human blood and the development of malaria parasites that could thrive within us. Human efforts to understand and control malaria are nearly as old as the disease itself.

5th century BC

Hippocrates notes that cases of an intermittent fever seem to be clustered in swampy areas.



Hippocrates

1st century BC

Julius Caesar proposes draining the Pontine Marshes, widely believed to be a source of the fevers that beset the Roman population. The task won't be completed until Benito Mussolini takes on the project in the twentieth century. In 2000, DNA analysis will help confirm the view of some scholars that malaria was a factor in the decline of the Roman Empire.

2700 BC

An ancient Chinese medical text, the *Nei Ching*, prescribes medicinal plants for the treatment of a disease with the symptoms of malaria.

6th century BC

In India, a Vedic scribe writes that the bite of *masakah* (mosquitoes) can be followed by "fever, pain of limbs . . . shivering . . . burning sensation, intense cold."



From the *Nei Ching*

the chilling numbers: Every year, between 350 and 500 million people are infected, and between 1 and 3 million of them will die. Nearly three-quarters of those deaths will be African children; in fact, malaria is now the leading cause of death for children on the continent. It has been estimated that, without significant intervention, the rate of infection in Africa will double again in the next twenty years.

In the last decade, the World Health Organization and the United Nations have both mounted new international campaigns to reduce malaria. The Gates Foundation grant refocused attention on the problem, but it's unclear what impact it will have. The gift is almost equivalent to the total amount spent on malaria R&D worldwide in any given year. But it can take more than ten years to develop one new drug, at a typical cost of more than \$800 million. And when most of the target market—Africans in poor sub-Saharan nations—can't afford even a couple of dollars per dose, the incentive for pharmaceutical industry investment is low. "As a society, we fund research that affects us, and we don't see malaria as our problem," says Golightly. "There are malaria research groups across the country that have had to shut down because of lack of money. And there are others who can't take that level of uncertainty and have chosen to leave the field."

Weill Cornell, though, has been bringing new malaria researchers

Every year, between 350 and 500 million people are infected, and between 1 and 3 million of them will die. Nearly three-quarters of those deaths will be African children.

on board. The Division of Infectious Diseases and International Medicine has encouraged the study of malaria for decades, and a number of today's leading experts—including Stephen Hoffman, MD '75, and Christopher Plowe '82, MD '86—are Medical College alumni. In 2001, the Department of Microbiology and Immunology recruited Deitsch and Templeton from the NIH; both scientists study some of the parasite's most complex genetic mechanisms. "For decades, Cornell has been at the forefront in international medicine," Golightly says. "This institution has always valued the study of these diseases that affect the world. Cornell has not been isolationist, not a place where you just study the diseases found in this country. The basic science push in malaria research that is happening here today is part of a long tradition."

In arguing the need for malaria research, scientists often cite the work of Jeffrey Sachs, a Columbia University economist who advises the United Nations on global poverty. He has argued that the future of Africa is inseparable from the problem of malaria, calculating that endemic malaria costs a country a percentage point in

340 AD

The anti-fever properties of *qinghao* (sweet wormwood) are described by Ge Hong of the East Yin Dynasty. The active ingredient of *qinghao* was isolated by Chinese scientists in 1971. Known as artemisinin, it is used today as an anti-malarial, often in combination with other medicines.



Sweet Wormwood

(continued on page 30)



DR. MICHAEL OFORI

Prevention and control: A child having blood drawn for malaria studies at the Pediatric Health Centre in Ghana.

economic growth every year. “As a general rule of thumb,” Sachs has observed, “where malaria prospers most, human societies have prospered least.” Malaria affects everything from worker productivity and school absenteeism to trade and tourism. When the London-based mining firm Billiton launched an aluminum operation in Mozambique—the largest foreign investment in the country’s history—the company was faced with 7,000 cases of malaria and the deaths of thirteen British employees in just two years. While Billiton has chosen to stay and work on prevention, other foreign investors look at malarial regions as a bad risk.

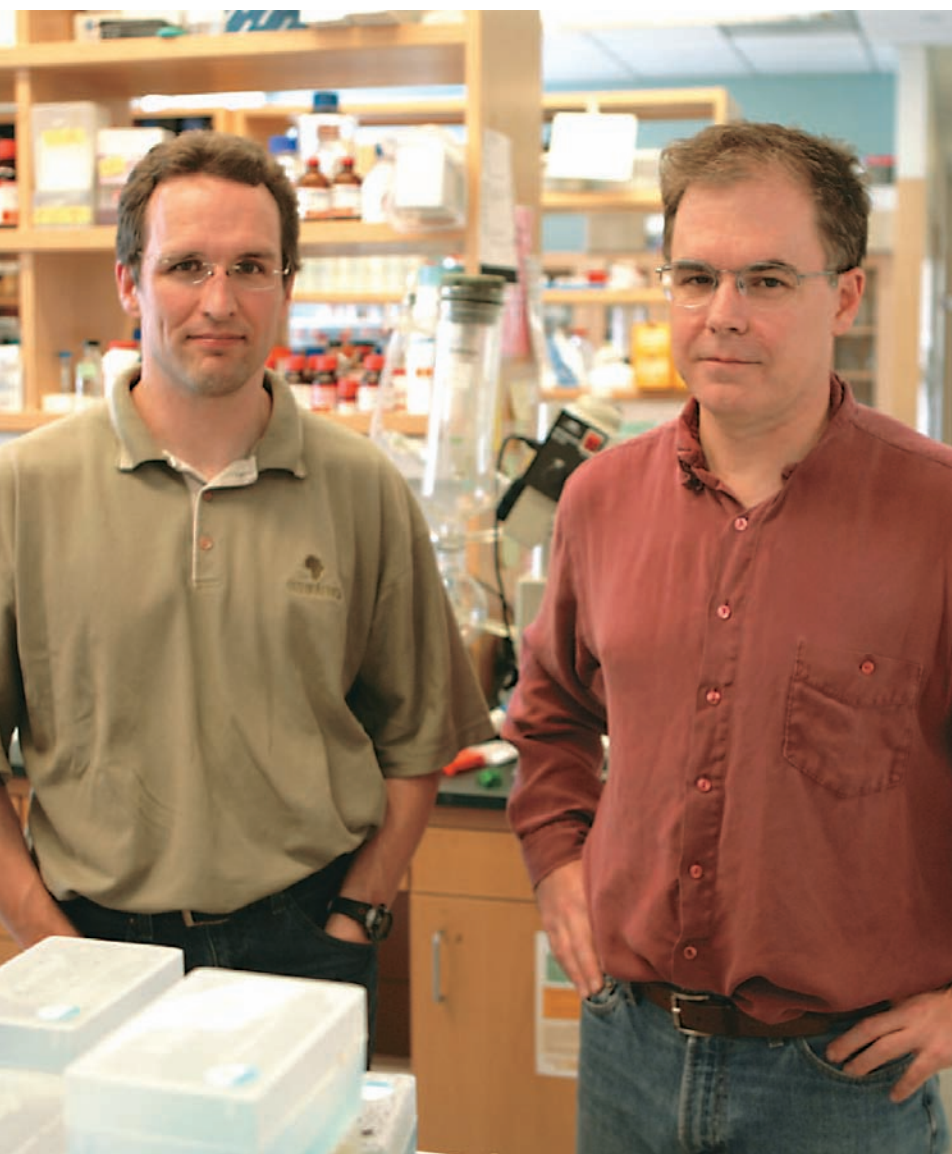
In the nineteenth century, the anti-malarial quinine enabled foreign investment, in the form of empire building, across Africa and Asia. Derived from the bark of the cinchona tree, quinine was remarkably effective against the disease. The difficulty and expense of deriving enough high-grade quinine from natural sources led to a nearly century-long search for an artificial substitute; finally, after World War II, the synthetic drug chloroquine replaced quinine as the standard treatment for malaria. “Chloroquine was as close as you could get to a silver bullet,”

Cutting edge: Weill Cornell researchers Kirk Deitsch (left) and Tom Templeton are studying the genetic mechanisms of *P. falciparum* in search of a vaccine.

says Deitsch. “It was extremely effective, not very toxic, and dirt cheap—you could cure somebody for ten cents.” In combination with the insecticide DDT, which was sprayed on the walls of homes, chloroquine caused a dramatic drop in the worldwide infection rate. The problem, says Deitsch, is that when you push a parasite toward extinction, “the parasite will push back.”

Malaria isolates resistant to chloroquine began to proliferate. The problem was made worse when DDT was banned in most countries because it became “environmentally unpalatable” when used on a large scale for agriculture, says Deitsch, as well as a concern for human health when sprayed in homes. Today, it’s estimated that up to 80 percent of malaria cases in some parts of Africa are resistant to chloroquine and another leading antimalarial, suphadoxine-pyrimethamine. “When chloroquine failed and DDT was no longer in use, there were huge epidemics,” says Deitsch. “Lots of people living in areas where you had almost-but-not-quite achieved eradication hadn’t developed any natural immunity to the disease, so you had a huge population that was incredibly vulnerable. When malaria rebounded, it rebounded with a vengeance.”

The malaria parasite has a complex life cycle, transforming as it passes from mosquito to human and again as it moves through the human body. When a mosquito lands on a human victim, it sucks up about three microliters of blood. “It’s like a flying



(continued from page 29)

The Many-Year Itch

A malaria timeline

1638

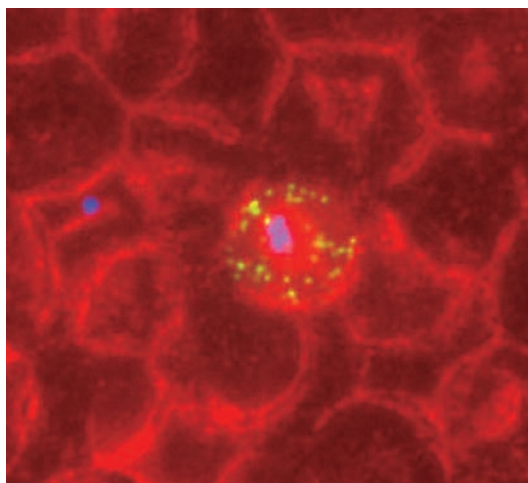
In popular legend, a Spanish countess falls ill with malaria in Peru and is cured with the bark of the cinchona tree, administered by a Jesuit missionary who learned about the treatment from natives. This story is later found to be false, but the remedy, also known as *quina quina* or “the bark of barks,” becomes popular in Europe. As quinine, it remains the gold standard in malaria treatment for the next three centuries.

1658

Puritan and politician Oliver Cromwell dies of *ague*—the English name for malaria—allegedly after refusing cinchona bark as a “Popish remedy” invented by Jesuits.

syringe,” says Templeton. If that human is infected, the mosquito will ingest the parasite into its gut, where the protozoa will form cysts. When the cysts burst, thousands of a sporozoite form of *Plasmodium* are released, some of which will invade the salivary glands of the insect. The next time the mosquito takes blood from a human, it will release a tiny amount of saliva—just enough to inoculate the new host with infectious sporozoites.

Over time, most of the *Plasmodium* species that infect humans have developed “good manners,” says Templeton—they’ve learned not to kill their host. *Plasmodium falciparum*, however, probably evolved more recently. It’s the *nouveau riche* of malaria species, and its bad manners cause about 80 percent of cases and 90 percent of deaths. Its lethality results from the extreme measures it takes to



COURTESY OF THOMAS TEMPLETON

Under attack: This image shows parasites within red blood cells, stained for parasite nuclei (blue) and a specific parasite protein that is present within the erythrocyte (green).

avoid the body’s immune system. The sporozoites released into the blood by the mosquito carrier are swept by the circulatory system into the liver. Within the liver cells, the parasite replicates asymptotically, dividing hundreds of time to create thousands of the merozoite form of the parasite. The merozoites burst out of the liver cells and invade the bloodstream, taking up residence in red blood cells, or erythrocytes.

At this point, the number-one goal of *falciparum* is to avoid the spleen, where the parasite would be eliminated by highly efficient immune surveillance. And this is where the pathology of malaria in humans—fever, chills, vomiting, joint pain, anemia, and ultimately death—begins. Think of the parasites as being swept down a hallway that’s the circulatory system; they reach out and

grab onto the wall. They send sticky proteins to the surface of the erythrocytes they have invaded, and these proteins make the red blood cells adhere to the surface of the blood vessels. This stage of

1740

English author Horace Walpole makes the first written reference to “malaria,” derived from the Italian for “bad air.” While visiting Italy, he writes a letter describing “a horrid thing called *mal’aria* that comes to Rome every summer and kills.”

1856



In an attempt to synthesize quinine from coal tar, eighteen-year-old British chemist William Perkins accidentally invents the world’s first synthetic dye. A vivid purple that becomes known as mauve, it

sets off a fashion frenzy in Europe and revolutionizes the textile industry.

1858

Tonic water, flavored with quinine, is patented. British soldiers have developed a taste for quinine, which is drunk mixed with gin across the Empire as a malaria preventative.

Although the amount of quinine in tonic water is medically insignificant, the gin-and-tonic becomes a popular drink.

1880

Charles Louis Alphonse Laveran, a French military doctor stationed in Algeria, is the first to notice parasites in the blood of a malaria patient. His work wins the Nobel Prize in 1907.

1898

In experiments with birds, Ronald Ross, a British officer in the Indian Medical Service, demonstrates that mosquitoes transmit malaria. Later in the same year, a team of Italian researchers proves that mosquitoes can carry the parasite between human subjects.

1905

Construction begins on the Panama Canal. In the first year, more than 80 percent of the workers are hospitalized for malaria. As the project continues, the infection rate is reduced through drainage, screen doors and windows, and quinine. By 1912, only 11 percent of workers are hospitalized for malaria, and a new model for malaria control has been established.

1934

Scientists at the German pharmaceutical company I. G. Farben discover chloroquine, a synthetic anti-malarial. Although the discovery is shared with French and American scientists, World War II disrupts research and communication. In 1946, the drug will finally be recognized as an effective and inexpensive treatment.

1946

The Communicable Disease Center, later to be known as the Centers for Disease Control (CDC), is established, and one of its primary missions is the eradication of malaria in the United States. Working with state and local health agencies, the CDC sprays the walls of nearly 5 million homes with DDT in less than three years. By 1951, malaria is considered eradicated in the United States.

1955-78

The World Health Organization conducts a global campaign to eradicate malaria. While the program of insecticides, drug treatment, and other methods succeeds in some nations, other countries see negligible reductions in their infection rates. Most of sub-Saharan Africa is not included in the campaign. The effort is eventually abandoned.

malaria can cause the level of erythrocytes to drop from 50 percent of blood volume to 10 percent, resulting in acute anemia. The adhesion of infected red blood cells to the walls of tiny capillaries deep in the brain can cause cerebral malaria. An infected patient can be feverish in the morning, slip into a coma in the afternoon, and die by nightfall.

While the red-blood-cell phase of the parasite is the most devastating to human health, it would also seem to offer the most potential for treatment and prevention. The sticky proteins that *P. falciparum* uses to cling to the walls of blood vessels set off alarms in our immune system, providing a target for antibodies. There's no reason a human body shouldn't be able to eliminate the parasite on its own—except for var genes. Var genes are malaria's ace in the hole, the trick that keeps it in the game.

The sticky protein that malaria sends to the surface of host red blood cells is an expression of that particular gene family. Each parasite possesses a set of sixty var genes, and via sexual recombination there are thousands of variants of malaria var genes in nature. At any given time, only one of those genes is “turned on,” presenting one antigenically specific protein to the host's immune system. As the body targets that protein and attacks the parasite, a few cells—through mutation or some other mechanism yet to be discovered—turn off their first var gene and turn on another. “The parasite is like a spy who has a set of sixty passports and is constantly shuffling among them,” says Templeton. “The immune

system can't recognize it because it keeps changing those proteins.” If you track the level of infection in a malaria patient, it will subside and surge, subside and surge, as var genes enable the parasites to proliferate again and the immune system tries to catch up.

Templeton and Deitsch study different aspects of var genes. Templeton is interested in how the proteins regulated by the genes get to the surface of red blood cells and what they do once they're there; his lab is also studying malaria's surface proteins during the phases when they're transmissible to mosquitoes. Two postdoctoral fellows in Deitsch's lab, Ron Dzikowski and Matthias Frank, recently published a pair of papers along with Deitsch in *PloS Pathogens* and the *Journal of Biological Chemistry* about the mechanism that causes the malaria genome to turn on only one var gene at a time.

Deitsch is excited about possible applications for this understanding. If the parasite can be made either to express all its genes at once or turn them all off at once, the body's immune system can take over and clear an infection very quickly. Drugs now in development for cancer treatment are based on a similar principle. “As we learn more about how this gene regulation is working in malaria, the pharmaceutical industry may be developing compounds that can interact in this process,” says Deitsch.

From cancer drug to malaria fighter: this kind of interdisciplinary leap may offer the next weapon in the fight against the disease. In 2004, Deitsch was invited to share his research with the

New directions: Jochen Buck (left) and research partner Lonny Levin made a groundbreaking discovery about the effect of carbon dioxide on the malaria parasite. It could become the basis for a new treatment.



MD-PhD student seminar by Jochen Buck, the program's associate director and a Weill Cornell professor of pharmacology. Deitsch began his lecture by describing the discovery, in the mid-1970s, that the malaria parasite couldn't be grown in a lab dish of red blood cells unless you recreated the atmosphere inside the body's deep tissues. The air we breathe is about 78 percent nitrogen, 20 percent oxygen, and less than 1 percent carbon dioxide. In the tissues of the body where malaria multiplies, the environment is different: 90 percent nitrogen, 5 percent oxygen, and 5 percent carbon dioxide. Experiments had found that it was the carbon dioxide level that made all the difference. A 5 percent concentration of CO₂ seemed to turn on and off the parasite's ability to replicate.

"Jochen almost fell out of his chair," says associate professor of pharmacology Lonny Levin, Buck's longtime research partner. Buck and Levin had been studying an enzyme in mammalian cells that produces a "second messenger" molecule. First messengers are signals, such as hormones, that come from outside a cell. Second messengers are like runners in a relay, picking up the signal and translating it into changes inside the cell. Buck and Levin had discovered a new type of second-messenger-producing enzyme that responds to the presence of carbon dioxide in the form of bicarbonate (known in your kitchen as baking soda, but present in every living cell). The level that triggers it? Five percent.

After Deitsch's lecture, Buck ran back to the lab, and he and Levin looked at the malaria genome and found an enzyme similar to what they were studying. Buck and Levin had already found a compound that would turn off this class of enzyme in the lab. They asked Deitsch to try putting the compound on a sample of malaria parasites. A few days later, the parasites were dead—and Buck and Levin had a new direction for their research. Over the last two years, they've been studying malaria's responsiveness to carbon dioxide, and they've found a compound that renders the parasite unable to proliferate in the body's deep tissues. It has, Levin says, "real potential as a lead compound for a drug." If you can stop malaria from growing, you can give the body's immune system time to repel the parasite. "Before this discovery, I would read about malaria in the newspaper, like everyone else," says Levin. "Malaria was a great scientific problem that someone else would figure out. Neither Jochen nor I would have guessed in a million years that we would be studying it. But that's the nature of basic science: if you let yourself go where the research takes you, there's no telling where you'll end up."

buck and Levin, whose research is now being supported by the Milstein Program in Chemical Biology, are planning to move to trials in mice sometime this summer. They're enthusiastic about the possibilities for a treatment developed from their work; the compound that they're using is cheap and easy to produce. That's not a guarantee that a drug based on it would be affordable for Africa, but it's a

good sign. Both pharmacologists believe, though, that there's no single answer to the malaria problem. "Treatment of malaria with just one drug, like chloroquine, shouldn't even be allowed," says Buck, pointing to the disease's devastating comeback in Africa after the ubiquity of chloroquine led to near-universal resistance to the drug. "The dream would be that you have two or three drugs that work on different principles, and you combine them."

Older drugs, like chloroquine, could be part of the package, because they can help reduce the lethality of the disease, even if they can't wipe out the parasite. New drugs can be used in combination, to eliminate as much of the parasite as possible. Levin calls the survival of a mutated, resistant parasite under such circumstances highly unlikely. "The odds of lightning striking

once in a particular place are incredibly low," he says. "The odds of lightning striking two or three times in one place, virtually nil. A parasite might be able to survive one or two drugs, but the odds that enough parasites will survive a combined therapy to sustain the disease are about as low as that third lightning strike."

Low-tech, low-cost strategies to kill mosquitoes and reduce the rate of transmission, such as insecticide-treated bed nets, are part of most anti-malarial campaigns. In fact, in some countries anti-malarial DDT campaigns have been rejuvenated, and there has been renewed scientific discourse on this insecticide. The problem is that most adults in endemic regions are protected by the natural immunity that develops precisely because of transmission. Children who survive early bouts of malaria develop antibodies that help them fight the disease when they're infected again as adults. A high level of these antibodies has been shown to correlate with exposure to a wide range of var-gene-regulated proteins. The var gene research being conducted by Deitsch and Templeton could point the way to a vaccine that could bring the immunity of infants and children up to the level of adults. It might not prevent malaria, but it could give very young immune systems a head start in fighting it off, reducing the number of deaths. "A vaccine is really the holy grail," says Golightly. "There would still be people who fall through the cracks, but a vaccine is very, very powerful. Look at measles. It really doesn't exist in this country any more because we have an effective vaccine to prevent it."

It's this tantalizing vision of a real solution to the malaria problem that keeps researchers going. "For a scientist, malaria is a rewarding thing to study," Templeton says. "It's like cancer in that you can see the impact on the human level, but there is also a whole spectrum of issues to consider, from the molecular to the genetic to the cellular." For all of the researchers, malaria represents a connection: between scientific and social challenges, rich and poor nations, global and personal concerns. "I'm African American, and this affects people of color," says Golightly. "Many of us say that we are going to go back and do something in our communities, but our community is more than just Harlem or Detroit, where I'm from. It includes this vast group of people in other parts of the world." ■

by beth saulnier

photographs by john abbott

alter egos

a look at the secret
(and not-so-secret) lives
of five Weill Cornellians

Author and literary style maven E. B. White, a 1921 Cornell graduate, once penned an essay detailing why he'd send his son to his alma mater. Not the least of his motivations was the school's diversity; he noted that during his tenure the student body included "three Swedes, a Quaker, five Southerners, a reindeer butcher, a second lieutenant, a Christian Scientist, a retired dancer, a motorcyclist, a man who had known [silent movie star] Theda Bara, three gnomes, and a lutist."

Weill Cornell Medical College may not have a resident reindeer butcher—and, in 2006, an acquaintance of Theda Bara is doubtful at best—but the school is nothing if not diverse. The Class of '09 alone includes students with such varied interests as scuba diving, stamp collecting, sailing, photography, vegetarian cooking, Indian drumming, astronomy, wine tasting, marathon running, and badminton.

But some members of the Weill Cornell community take their passions far beyond the level of a hobby. As committed as they are to their work, they have other lives outside of clinical medicine and research. Here's a sample.

When Lorraine Gudas was a post-doc at the University of California, San Francisco, she entered a TV contest in which viewers were invited to share their dreams of athletic glory. She wrote in, confessing that she'd always longed to skate with the Ice Capades—and she won. The city's NBC affiliate filmed her in costume, doing a simple routine with members of the Ice Capades at the Oakland Coliseum. But those were the days before most people had VCRs, and Gudas wasn't able to record the historic event. She still regrets it.

Flash forward two decades: Gudas chairs the pharmacology department at Weill Cornell, where her lab is heavily involved in research on the anti-cancer properties of vitamin A and related molecules. But she's still hooked on ice skating, taking lessons every week at the Sky Rink at Chelsea Piers and preparing to enter her first-ever competition next year. "It's really hard to fit it in," she says, "but I'm determined to do it, so I just block out time in my schedule."

Gudas fell in love with skating as a girl growing up in chilly Syracuse, New York; every winter, her dad, Albert Gudas, would flood the backyard to make a large rink, to the delight of all the neighborhood kids. They'd play tag and crack the whip, and concoct hockey games using picnic benches as goals. "It was something I thought was so beautiful to do on winter evenings," she recalls. "I loved it. I lived on the ice rink. The minute I got home from school I'd be outside."

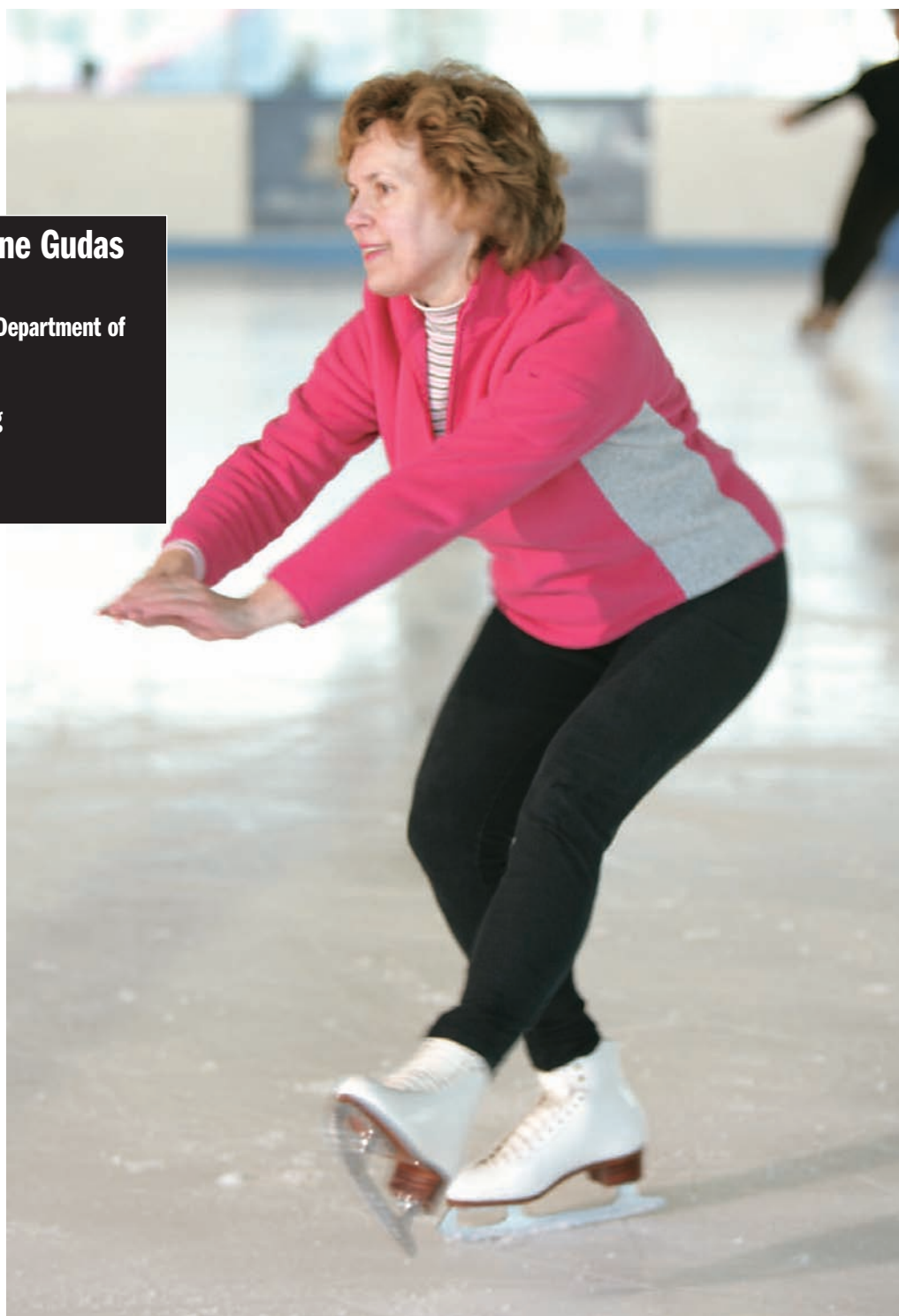
Gudas desperately wanted to take lessons—she even had nascent aspirations of Olympic glory—but her parents told her they couldn't afford it. She didn't have her first formal instruction until she was a post-doc; then, a year ago, she decided to get back into it with a vengeance. She invested in a pair of high-quality skates, found a coach, and started to perfect such moves as the flip jump, sit spin, and camel (that elegant spin, made famous by Olympian Dorothy Hamill, in which the skater extends one leg perpendicular to the ice). Each week she gets to the rink early in the morning, practicing for an hour before her lesson. "It gives me something completely different to focus on," says Gudas, the Revlon Pharmaceutical Professor of Pharmacology and Toxicology. "When you're working on tricks and maneuvers, you forget everything else."

You don't think about the lab, or the issues at work. I think it's good for the soul."

Gudas's lab, about two-dozen researchers strong, recently received a sizable grant from the Defense Advanced Research Projects Agency (DARPA) to investigate the possibility of regenerating the limbs of injured soldiers. It may sound like science fiction, but some amphibians can do it, and vitamin A plays a role in the process. Gudas and her colleagues hope to succeed, initially by regenerating digits in mice. "Skating takes me away from the stresses and strains of running a lab," she says. "I enjoy my work, but it does make the days long and busy. Doing something different refreshes me and gives me more energy. When I come back, I'm more enthusiastic about working."

Dr. Lorraine Gudas

Day job:
Chairwoman, Department of
Pharmacology
Passion:
Figure skating



Dr. Ronald Crystal

Day job:

Chairman, Department of
Genetic Medicine

Passion:

Mountain climbing



COURTESY OF DR. RONALD CRYSTAL

dr. Ronald Crystal loved to run marathons. But when he turned sixty, he realized he'd never get his time below three hours, so he threw himself into a different sport. Golf? Racquetball? Hardly. He started climbing mountains.

Crystal recently turned sixty-five, and in the intervening years he's climbed all over the world: from China to Canada, Mexico to France. He tackles mountains in the summer and frozen waterfalls in the winter, often piggy-backing climbing forays onto business trips; on his way to Weill Cornell Medical College in Qatar, for instance, he climbed ice waterfalls in the French Alps.

While some climbers chase ever-higher peaks, Crystal favors challenging technical ascents—like New Zealand's Mount Aspiring, with its forty-foot vertical ice wall. "A lot of it is endurance, like running a marathon," says the Webster Professor of Internal Medicine. "It's hard, and you have to deal with the lack of oxygen. But when you superimpose that with the technical aspects of climbing, it becomes more interesting, because what was easy to do at sea level becomes much harder when you're at 15,000 feet."

Climbing is the latest manifestation of Crystal's life-long commitment to physical fitness. Every morning, he says, his first decision is when he'll fit in his daily exercise. "When you think about what you can do for your own health, you don't have a lot of choices," he says. "You can't choose your parents, so you can't control your genes. You eat reasonably well, maintain your weight, don't smoke or do drugs, drink in moderation. The only other choice is exercise."

He takes the risks seriously and has a healthy respect for the

realities of the sport; he's not interested in taking on big-name peaks like Everest, with their narrow safety margins and near-impossibility of rescue. But he also notes that a drive to the grocery store has its perils. "You always have scary moments," he says. "You try to minimize those by being with competent guides, dealing with objective dangers. If there's rock fall you don't climb there, or if there's a risk of avalanche, or if there are crevasses you can't see."

Crystal has occasionally been called upon to use his medical skills while mountaineering, and he's broken his leg climbing—twice. One break occurred when he tripped on a steep path on the

way down a mountain. The other happened in Quebec; he was being belayed on a rope when his ice axe slipped. He fell, but his crampon stayed in. He splinted the leg himself and hiked down 2,500 feet, using poles as crutches. Which begs the question: is this really his idea of a good time? "Nobody understands it," he admits. "They can't see why anybody would put them-

selves in conditions where it's cold, there are blizzards, you could fall into a crevasse or break your leg. People think you're sort of crazy for doing it."

But for Crystal, the satisfactions are manifold: a sense of accomplishment for getting to the top of a mountain through knowledge and hard work; the chance to meet different types of people; traveling around the world; witnessing sights—like the panorama from an extinct volcano in Mexico, or the view of four countries from atop Mont Blanc—you can't see any other way. His next expedition (to Chamonix, France) is set for June. "You get to see these beautiful places," he says. "It's magnificent. It becomes a passion."

'Nobody understands it. They can't see why anybody would put themselves in conditions where it's cold, there are blizzards, you could fall into a crevasse or break your leg.'

a couple of years ago, Virgil Wong got one of his friends pregnant—an event made considerably more scandalous by the fact that his friend is a man. Media in several countries picked up the story of Lee Mingwei's unconventional route to parenthood, and TV reporters descended on the home of Lee's mother in her native Taiwan. "She was surrounded by all these cameras, and they were asking her about her pregnant son," Wong recalls with a laugh, "and she had no clue what was going on."

The blessed event was, of course, fictional—an online art piece Wong and Lee had created, and which some media outlets had swallowed whole. It's just one of the ways in which Wong, a BFA graduate of the Rhode Island School of Design, has explored the intersection of art and science. "The reason I'm drawn to an academic medical environment is that I'm really interested in the investigation of ideas, whether that's through a scientific process or a creative, artistic process," says Wong, also an experimental filmmaker. "It's starting off with a question and wanting to really explore it."

In addition to the male pregnancy project, such questions have included the perils of genetic engineering, which he addressed in a piece called *GenoChoice* that invited prospective parents to design the perfect baby online. He explored animal testing with an interactive installation dubbed *Clyven: The First Transgenic Mouse with Human Intelligence*, and highlighted dramatic advances in medical technology via a melding of radiological images and animation called *NanoDocs*. He brought all four projects together under the aegis of a fictitious hospital and cast himself as an MD-PhD named Phineas Liu, a persona he created as a performance-

art piece. Casual visitors to Wong's website wouldn't necessarily realize that endeavors like *GenoChoice* are the stuff of fiction—which, he says, is part of the point. "For me, the suspension of disbelief is important to engage whoever is coming to the project," he says, "because if you don't believe it, you dismiss it."

Wong has been interested in art since he was a child; his mother is a painter, his father a history professor. Born in the U.S., he spent much of his early life in his mother's native China, traveling while his father did research, and he speaks fluent Mandarin. At eighteen, he illustrated a children's book called *The Dancing Pumpkin*; according to Wong's site, Al Gore gave the book to guests at his family's Halloween party in 1993. After graduating

from RISD, Wong studied abroad, including a stint at the University of Rome Medical School, where he dissected and drew human cadavers.

When it comes to Web design, he's mostly self-taught, often learning (oddly enough) from books. Says Wong: "My friends joke that we did our graduate studies at Barnes & Noble University." He's been at Weill Cornell since 1996, leading a staff of ten Web designers while making art during weekends and vacations. He's had installations at major New York galleries; one recent show was *Corporeal Garden*, in which visitors could use a cursor shaped like a syringe to inject nanobots into a projected image, making a patient either live or die. "I think the cross-section between arts, humanities, and medicine is critical," he says, "especially when you're dealing with issues related to bioethics and new developments in medical technology that have such huge social impact."

Virgil Wong

Day job:

Director of Web development

Passion:

Art



for Tanvi Parikh, it's a chicken-and-egg question. Which came first: dancing or walking? The first-year medical student has been studying Indian dance as far back as she can remember—first learning from her mother, then (at the venerable age of three) under formal teachers, or gurus. Parikh dances *bharatnatyam*, a classical art from southern India that's distinguished by its rigid forms: it requires that the legs be bent with knees outward, forming a distinctive diamond shape. "It's very disciplined," she says. "It has set steps, like ballet."

It's also heavily rhythmic—so much so that, until Parikh was ten, her classes didn't include music; the beat was set by her guru hitting a wooden block with a stick. Only advanced students, she says, dance to songs, which often have themes celebrating aspects of Hinduism. "The best thing about it is that it's a way for me to express myself," she says. "I love to dance. It gives me a place to go to. Some people do yoga, some people do meditation, I dance.

It's my way to relax. Creativity is so important and meaningful."

Parikh grew up in Livingston, New Jersey, the daughter of two Indian-born MDs: her father is an internist, her mother a psychiatrist. She admits she was worried about being able to continue

'I love to dance. It gives me a place to go to. Some people do yoga, some people do meditation, I dance. It's my way to relax. Creativity is so important and meaningful.'

dancing as a medical student—but as much as she's always wanted to dance, she's always been equally committed to becoming a doctor. "Since I was little I've been trying to balance the two," she says. "It's difficult, because they're two things that I'm passionate about—on one side it's medicine and research, on the other side it's dancing. But in small bits, I'm able to manage it."

After studying *bharatnatyam* all her life, she branched out to *bhangra* and *garba*, two Indian folk dances, as a Georgetown undergraduate. She describes the latter, from Gujarat, as being distinguished by "a lot of clapping," while the former is a Punjabi style featuring "bopping shoulders, hands up in the air," and currently popular with American hip-hop stars.

She's kept up all three disciplines: she still goes home to take *bharatnatyam* classes at least once a month, and, working with a classmate, has choreographed *bhangra* and *garba* numbers for Weill Cornell events, including a recent class show. (For the performance, Parikh's

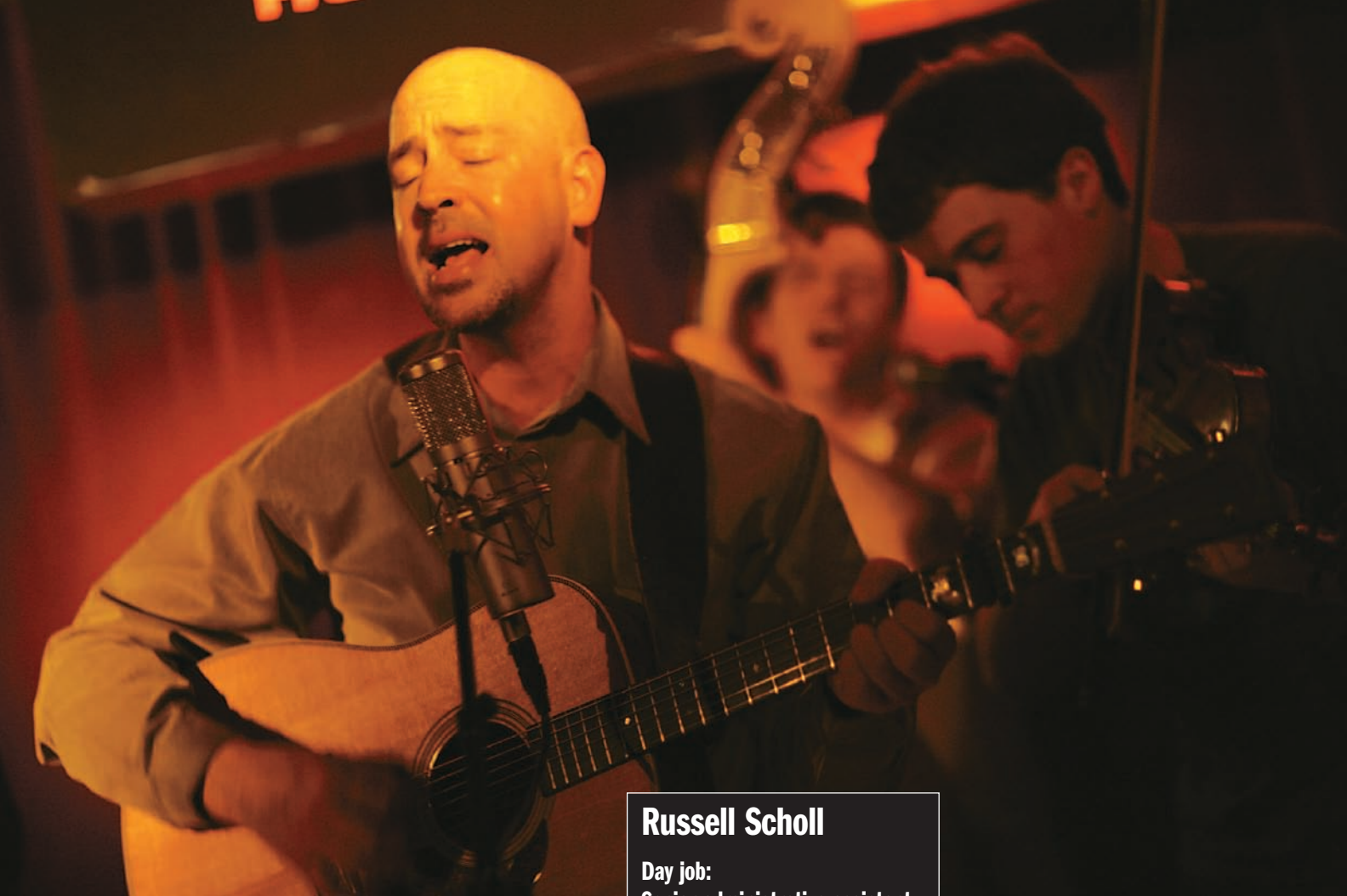
mother rented fifteen costumes from an Indian shop near their home and delivered them to her dorm.) She was gratified that an e-mail recruiting dancers for the *bhangra* number drew both South Asian students and non-Indians. But when her classmates first saw

her dance, she says, they were shocked. "I think when we're in our classes, we see each other as colleagues and peers, working together to get this MD degree," she says. "It's hard for us to see that our friends actually do have lives outside of medical school."



Tanvi Parikh

Day job:
Medical student
Passion:
Indian dance



Russell Scholl

Day job:

Senior administrative assistant

Passion:

Music

Russell Scholl heard a group of Tuvan throat singers in a tiny Brooklyn club last night, and he's still on a high; he uses words like "otherworldly," "amazing," and "mind-blowing." For Scholl, music has been an abiding passion since the fourth grade, when he first picked up the trumpet and played in the school band. "Music has the power to uplift, edify, and send you—to use Sam Cooke's words," Scholl says. "Music is life-giving. Some musical communities say that to breathe is to sing. It's very inspirational, very moving."

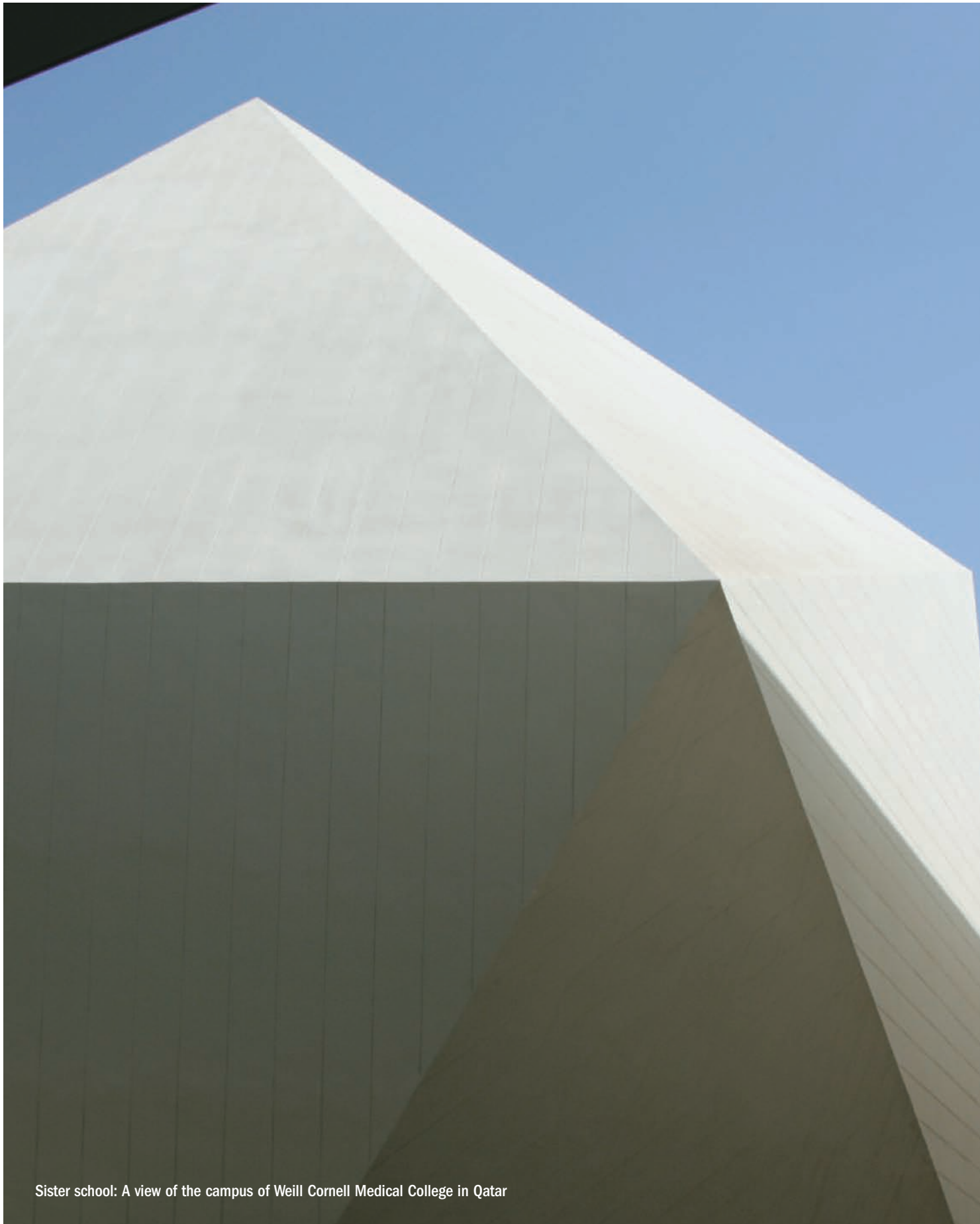
By day, Scholl is the longtime assistant to Dr. Robert Michels, former dean of the Medical College and chairman of the psychiatry department; he's worked with Michels for seventeen years. But by night, he can often be found performing in clubs in Manhattan or Brooklyn, in one of his many musical guises. After playing guitar, bass, and drums in rock bands throughout the 1980s and '90s, over the past decade he's drifted toward more traditional, roots-based music. He now sings and plays acoustic guitar with several bluegrass groups, including the Brooklyn Playboys and the Sultans of String, and he spends a fair amount of his vacation time traveling to music festivals to perform. But as for a career in music, he admits, he's not particularly good at self-promotion. "I much prefer the art side of things," he says, "to the business side of things."

Scholl is also a founding member of the Singing Conquerors, a bluegrass-gospel group that has performed at the Clinton White House and on "Good Morning America," among other venues. The group is multiracial, reflecting its unusual merging of blue-

grass and gospel. "We have an interesting vocal blend," he says, "and it's gotten us some good festival gigs."

With a BFA in photography from the Massachusetts College of Art, the Boston-area native is also interested in visual media. For years, he's been hosting evening screenings of short films; after audience demand outstripped the space in his apartment, he started mounting shows in clubs in and around Park Slope, Brooklyn. Past themes have included educational propaganda films, music shorts from long before the age of MTV, and a history of animation entitled "It Ain't All About the Mouse." Last April Fool's Day, he hosted an evening of "Short Attention Span Cinema" featuring vintage TV ads, public service announcements, and movie trailers; it was billed as "a veritable cultural history of the past century as seen through the lens of corporate hucksters, well-meaning public service campaigners, and Hollywood's finest."

And then there's his fourth career, as a curator of the arts: Scholl describes himself as "a resource for artists and musicians looking for all manner of cultural data." His apartment in Jackson Heights, Queens—where he moved after being priced out of ever-gentrifying Brooklyn—houses more than 12,000 sound recordings, which he's been acquiring since he was a teenager, plus art books and videos. "I'm something of an obsessive collector," he says. "The more obscure, the better." ■



MARTIN MARON

Sister school: A view of the campus of Weill Cornell Medical College in Qatar



NOTEBOOK

Dear fellow alumni:

I am eager to share with you observations made on a recent visit to Weill Cornell Medical College in Qatar. The purpose of this visit was to learn first-hand about our sister school, its faculty, and especially its students—our future alumni. I say “our” because the first graduation of medical students matriculating through WCMC-Q is only two years away. Although members of the Class of 2008 may wish to form their own alumni association, I believe I speak for all of us when I invite them to join our association.



Traveling with me were Gene Resnick BS '70, MD '74, vice president of the alumni association; Larry Schafer, vice president and vice provost for development; and Adee Shepen, director of alumni relations and giving. My wife, Betsy, and Gene's wife, Susan, accompanied us. For all but Larry it was our first visit to Qatar—and we were exceedingly impressed with all we saw. Doha, the capital, will never look the same because it is growing so fast architecturally. The medical school is magnificent, and those who work, teach, and learn there inspiring. The concept of an Education City includes graduate schools of five American universities, including Cornell—a visionary concept indeed.

Our party met all of the medical school's faculty and administrators as well as the students of the current classes ('08 and '09). Dr. Resnick and I made a formal presentation from the alumni association to the school and, in particular, its medical students. I stressed our association's long history and its goals of collegiality among graduates and service to Alma Mater and its undergraduates. In the discussion that followed, the students asked many questions and were enthusiastic about our solicitation of their inclusion in membership. To affirm our commitment towards this end, I advised all present that the bylaws are currently being revised to include student representation from WCMC-Q on our alumni association's board of directors. In the subsequent small group discussions, we perceived a strong desire among the students there for interaction with their counterparts in New York. The Qatari students are intellectually talented as well as mature, poised, and articulate.

Equally impressive was their faculty. Personally, I was thrilled with the unique collegiality of the basic sciences and clinical faculty. On a formal occasion I likened them to Stephen Ambrose's “Band of Brothers” and predicted that they would form an “Alonso Society” of founding faculty under the direction of Dean Daniel Alonso to preserve the memory of the early days of WCMC-Q. The dedication, scholarship, and compassionate interaction of the school's faculty are truly inspiring.

We were very grateful for the opportunity to visit our sister college.

Warm regards,

Kenneth Swan, MD '60

President, CUWMC Alumni Association

1930s **Calvin Fisher, MD '35**, was chief of surgical services at Brooke General Hospital, 1941–46. In 1945, he was assigned to General MacArthur's headquarters in the Philippines and was chief of surgical services in the 315th General Hospital in Batangao. He was in private practice from 1946 to 1975, when he retired. He served as associate professor at Colorado Medical School, was chief of staff at Denver General Hospital, and chief of surgical services at Children's Hospital in Denver. Following his retirement in 1975, he co-founded the Lake City Medical Center in Hinsdale County, the largest county in Colorado. The governor appointed him to the position of judge in Hinsdale County in 1977. He was the director of the Colorado Health Fair and the International Health Fair. He has written two books and won awards for his bronze sculptures.

1940s **Lamson Blaney, MD '40**: "I'm living near daughter Martha in the Massachusetts river town of Somerset. Chief occupation is caring for my wife, Louise Walker (Smith College '39), with Alzheimer's. Medicine here is mechanized and dollar-driven, quite different from patient-oriented as in our day. Best regards to classmates."

Alexander S. MacDonald, MD '41: "At 90 years, I should probably retire, but the profound fascination of medicine won't let me. My age is slowly destructive of the practice, i.e., I lose more patients than I gain. Am still hopeful to live until I see the deplorable state of health care is changed for the better. I'm concerned that the new crop of MDs appears to be more technocrats than professionally oriented. Ordering tests is no substitute for thinking things through first. One can prove one's diagnostic acumen afterwards. This should be the reward and fun of one's medical education. Otherwise, stay home and do it all on the computer. How many classmates remain from 1941? My neighbor in New Hampshire, **Chuck** [C. Everett] **Koop, MD '41**, is the only one I am aware of."

Thomas R. Hedges Jr., MD '47, emeritus professor of ophthalmology at the University of Pennsylvania School of Medicine, is retired from practice and teaching but still prepares some lectures at the Neuro-Ophthalmology Dept. An oral history of Dr. Hedges appeared in the September 2004 issue of the *Journal of Neuro-Ophthalmology*. "I am happy to stay busy and owe Cornell for my good fortune in life."

Richardson K. Noback, MD '47: "After internship and residency at Cornell and then a faculty appointment in medicine, I served in the USAF during the Korean War. In 1955, I joined the faculty at SUNY Upstate Medical Center in Syracuse. In 1956, five of us from that faculty moved to Lexington, KY, to design and build the University of Kentucky Health Sciences Center. I moved to Kansas City, MO, in 1964 to join the University of Missouri as the associate dean of the School of Medicine, with responsibility for the university's medical education programs in Kansas City and to serve as executive director of Kansas City General Hospital and Medical Center. I became dean of the School of Medicine in 1969. In 1978, I completed my tour as dean and resumed my role as professor of medicine and began to serve as senior docent in our Docent System of Care and Education. In 1993, I retired—50 years after beginning as a medical corpsman in World War II. Nan, BSN '47, Cornell NYH School of Nursing, and I have studied

medical education and health services formally in six other countries and have made purposeful visits to many more. Health services, economics, government, education, and communications remain major interests. I have just published a book on these topics, *Realism, Standards, and Performances: Three Essentials in Assessment, Planning, and Action*."

Warren G. Sarrell, MD '48: "I finished at Emory under the influence of Dr. Bruce Logue, came to Anniston, AL, in 1954, and opened the first cardiac cath. lab in 1972. The only other lab in Alabama was at UAB and it was very small—one man. Retired at 75 and have been involved with locum tenens, Kiwanis, and Community Foundation. With grants, have opened a five-chair dental office for indigent children. After one year it has done so well that I am the process of establishing a satellite clinic in Hefin, AL. I am married and have six children and 13 grandchildren. I am most fortunate my wonderful wife has tolerated my behavior."

Robert J. Haggerty '47, MD '49, retired from the presidency of the William T. Grant Foundation in 1992 and moved to his Canandaigua Lake home in upstate New York. He is an emeritus professor and chair of pediatrics in the University of Rochester School of Medicine and Dentistry. In addition to a number of activities with students and fellows at the university, he continued as founding editor of *Pediatrics in Review*, the continuing education journal of the American Academy of Pediatrics, until January 2005. The Dept. of Pediatrics dedicated the Robert J. Haggerty Child Health Research wing in the Golisano Children's Hospital at the University of Rochester in his honor. He and his wife, Muriel, celebrated their 56th anniversary last October. They have four children and 10 grandchildren.

1950s **Leon I. Charash '48, MD '50**: "During my final year at CUMC I took an elective with Dr. Ade Milhorat, a leading expert on neuromuscular disease. A small portion of a new drug labeled ACTH had been received at the medical school, and we used a segment of it to treat a patient with myasthenia gravis who showed dramatic improvement. Dr. Milhorat went on to found the Muscular Dystrophy Assn., and he established a muscle research center on 71st Street that he directed for more than two decades. He then turned it over to Cornell, which uses it to this day. I subsequently published on dystrophy and became chairman of their medical advisory committee, and have served in this capacity for more than 30 years. My lifetime career in child neurology has been shaped in large part by that elective in the spring of 1950."

Peter R. Mahrer, MD '53: "Still working part-time as professor of cardiology at Los Angeles County-USC Medical Center. I have eight grandchildren, two in college."

Thomas S. Morse, MD '53: "While I was in medical school, I was told that if you went into any kind of pediatric work and found you didn't like it, it was never because you couldn't get along with children—it was because you couldn't get along with mothers. Since my wife and I had three children before I graduated from medical school, I knew I wasn't afraid of mothers. After a wonderful year as one of 18 pediatric interns at Bellevue, I moved to Boston where I came under the influence of Dr. Robert Gross, the premier pediatric surgeon of the time. After six years in Boston, I landed a position at the Children's Hospital in Columbus, OH. This hospital, along

with the ones in Boston and Los Angeles, were the three biggest children's hospitals in the U.S. The advantage of working with three other pediatric surgeons was enormous because we could go to national meetings, secure in the knowledge that our patients were under competent care. Most pediatric surgeons in the 1960s were the only ones in their respective hospitals and were greatly restricted in their ability to get away to meetings. My senior colleagues were experts in managing congenital anomalies and childhood cancer patients. In the early 1960s, Dr. Alex Haller, the chief of pediatric surgery at Johns Hopkins Hospital, published a landmark finding. He showed that more than half of all the children who died in the U.S. between their first and 18th birthdays died from injuries. Trauma became my major preoccupation. The American College of Emergency Physicians, the American Burn Society, and the American Trauma Society were all in their infancy. The American Trauma Society was founded in 1962. I was privileged to serve for three years as president of the Trauma Society (1974–79), during which time 36 state chapters were established. I was fortunate to be in the right place at the right time."

Russel M. Barakat, MD '54: "Nothing new in my life except I was chosen as the Outstanding Clinical Endocrinologist of 2005 by American Clinical Endocrinologists."

Paul F. Nugent Jr. '50, MD '54: "For those who remember Caroline and me in medical school, I am sorry to report that she passed away on February 26, 2005."



On the beach: In 1956, medical students from the classes of 1959 and 1960 took a break in the Bahamas.

Albert Z. Kapikian, MD '56, viral diseases researcher, received the Albert B. Sabin Gold Medal at a ceremony on May 10, 2005. He is the 13th recipient. The medal is awarded annually by the Sabin Vaccine Institute to honor achievements by vaccinologists and infectious disease experts. The ceremony was held in conjunction with the National Foundation for Infectious Diseases (NFID) Eighth Annual Conference on Vaccine Research at the Marriott Inner Harbor in Baltimore, Maryland. Kapikian's career of more than 47 years is distinguished by the development of the first licensed rotavirus vaccine. In the 1950s Kapikian began studying the epidemiology and causes of various viral diseases. He is renowned for pioneering studies using electron microscopy to dis-

cover and characterize viruses causing major diseases in humans. In 1972, Kapikian identified the Norwalk virus, the first virus associated with acute epidemic gastroenteritis, gaining recognition as "the father of human gastroenteritis virus research." In 1973, he and two colleagues identified the virus that causes hepatitis A. He also became the first in the United States to detect and visualize human rotavirus, which was discovered by others in Australia. He dedicated his efforts to studying this leading cause of severe diarrhea in infants and children, which accounts for more than 500,000 deaths annually, predominantly in the developing world. Working with the National Institute of Allergy and Infectious Diseases (NIAID), Kapikian led a nearly 25-year effort to develop an oral rotavirus vaccine. The team's neo-Jennerian rotavirus vaccine strategy involved mating outer proteins from different human rotavirus strains with a monkey rotavirus that is attenuated for humans and then combining the resulting hybrid viruses into one vaccine. From a single-strain vaccine in 1984, the vaccine was gradually made protective against the four most important clinical strains of rotavirus. In 1998, this vaccine became the first rotavirus vaccine licensed in the United States. Kapikian joined the National Institutes of Health (NIH) in 1957 as a commissioned officer of the U.S. Public Health Service. In 1967 he was appointed head of the Epidemiology Section of the Laboratory of Infectious Diseases, a position he holds today. He has received numerous honors and is the author of many scholarly papers.

Mary Alice N. Mathews, MD '56: "Still practicing two days a week, ocean diving twice a year, and gardening when the humidity isn't too debilitating."

William Plauth, MD '57, sent a photo from a 1956 spring vacation trip (left). Pictured are **Dick Kossman**, **John J. DuBois**, and **John N. Baldwin** from the Class of '59, and **Steb Chandor, MD '60**. "The scene is on the beach of Honeymoon Harbor on Gun Key, a tiny key in the Bahamas, just south of Bimini. We had a ball. **Bob Abel, MD '59**, and I accompanied these guys. Eight of them chartered the boat and then, because they had little or no sailing experience, invited Bob and me to come along. I remember debating whether or not to go, and I'm so glad I did. In addition to the four in the photo, there were **Jim Amlicke**, **Paul Romano**, **Don Bricker**, and **Mike Conroy**, all Class of '59."

James K. Van Buren, MD '59: "Still working full-time doing primary care internal medicine at the Emory Clinic. The advent of 'hospitalist medicine' has allowed me to do so. It is so pleasant not to have to go to the hospital. Mary, the family, and six grandchildren are doing well. We travel when we can."

1960s **Richard J. Hastings, MD '61:** "Retired for four years in Woodstock, VT, and loving it. Son Timothy is also an orthopaedic surgeon and is on staff at the Jacksonville Naval Hospital."

James E. Standefer, MD '61: "I continue to do international volunteerism in developing countries. I no longer do cataract surgery, but teach a two-week glaucoma workshop that I developed. Recent visits have included Afghanistan, Gaza, northern Pakistan, and Yemen. In all of these locations I have been warmly welcomed and have always felt safe."

Richard M. Ehrlich '59, MD '63, took up landscape photography a few years ago. The Evo Gallery in Santa Fe, NM, hosted his

exhibition, "In a Deconstructed Place." Ehrlich explores the theme of abandonment in images of Chicago's old Cook County Hospital, graffiti at a derelict Los Angeles trolley station, and houses overtaken by sand in Namibia. A recent issue of *Malibu Magazine* highlights his series of photographs, "Homage to Rothko: Malibu Skies." Ehrlich's portfolio includes series of people and landscapes in Vietnam, a FedEx facility, and ocean waves shot at Vancouver Island.

Bart Schmitt, MD '63: Denver pediatrician Schmitt reports that 2005 was "a good writing year." He received the American Academy of Pediatricians' Education Award and the Jesse Neal journalism award for best how-to article. The third edition of *Your Child's Health*, his parenting book, came out just before the holidays. Six of his eight grandchildren are pictured on the cover.

Nola Rosanoff Marx '59, MD '64, retired from the practice of developmental pediatrics in 2002. Currently she assists her husband, Dr. Alvin Marx (BA '59), in developing medical inventions. She enjoys being a grandparent to four grandkids, two of them twin girls born in October 2005. "Unofficially practicing pediatrics on the grandkids. Staying in shape to keep up with the children via resistance training, aerobics, and yoga."

John Witwer, MD '66, stepped down after serving seven years as state representative when Colorado governor Bill Owens asked him to become director of the Colorado Benefits Management System. This is the computer system that serves 500,000 vulnerable Coloradans by determining eligibility for such programs as Medicaid, Food Stamps, Old Age Pension, and TANF.

George G. Telesh, MD '67: "Still working hard. Daughter Nicole graduated from the U.S. Naval Academy at Annapolis. She was captain of the lacrosse team, three years All-American, and was the most valuable offensive player in the nation. President Bush presented her diploma."

Stuart T. Brown, MD '68, was appointed director of the Georgia

Division of Public Health after serving as acting director. Brown plans to focus on health care for the poor and the high HIV/AIDS rate among African Americans. His three decades of public health experience include working for the Centers for Disease Control and Prevention, including assignments to the World Health Organization, the Seattle-King County Health Dept., and the Fulton County Health Dept.

1970s Allan L. Kayne, MD '73: After 26 years in clinical practice, he left Seattle to become director of medical affairs for Interdis, Inc., the U.S. Dermatology subsidiary of Schering AG Pharmaceutical Company. Kayne has relocated to New Jersey and says he loves his new career. In 2005, he served as president of the Pacific Dermatology Assn., the largest regional dermatology society.

Paul Miskovitz, MD '75, was interviewed last December by the television program "CBS Cares" about the risk factors for colorectal cancer and ways to protect against it. His book, *The Doctor's Guide to Gastrointestinal Health* (Wiley), was published in 2005.

Kenneth Brown, MD '77: "I have been in Vermont since 1984 at the University of Vermont College of Medicine, now as a full professor in the Cardiology Unit. I'm involved in the field of nuclear cardiology. I was past president of the American Society of Nuclear Cardiology and now serve as treasurer and sit on the certification board. I enjoy living in Vermont. I've been active in mountaineering and backpacking, took up biking, and am looking forward to my annual ice climbing trip to Nain, Labrador. My two boys, Daniel and David, are now in college and doing well, at New School University and Brandeis, respectively."

Ed Kilbourne '74, MD '78: "I'm doing a one-year tour at the U.S. Embassy in Baghdad as director of the WMD Scientist Redirection Program for Iraq. I direct scientists and engineers from the former regime who worked with chemical, biological, and nuclear weapons. Our program involves them in projects that enhance the reconstruction effort and the prospect for peace. The attention (and money) we provide diminishes the likelihood that these folks will be recruited by the insurgency or unfriendly governments. I look forward to seeing my family and friends again when my time is up."

1980s Gary Butts, MD '80, associate professor of medical education, pediatrics, and community and preventive medicine at the Mount Sinai School of Medicine in New York City, was appointed chair for the Northeast Group on Student-Minority Affairs Section of the American Association of Medical Colleges. He has been at Mount Sinai since beginning his training in pediatrics in 1980. He also served as deputy commissioner of the New York City Dept. of Health. In his role as associate dean for student affairs, he provides leadership and oversight for minority affairs, multicultural diversity program activities, pipeline programs



Deep in the heart: The Office of Alumni Relations and the CUWMC Alumni Association hosted an event in Houston for alumni and friends. The featured speaker was Dr. Dirk Sostman, the chief academic officer and chief medical officer, the Methodist Hospital System, and executive vice dean, Weill Cornell Medical College, who spoke about the recent affiliation between Weill Cornell and the Methodist Hospital. Attendees shown here are (top, L-R): Jeffrey Gershenwald, MD '90, Joseph Ruiz, MD '86, and Lenora Noroski, MD '89; (bottom, L-R) Sostman, Dawn Kaufman, and Ira Kaufman, MD '53.



NHAN NGUYEN / NHAN PHOTOGRAPHY

to high schools and colleges, and medical school enrichment activities.

James Krinsley, MD '80: "I became director of critical care at Stamford Hospital, a major teaching affiliate of Columbia P&S, in 1998. I have spent my time developing a protocol- and data-driven unit. In 2002, our ICU was recognized as one of 11 best practices among ICUs in the nation. The database has provided support for several publications and abstracts, including work demonstrating the relationship between increasing hyperglycemia during ICU stay and increasing mortality, and then a 1,600-patient before-and-after study documenting a 29 percent reduction in mortality among patients treated with our intensive glycemic management protocol (both of these were published in the *Mayo Clinic Proceedings*). This work resulted in our hospital's receipt of the 2004 Codman Award from the JCAHO and has given me the opportunity to speak at a number of national meetings. I have also been advising a startup company on the development of a continuous glucose monitoring system that will likely become a standard of care in ICUs and facilitate the adoption of tight glycemic control protocols. Finally, I have been working with a medical software company, Medical Automation Systems, to create an ICU database product, 'ICU Tracker,' that should be ready for release this year."

Jay Mabrey '77, MD '81, is chief of orthopaedics at Baylor University Medical Center. He is setting up a motion and sports performance lab to capture 3-D motion data on U.S. Olympic middle- and long-distance runners. "We'll celebrate our 25th wedding anniversary at the same time as reunion."

Nina Schor, MD '81, was named chair of the Dept. of Pediatrics, pediatrician-in-chief of Golisano Children's Hospital at Strong, and professor of pediatrics at the University of Rochester Medical Center. Schor will begin her appointment in January 2007. She is currently chief of the Division of Child Neurology of Children's Hospital of Pittsburgh, where she has also been an attending physician in child neurology since 1986.

Gregory Bell, MD '84, was appointed vice president of clinical research & development and chief medical officer of KAI Pharmaceuticals, where he is responsible for development programs, clinical trials, regulatory operations, and medical affairs. Prior to KAI, he was vice president of clinical development and clinical operations at Abgenix. He also led the Inflammation Program Team, which managed the preclinical portfolio in inflammatory and metabolic diseases. Dr. Bell also held several positions at Merck & Co. He is board certified in internal medicine and rheumatology and is an assistant clinical professor of medicine at the University of California, San Francisco.

Scott Hayworth, MD '84, is the president and CEO of the Mount



JOHN ABBOTT

Kisco Medical Group, the biggest of its kind in Westchester County. The medical group was begun in 1946 and has an affiliation with Mount Sinai Hospital.

Neil L. Watkins '82, MD '86, lives in the Chicago suburb of Hazel Crest with his wife, Desiree, and son, Christian. He is in the process of building a medical office building.

Lawrence W. Robinson, MD '84: "I joined the Endocrine Group of Albany, New York. I work with 10 endocrinologists providing endocrine and general surgical care; we can be found on the Web at www.theendocrinegroup.com."

Alan Lerner, MD '87, is co-director of University Memory and Aging Center and the Neurological Inst., University Hospitals of Cleveland, and author of *Diagnostic Criteria in Neurology* (Humana Press).

1990s **Adam P. Dicker, PhD '91, MD '92,** was appointed the vice chair for translational research of the Radiation Therapy Oncology Group. He is associate professor of radiation oncology and director of the Division of Experimental Radiation Oncology at Jefferson Medical College of Thomas Jefferson



JOHN ABBOTT

University in Philadelphia.

Jim Reichheld, MD '92, lives in Concord, MA, with Julia, “my hottest date in med school. Three kids arrived since then. I practice in Lowell, MA, which means I have a diverse and wonderful population of patients. Amazingly, three of the five of us in practice together are from Cornell Med: **Geetanjali Akerkar, MD '93**, and **Win Travassos, MD '99**, joined us over the last two years. Had the great pleasure of sharing dinner in Boston with **Walt** and **Stephanie Galicich, MD '92**, this fall, after a quick 14 years of no longer rooming together. I hope all is well for all in '92. See you at the 15th.”

Henry Chen, MD '96: “I’ve recently joined a private practice in pathology. My new business address is: Pathologists Biomedical Labs, 1600 West College St., Ste. 185, Grapevine, TX 75091.”

Mary Beth Lewis-Boardman, MD '98: “My family has enjoyed its first Florida winter. Our five-year-old, Annabella, occasionally says she wants to see snow again, but really would rather spend a winter day at Disney World, our new ‘backyard playground.’ Our son, Samuel, couldn’t be happier than he is in the warm Florida sunshine. I entered a partnership in private practice in Clermont, FL, in August 2005. I love my partner, my patients, office, and staff, but we are working hard to find alternatives to practicing obstetrics. My husband, Jason, our children, and I would love to be cruising around our neighborhood country club. Too bad we are so busy working. I would love to hear from any alums from 1998 when visiting the Orlando area.”

Jeremy D. Martinez, MD '99, is enjoying partnership with Kaiser Permanente Emergency and taking full advantage of the outdoor recreation in Sacramento. On July 28, 2005, he and his wife,

Jessica, welcomed their third baby, Lucia. They already have two boys: Diego, 3, and Lorenzo, 2.

2000s **David Rodin '97 BS, MD '01**, is a urology resident at Massachusetts General Hospital. He and his wife, Heather, are the proud parents of daughter Joie Reese Rodin, born August 15, 2005.

Asha Yancy, MD '05: “On July 27, 2005, I participated in the Rabb Venable Ophthalmology Competition at the National Medical Assn. Convention in New York City. I won first place in the medical student section for my presentation on LASIK after penetrating keratoplasty. This was based on research I performed as a fourth year medical student with Dr. Sandra Belmont, director of the Cornea Service at NewYork-Presbyterian Hospital/Weill Cornell Medical Center. The prize was a plaque and \$2,000.”

FACULTY

Marshall Kim, PhD '97, will be completing a fellowship in glaucoma at the Weill Cornell Medical Center. He will be starting a private practice in ophthalmology in Honolulu, HI.

OTHERS

Darrick E. Antell, who was a resident in plastic surgery at New York Hospital-Cornell from 1985 to 1987, was featured in the January 2006 issue of *Greenwich Magazine*.



IN MEMORIAM

'28 MD—Hilda Crosby Standish of West Hartford, CT, June 1, 2005; medical director, Maternal Health Center, in Hartford's first birth control clinic; served on the anesthesia staff of Hartford Hospital in World War II; lectured for Planned Parenthood; worked in sex education; staff physician, Women's Christian Medical College of Shanghai, China, in the early 1930s; in her honor, the Hartford branch of Planned Parenthood was dedicated as the Hilda Standish Center in 1993; active in civic, community, professional, and religious affairs.

'37 MD—William A. Barnes of Ho-Ho-Kus, NJ, March 26, 2006; clinical professor of surgery emeritus, Weill Cornell Medical College; member, University Council; active in professional and alumni affairs.

'31 BA, '37 MD—Bliss B. Clark of Harlingen, TX, formerly of New Britain, CT, March 20, 2006; retired surgeon; retired president, chief of staff, and chief of surgery, New Britain General Hospital; founder, Grove Hill Clinic; veteran; author; active in civic, community, and professional affairs.

'38 MD—Elmer Sanders of Houston, TX, June 13, 2005; clinical associate professor of medicine, Baylor College of Medicine; member, Kelsey-Sebold Clinic, Texas Medical Center; supervisor, breast cancer clinic at Ben Taub Hospital; served in the Army Medical Corps in World War II; active in professional affairs.

'43 MD—Peter DeWitt of Portland, OR, February 9, 2006; family practitioner; veteran; past president of the medical staff, Holladay Park Hospital.

'43 MD—Peter E. Hanlon of Easton, MD, April 6, 2006; retired from private practice; former member, Dept. of Surgery and Dept. of Trauma and Orthopedics, the Valley Hospital, Ridgewood, NJ; football team physician, Glen Rock High School; veteran; active in professional affairs.

'48 MD—Joseph A. Elliott of Laurel, DE, April 14, 2005.

'49 MD—Ross B. Sommer of St. Louis, MO, September 30, 2005; associate professor emeritus of clinical medicine, Washington University School of Medicine; co-founder, Clinic of Internal Medicine; served on the medical staff of Barnes Hospital; veteran; musician; active in community and professional affairs.

'50 MD—Craig N. Smith of South Windsor, CT, July 5, 2005; senior attending physician, St. Luke's Hospital in NYC; served as captain in the Canadian Army in Europe in World War II.

'53 MD—Paul Thornfeldt of Sun Lakes, AZ, April 29, 2005.

'54 MD—Graham D. Newton of Charlotte, NC, February 19, 2006; dermatologist with Dermatologist Associates; veteran; active in community and professional affairs.

'54 MD—Robert C. Patten Sr. of Daleville, VA, March 11, 2006; director of the Family Practice Residency Program and professor at the University of Virginia; also taught Family Practice Residency at Roanoke Memorial Hospital; medical missionary in South Korea; practiced at Boxley Hill Clinic; active in community, professional, and religious affairs. Wife, **Joy (Blaney), BS Nurs '53.**

'54 BA, '58 MD—Joanna Stein Dalldorf of Chapel Hill, NC, August 7, 2005; pediatrician; developmental specialist on autism; worked at the Division for Disorders in Developmental Learning; served on the board of the Arts Center of Carrboro, NC. Husband, **Frederic G. Dalldorf, MD '58.**

'55 BA, '59 MD—Ralph L. Moress of Pismo Beach, CA, October 11, 2004.

'61 MD—Mary Middleton Dahl of Salt Lake City, UT, October 24, 2005; retired clinical professor of ophthalmology, University of Utah; retinal specialist; member of attending staff, Salt Lake Regional Medical Center.

'66 MD—Everett Van Dyke Sugarbaker of Miami, FL, February 5, 2006; cancer surgeon; president, Surgical Oncology Assocs.; founder, Miami Cancer Institute; performed volunteer work in Colombia; long-distance cyclist; rode in the Paris-Brest-Paris cycling race in 1995; active in community and professional affairs.

'73 PhD—Lorraine A. Flaherty of Latham, NY, February 22, 2006; director, genomics institute and chief, Laboratory of Mammalian Genomics, Wadsworth Center, NY State Dept. of Health; professor of biology, U. of Albany; professor of biology and bioengineering, Rensselaer Polytechnic Inst.; author; editor; awarded Lifetime Achievement Award, Int'l Behavioral and Neural Genetics Society; active in professional affairs.

FACULTY

Raymond W. Houde of New York City, March 8, 2006; member, Dept. of Pharmacology, Weill Cornell Medical College; developed the clinical pharmacology of opioid analgesics; chief of the Pain Service and head of the Analgesic Studies Section, Sloan-Kettering Cancer Center; active in professional affairs.

Albert E. Johnson of New York City, December 15, 2005; husband of Dr. Madelyn M. Antoncic, WCMC Overseer.

Paulina Kernberg of White Plains, NY, April 12, 2006; professor of psychiatry at Weill Cornell Medical College; director of child and adolescent residency training and founder of the Children of Divorce program at Payne Whitney Westchester in White Plains; authority on child psychiatry, particularly in the area of personality disorders.

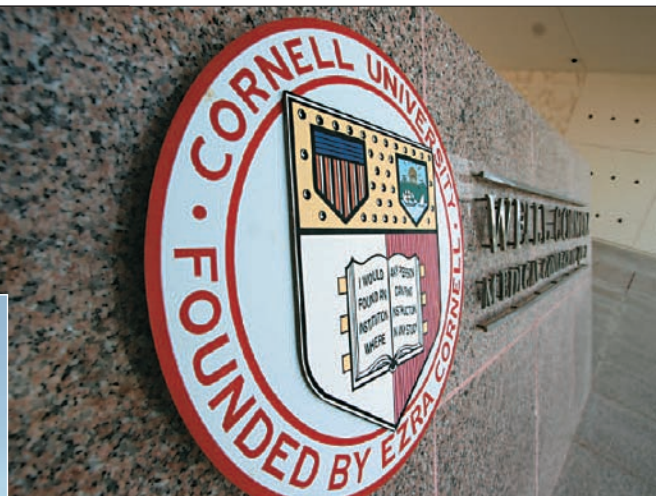
Stewart G. Wolf Jr. of Bangor, PA, September 19, 2005; former associate professor of medicine, Cornell University Medical School, late 1940s to early 1950s; directed a clinical and research training program in psychosomatic medicine; founder, Totts Gap Medical Research Laboratories; director of medical affairs, St. Luke's Hospital, Bethlehem, PA; director, Marine Biomedical Inst., University of Texas Medical Branch, Galveston, TX; head of the Dept. of Medicine, University of Oklahoma; veteran; active in professional affairs.

6,700 Miles to Doha

ALUMNI LEADERS TRAVEL HALFWAY 'ROUND THE WORLD TO VISIT QATAR CAMPUS



MARTIN MARION



MARTIN MARION

ON THEIR FIRST NIGHT IN QATAR, THE VISITORS were offered an American-style meat-and-potatoes dinner. They appreciated their hosts' efforts to make them feel at home, but they were unanimous in their dietary desires: Middle Eastern food from now on.

Soaking up the local culture—not only eating what their Qatari counterparts eat but seeing how they live, study, and play—was a major part of the mid-November trip, an alumni visit to the Medical College's branch in Doha. Two graduates (alumni association president Ken Swan, MD '60, and vice president Gene Resnick BS '70, MD '74) and their wives spent three days in the emirate, accompanied by Adeel Shepen, director of alumni relations and giving, and Larry Schafer, vice provost and vice president for development. "Many of the alumni, particularly those who don't live in New York, don't know what's going on there," Shepen says in explaining the goals of the college-sponsored trip, hoped to be the first of many. "We wanted the alumni leadership to see how great it is, then come back and be our ambassadors."

The whirlwind visit began with a flight from New York to London and a stopover in Dubai. In Qatar's rapidly developing Education City, the visitors met with faculty, staff, and students and sat in on classes.

They also toured Hamad Hospital, where the students are being trained. Other highlights included a dune buggy tour of the desert—"scary, but we loved it," Swan says—and dinner at the home of Dr. Daniel Alonso, dean of WCMC-Q, and Dr. Powers Peterson, associate professor of pathology and laboratory medicine, his wife. "The trip was eye-opening," says Resnick, president of Millennix, a company that develops cancer drugs. "When you see the entire complex, it's just remarkable. It has a wonderful international faculty, a bright student body. They feel a connection with the University and with Weill Cornell in New York."

Forging that connection was another aim of the visit, which also included a reception for WCMC-Q students hosted by the alumni association. Swan found them eager to "mix socially, professionally, and intellectually with their colleagues in New York," and interested in joining the association. "They have a wonderful attitude, wonderful team spirit," says Swan. "It's a very happy crowd."



MARTIN MARION

Distance learning: During their visit to Qatar, Weill Cornell alumni leaders Ken Swan, MD '60 (second from right), and Gene Resnick '70, MD '74 (third from right), met with medical students Ali Farooqi '08 (left) and Osama Al Saied '08.

The Face of Things to Come

Construction Projects on the WCMC Campus

The Façade is Finished!

The fritted glass façade of the new Ambulatory Care and Medical Education Building located at York Avenue and East 70th Street has recently been completed. Interior work is progressing on schedule, with an anticipated opening in January 2007.

Riverwalk Place

Weill Cornell Medical College faculty, postdoctoral trainees and their families will soon be moving into 88 outstanding apartments in Riverwalk Place, the third of nine new buildings to be constructed on 19.3 acres in Southtown in the center section of Roosevelt Island. According to Barry Duignan, Senior Director of Facilities Management, "The units were developed to assist the Medical College in the recruitment of new faculty and postdoctoral fellows as part of Phase 2 of the Strategic Plan." The condominium building is adjacent to 465 Main Street, another Medical College residence for faculty and postdoctoral fellows that opened in November 2003. Riverwalk shares its neighbor's waterfront location and impressive range of amenities.

The new residence is within 15 to 20 minutes from the Weill Cornell campus by tram and a quick walk, and it is also immediately adjacent to the Roosevelt Island "F" line subway station. In addition, Riverwalk Place overlooks a Commons—or "town square"—with a landscaped park and nearby soccer and softball fields.

The apartments, located on floors 5, 6, 7 and 8, are primarily one-bedrooms and studios, with one two-bedroom apartment on each floor. Retail shops are planned for the ground floor with storefronts facing the Commons, including a coffee house, a dry cleaner and deli.



For more information about construction on campus and other news, visit www.med.cornell.edu/publications/

Lecture Hall A250

Lecture Hall A250, and its twin, A950, were built in the late 1950s and sorely needed updating. "The chairs were like sitting in the cheap seats at a ball park," says Medical College architect Gwendolyn Glass, Project Manager. "They were tiny and really uncomfortable. In addition, we needed to update the room to accommodate the growing need for distance learning with our campus in Qatar."

In Summer 2004, the cosmetic and distance learning phases of A250 were completed before students returned for the school year. "This past summer we took down the ceiling and addressed the mechanical systems to better control heating and air conditioning," says Ms. Glass. "The room looks terrific and now we're planning to do the same for Room A950."



Greenberg Molecular Cardiology Lab

After 10 months of working in multiple locations on campus and off-site, researchers and scientists returned to their newly renovated Molecular Cardiology Laboratory on A-3 in the Harkness Building. The 9,000-square-foot project began in January 2005 and was completed in December, "on time and under budget," notes Frank Kubicek, Project Manager of Weill Cornell's Division of Facilities Development.

The A-3 renovation was made possible by a generous grant from Maurice and Corinne Greenberg, for whom the lab was named at a dedication ceremony held on January 9, 2006. Separate plaque dedications were held to recognize the support of Jean M. & David W. Wallace and Lawrence A. Inra, M.D., and The Kenny A. Gordon Foundation.

The complete renovation of the entire floor required construction of two wet laboratories with support research spaces, including microscopy, optical mapping and patch clamp rooms; a computational cardiology lab; a new cold room; two separate tissue culture rooms, separate offices for the primary researchers and administrators; and meeting and conference/staff rooms. The design was by Perkins Eastman Architects PC.



Dr. George Reader '43, through his work, contributed greatly to our understanding of the socioeconomic influences on illness and the delivery of medical care.



An early champion of comprehensive care, he helped shape public health policy at a national level. Dr. George Reader, a “Double Red,” spent his entire career at Cornell and New York Hospital. He built a reputation as a superb and compassionate clinician, skilled teacher, and dedicated researcher.

Through his thoughtful gift, his contributions will live on...

In April 1950, as an officer in the United States Navy, Dr. Reader established a life insurance policy to provide for his wife and small child. In May 2000, as the successful Chair of the Department of Public Health, he decided that this policy, which had quadrupled in value, was an asset he could leave as a legacy to Weill Cornell to continue his work in Public Health.

To learn how gift planning can benefit you and the campaign, please contact:

Marc Krause, Director of Gift Planning
(212) 821-0512 or
mak2009@med.cornell.edu



Dr. George Reader and Mrs. Reader



How to include Weill Cornell Medical College in your will:

*“I give, devise and bequeath to Cornell University the sum of \$ _____
(or description of the property) for use in connection with the Weill Medical College [or Graduate School of Medical Sciences] in New York City.”*

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