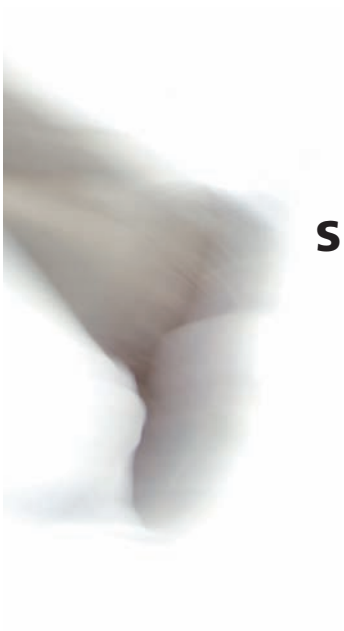


BROWN MEDICINE

SPRING 2006



SPEED MATTERS
WHEN YOU'RE INTERPRETING THE GENOME

From the Editor

WHEN A PARTICULARLY ASTUTE COLLEAGUE OF MINE SUGGESTED WE DO A FEATURE on a new paradigm in biology—a field whose sudden access to vast amounts of data has led to unprecedented collaborations with such disciplines as applied mathematics, statistics, and bioinformatics—I knew it was time to bone up on The Genome. I had to admit that although I'd always found “deoxyribonucleic acid” to have a pleasingly rakish sound to it, my mastery of genetics, let alone genomics, was hardly what it should be. Like most lay people, I think, I'd felt appropriate awe at the completion of the Human Genome Project. I had a reasonable grasp of its importance in understanding the genetic factors of disease. I resorted occasionally to the Internet for refresher courses on the big-picture implications of mouse models and microarrays. But I didn't have a true understanding of what trying to decipher a code billions of letters long really meant.

When I visited the website of Brown's Center for Computational Molecular Biology, I knew there was a great story to tell. The faculty were from intriguingly diverse departments, and their energy and determination were palpable: the Center's self-declared goal is to tame the “explosive growth of high-dimensional data” generated by the sequencing of the human genome. As these researchers comprehend biological processes on a smaller and smaller scale, they are partnering with mathematicians and statisticians and others to help make sense of greater and greater amounts of information. I can't help thinking how fortunate today's Brown students are to be learning about this emerging field from some of the very people who are in its vanguard.

Next to this seeming infinitude of data, the transformation of one man's life through the innovative application of medical science feels reassuringly concrete. Yet there is nothing mundane about neurosurgery for mental illness. The pioneering physicians who practice it are virtuosos of precision and expertise.

Space prevents me from mentioning any of the other great Brown Med stories in this issue—from the early days of the curriculum to the initiatives and debates that animate it today—so I'll let the pages do the talking. Enjoy.

Letters

JUST FINISHED READING THE FALL 2005 issue of Brown Medicine. As always, a terrific sampling of the fascinating people whose work makes the Medical School such an interesting and exciting place to work and learn.

I especially want to congratulate Kris Cambra and Richard Howard for their efforts on the featured article “Women in Medicine.” It not only

acknowledged the Brown women who pioneered careers in medicine, but made an honest assessment of the barriers and challenges that still exist today. I have read similar articles elsewhere that have focused solely on the former and failed to address the latter.

MARY H. HOHENHAUS, MD
Clinical Instructor of Medicine
Brown Medical School □

Cover: Professor Chip Lawrence's hat and foot photographed by Richard Howard

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BROWN MEDICINE

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Letter from the Dean



lence across the undergraduate-to-graduate continuum. Third and equally critical is the strategic coordination of our overall scientific agenda, a charge assigned to the Dean of Medicine and Biological Sciences in his capacity as chief academic officer of the Division. Designed with the active participation of the faculty, the Dean's strategic plan will aspire to comport with the clinical imperatives of our teaching hospital partners and with perceived scientific trends and breakthroughs. As such, the plan will inform hiring plans, fundraising, seed funding, joint space planning, and the purchase of high-end equipment.

\$95 million/173,000-square-foot wet lab research facility. Most importantly, Brown University and its Division of Biology and Medicine have been hard at work enhancing their human capital by recruiting new faculty of unassailable quality to the life and public health sciences. In this context, a total of 17 intra- and extra-divisional positions proscribed by the Plan for Academic Enrichment have been filled, with more to come.

No less important, early steps are under way to devise an enterprise-wide scientific strategic plan, one which strives to create a programmatically coherent whole involving both campus- and hospital-based faculty. Concurrently, and all but imminently, the ever-growing Program in Public Health will be united under one roof at the recently purchased Old Stone Square building at 121 South Main Street. If that was not enough, we are proceeding apace with yet-to-be approved plans to accredit and inaugurate a Brown School of Public Health by 2010.

As I have stated before, our vision is one of unity and collaboration, one that reaches out to our academic partners in the context of an enterprise united by educational, scientific, and clinical excellence. In a word, the growing prominence we all seek for our health and life sciences community is all about our collective ability to realize the vision of a strategically coherent and programmatically coordinated future. It is time for us to come together as a broadly anchored health and life sciences center, a biomedical complex that the state of Rhode Island can call its own.

Thanking you all for your ongoing support and hard work and wishing you a restful and an enjoyable summer.

With my very best wishes,

EM

MARY BETH MEEHAN

... And Soar We Will

Dear Friends,

HAVING JUST CROSSED THE ONE-YEAR anniversary milestone, it only seems appropriate that we reflect on the year that was and on the ones ahead. Transpiring against the backdrop of the Plan for Academic Enrichment and marked by unusual intensity, this last year saw the assemblage of a new leadership team, the systematic assessment of strengths and weaknesses, the design of a five-year plan focused on 2010, and the concurrent initiation of the execution thereof.

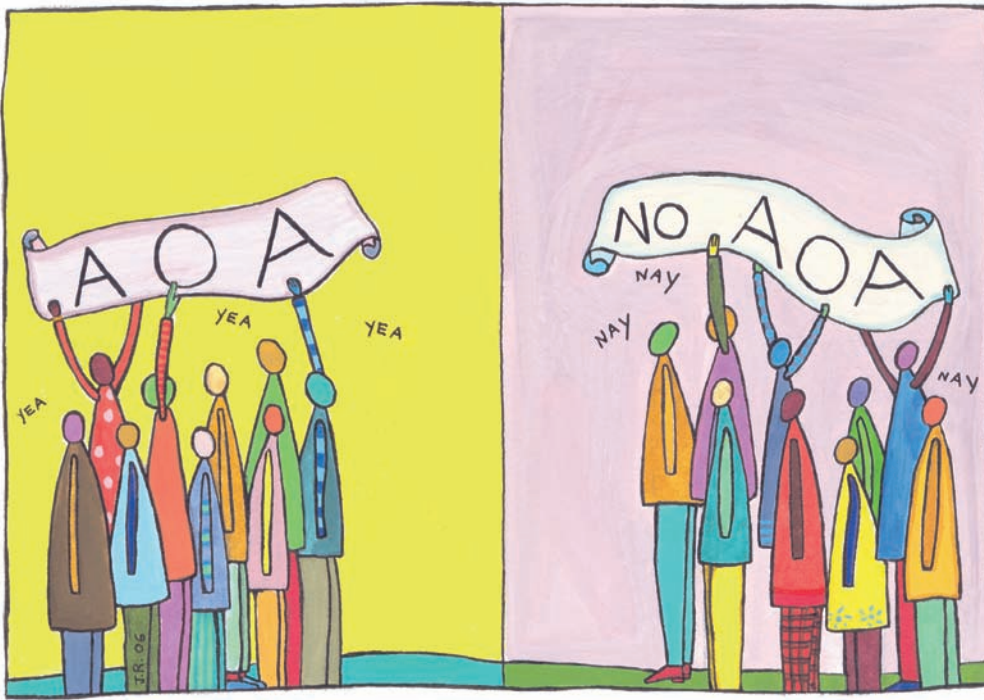
Our priorities are clear. First and foremost, and as I stated in my inaugural progress report, Brown's Division of Biology and Medicine and its academic partners must seek to leverage extant assets for the greater collective good. By that we mean consolidating functionalities in ways that make sense, toppling barriers that impede productive multilateral interactivity, and investing in initiatives which add value. Second, we must reaffirm our commitment to educational excel-

Just 30-something years young, and guided by the above precepts, Brown Medical School undertook to aggressively renovate its current educational spaces and to embark on the design of a new and innovative medical education curriculum with an eye toward crafting yet another Brown original. Worthy of Brown's long-standing and well-earned reputation of innovation in medical education, this 21st century construct takes a page from the undergraduate curriculum by introducing flexibility of design, modularity of assembly, and the option of early differentiation. Concurrently, early steps are being taken to modestly and gradually enlarge the size of the student body and to enhance its experiential diversity by way of the highly successful "standard" premed admission track. Not to be undone, our departments of Neuroscience and of Molecular Biology, Cellular Biology and Biochemistry are about to inaugurate the new Life Sciences Building, Brown's largest-ever capital project, a

Vitals

DEBATE

To AOA or Not to AOA



IT'S A DEBATE AS OLD AS THE MEDICAL SCHOOL ITSELF: DOES THE national medical honor society Alpha Omega Alpha belong at Brown?

"AOA is a program that is designed to serve and recognize medical students," says Dean of Medicine and Biological Sciences Eli Y. Adashi. "To the extent that AOA stands for excellence and rigor, it comports with the values of our students and their teachers."

In addition to recognizing scholastic achievement, invitations to join AOA also acknowledge leadership, community service, and other extracurricular activities. The administration sees AOA as a means of acknowledging the accomplishments of medical students and promoting their success to the world at large.

In recent months, steps have been taken to reactivate Brown's dormant

AOA chapter, which was chartered in 1999. A new councilor for the chapter was appointed, Associate Professor of Pediatrics Charlotte M. Boney, and students were invited to attend a meeting in early March with the stated purpose of "reintroducing" Brown's AOA chapter to the student body.

Because AOA chapters can exist without inviting new student members and are composed of faculty, residents, and fellows within the medical community who are AOA members from other medical schools, many students and alumni were unaware a chapter had been established at Brown.

According to Boney, the purpose of the March meeting was to educate

students about AOA and invite their feedback about what an active chapter might mean for Brown. "I think with any society where you are invited, but do not apply, there are a lot of misconceptions," she says.

At that meeting and in the time since, many students have expressed strong opinions against having an active chapter. Neel Shah '04 MD'08, president of the Medical Student Senate, was inundated with e-mail from students. He says the biggest, or "most emotional," outcry stemmed from students' feelings that they did not have a voice in the decision to reactivate the chapter.

Students were also unsure how it would affect them personally, as it appeared the process to begin inviting current third-year students was in motion.

"AOA is historically contentious

"AOA is contentious because of the idea of whether [it] fits within the 'ethos of Brown'."

because of the idea of whether AOA fits within the 'ethos of Brown' and our culture of collegiality and non-competition," says Shah.

Boney anticipated the students'

Vitals

concerns. "In talking with people at the national AOA office, the most common subject of discussion when any school entertains an AOA chapter is 'Will this make competition worse? Will this change the atmosphere we're in?' And now there's a lot of evidence that, no, it doesn't. Campuses that are more openly competitive are not worse, and campuses who see themselves as not very competitive—that doesn't change."

Still, students rejected that evidence, saying it did not apply specifically to Brown, because they feel that while they do compete, it is not at each other's expense.

"That's naïve on their part," Boney says. Although they are not ranked by a numerical GPA, "they are ranked within every course they take—who

"Campuses that are more openly competitive are not worse."

gets honors, who passes, and who fails. At graduation they are ranked ... there are awards given to the top female and male student, to the top student in each clerkship."

MATCH POINT

STUDENTS ARE ALSO CONCERNED about the effect AOA status will have on their residency applications. Shah says students fear that the most competitive residency programs use AOA membership as a screening tool to identify top students. If students are AOA, they automatically receive consideration, and if they are not, they are immediately disregarded.

"You need to have an absolutely outstanding academic record anyway," says Associate Dean for Medical Education Philip Gruppuso. He points to

orthopaedics as an example. "The reason such a high percentage of orthopedists are AOA is because their residencies are highly competitive and because they take people who excel academically, and people who excel academically are candidates for AOA."

Gruppuso says he does not anticipate AOA having an appreciable effect on the number of graduates who match with top residency programs. He and Boney both say that improving Match results was not part of the decision to reactivate the chapter.

While 25 percent of each third-year class is nominated by the faculty and by members of the chapter, only 16 percent are invited by AOA to join. Boney says that those in the top quartile who don't make the cut could be negatively affected when applying to highly competitive programs.

"Having AOA, to the degree that it can contribute to an emphasis on excellence, is something that can affect the entire culture in the Medical School in a positive way," Gruppuso says. "What I'd really like to see would be for the average performance of all our students to be better."

WEIGHING THE ALTERNATIVES

FOR NOW, BONEY AND GRUPPUSO WILL work with the student leadership to arrive at a mutually agreeable solution. One option on the table is proceeding with the reactivation and inviting students to join only in the spring of their fourth year. As Adashi described in an e-mail to students, "This would serve the dual purpose of precluding any potential impact on residency matching and on the perceived promotion of a competitive environment."

Both Boney and Gruppuso are open to that option.

"Do we value our excellent students and do we want to tell the world that Brown has excellent students? Yes," Boney says. "I think we need to understand their anxiety, but at the same time, really do what's best for them and for the School."

— KRIS CAMBRA



UPDATE

Fast Track

GIVEN HER RAPID-FIRE STRING OF discoveries, you might think Leslie Gordon, PhD MMS'91 MD'98 is trying to outrace the accelerated-aging disease known as Progeria Syndrome. This rare genetic condition is fatal and affects some 40 children in the world—including her son, Sam. Since establishing the Progeria Research Foundation in 1999, Gordon and fellow investigators have made great strides in understanding the disease and in exploring possible cures. In October 2003, she and a team of scientists identified the defective gene responsible for progeria, making it possible to use a blood test to screen for the disease. In 2005, she co-authored a study evaluating the use of certain cancer drugs as treatment. And in early 2006, she co-authored two reports in the *Proceedings of the National Academy of Sciences* describing how a mutant protein accumulates in blood vessel cells and impedes their growth or kills them. The reports shed light on progeria's progression as well as on human heart disease.

— SARAH BALDWIN-BENEICH

JESSICA DEANE ROSNER

STUDENT

Mother Knows Best

PEBBLE KRANZ '91 MD'07 OWNS UP TO her "mom" persona. "I notice the little, immediate hurts in people around me," she admits. Her caretaker tendencies go way back: in high school she was a peer counselor to troubled classmates, and later, as director of volunteers at Baltimore's Center Stage Theatre, she lent an ear to recent

help," Kranz says. "We consider ourselves healers and helpers but we're so resistant to healing and helping [ourselves]." Many students suffer through drug dependency, depression, and other illness in secret, fearing judgment or retribution. Such perceptions carry dangerous implications for the future. "I'd rather see a fellow student with a problem get helped now than in the future, when patient lives are at stake."

Last fall, Kranz coordinated the Northeast Conference on Student

"We consider ourselves healers and helpers but we're so resistant to healing and helping [ourselves]."

retirees on her team weaning themselves from the workforce. Today Kranz's efforts as co-chair of the Student Health Council follow a similar track: she's advocating for medical student mental health and wellness.

The Student Health Council provides confidential counseling and referrals for students in or on the verge of crisis. But too often these helping hands are ignored. "I'm frustrated with how infrequently medical students reach out for

Wellness, a full day of workshops and lectures where students in health professions gathered to exchange ideas about student mental health and wellness. She's also met with senior administrators to share her concerns and applauds individual efforts to effect change. "I hope for a more unified approach toward fostering student wellness. It needs to be on the forefront of all our minds."

— JUMOKE AKINROLABU



Pebble Kranz (center) encourages her peers to get the help they need.

COLLECTIONS

Bound to Last

PICTURED ABOVE IS ONE OF THREE books in Brown's John Hay library that are bound not in conventional leather, but in human skin. According to Samuel Streit in the Scholarly Research Department at the Hay, binding books in this way was a phenomenon of the 18th and 19th centuries that reflected both a burgeoning cultural interest in



human dissection and the life-and-death melodrama of the romantic era. A contextual relationship tended to exist between such books' subject matter—often anatomy or mortality—and skin bindings. Anecdotes from America and Europe suggest that the flayed skins typically came either from dissected cadavers or from the bodies of criminals whose punishment was meant to relate to the crime. One local story persists, however, of a voluntary skin donation from a colonial Massachusetts man who was sentenced to be hanged. As a cautionary tale, he expressed his wish that his skin be used to bind a book recounting the details of his trial.

— CHRISTINE MONTROSS MD'06

Vitals



Master machinist Ed Mullen has had a sea-level view of all 250 miles of the Narragansett Bay coast.

WHO KNEW?

To Sea by Kayak

SENIOR INSTRUMENT MAKER ED Mullen is quite comfortable maneuvering around obstacles. The master machinist has collaborated with scores of Brown researchers over the years to custom make instrumentation for various scientific experiments, technological tools which emerge solely from a scientist's vision. "Most of the things I make you can't buy," he says. "A scientist dreams something up from the fringes of their imagination, something that doesn't have a blueprint."

Mullen's talent for such precision and creative problem-solving plays into his private life as well. The veteran

kayaker has paddled the entire length of Narragansett Bay's craggy, 250-mile coastline. He began the trek as a novice, but by the end of four years, could navigate his 10-foot Walden kayak to the most remote sites, accessing islands that few had ever seen up close.

sport enthusiasts in mind. "It's not just for kayakers," Mullen points out. "It's a local where-to-go guide for fishing, snorkeling, [and] beachcombing." The book directs readers to launch sites he discovered in his travels, their GPS coordinates, and parking and driving

"Kayaking in Narragansett Bay" is a guide for all water sport enthusiasts.

Mullen shares his hard-won knowledge with others in "Kayaking Narragansett Bay," a self-published, 80-page guide written with all water

directions. The guide can be found at select sporting goods stores and bookstores, or by contacting Mullen directly at kayakri@cox.net. — J.A.

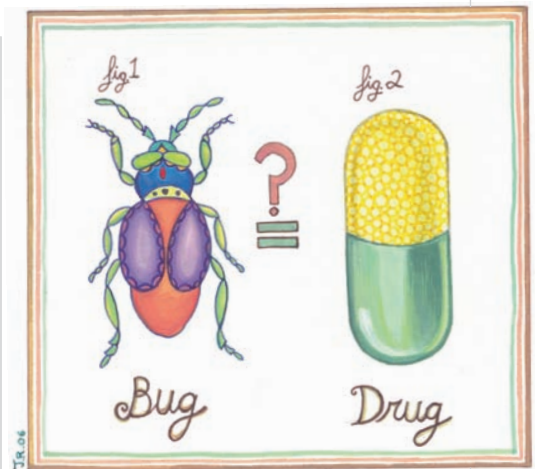
FINDINGS

Got Yogurt?

THE NEWEST ALLY IN THE FIGHT AGAINST HIV TRANSMISSION MAY BE the same bacteria found in yogurt and cheese. A study led by Assistant Professor of Medicine Bharat Ramratnam '86 MD'93 and recently published in the *Journal of Acquired Immune Deficiency Syndrome* has identified lactic acid bacteria as a promising delivery system for anti-viral drugs.

Ramratnam and his team found they could genetically engineer lactic acid bacteria to secrete cynovirin, a protein proven in lab studies to neutralize HIV, preventing it from entering cells in the mucous membranes. Ramratnam hopes the discovery will lead to the development of a topical drug that could be applied before sex. Preclinical trials of the treatment begin this summer.

— J.A.



MORAL COMPASS

Treat Me Right

THE TASK FORCE ON THE APPROPRIATE Treatment of Medical Students and Residents, formed in 2003, has developed a set of guiding principles for the Brown community. The preamble to those principles, approved by the Bio-medical Faculty Council, states that the goal of the community is "to enable each learner to achieve an education to his/her fullest potential" and that he/she should expect to "be treated appropriately and with dignity." Feedback should be "honest and constructive" and, when negative, "given privately and respectfully." In the case of inappropriate treatment, "learners must be able to communicate their concerns free from the fear of retribution."

Over the past year, members of the task force, which includes students, faculty, administrators, residents, and nurses, have met with faculty in every clinical department to raise awareness about mistreatment and to present these principles.

Headed by Chair of the Department of Obstetrics and Gynecology Donald Coustan, the task force arose from concerns over the percentage of students reporting mistreatment in nationwide surveys of graduating seniors in medical

schools throughout the country. Although Brown Med students continue to describe the Medical School environment as being extremely supportive, they also report incidences of perceived mistreatment at rates higher than the national average. In 2005, in answer to the question "Have you been personally mistreated during medical school?" 23.3 percent of Brown Med students replied yes, compared with 12.7 percent nationally.

Being mistreated is generally defined as being belittled, threatened, physically punished, required to perform personal services such as shopping or babysitting, or discriminated against because of race, gender, or sexual orientation. While there is no way of determining whether actual mistreatment takes place, "if a student perceives he or she has been mistreated, that in itself is bad," says Coustan. In addition to the immediate distress caused, mistreatment can have short-term consequences, such as a diminished ability to learn or provide good care, as well as long-term effects, such as depression, increased alcohol use, and perpetuation of mistreatment of students or patients.

Students on the task force also reported that there was dissatisfaction with the existing mechanisms for processing complaints about mistreat-

ment. Some students who believe they have been mistreated are not confident reporting it for fear of adverse effects.

As a result, the task force developed a new set of procedures for dealing with the problem. Depending on a student's willingness to be identified and on the degree of specificity with which the incident can be reported, a step-by-step guide now determines the procedure to follow. For example, if a student does not feel comfortable reporting mistreatment to someone in authority, such as a clerkship director or department chair, he or she will be able to approach a designated ombudsperson—one for each clinical department—for support and counseling. The procedures are guided by the students' need to be heard, and also by the right of the individual implicated to due process.

Students will find a useful tool in Oasis, the existing electronic reporting system for clerkship evaluations. The task force had a mistreatment category added so that "clerkship directors and chairs can monitor the situation in real time," says Coustan, "rather than finding out [about mistreatment] at graduation, when the students are surveyed."

The Guiding Principles can be viewed at http://bms.brown.edu/students/students_treatment.htm.

— S.B.B.

Vitals

STUDENT

Pedal Power

BRAD WEINBERG '03 MD'09 HAS GONE the distance—the 3,140-mile distance across China, from Shanghai to Korgaz—to raise awareness about autism, and he did it on a bike.

Inspired by “the greatest kid in the world,” his autistic 19-year-old brother, Weinberg raised \$10,000 for the Autism Society of America during his 46-day Bike Across China, which he modeled on Habitat for Humanity’s Bike and Build program. The first-year medical student traveled with a Chinese friend, stopping at schools and homes in eight cities.

“Biking is an interest of mine, and I wanted to wrap it into something good. This was a great way to see the country

and interact with people, and I wanted to see how autism is handled in China,” he explains. “I realized mental disabilities are highly closeted there. People are literally hidden in homes because of the stigma.”

Many of the Chinese he met knew nothing about autism or other mental disabilities.

“We started the conversation and got a lot of press coverage,” he says. “It was great to see the impact.”

Weinberg had spent a year working in Brown’s investment office after completing his undergraduate work, then trained for Bike Across China by biking through Italy. He also traveled through Egypt and Sudan observing health care, and this summer he plans to volunteer in India and the Himalayas.

Eventually Weinberg expects to remain close to home to explore a dif-



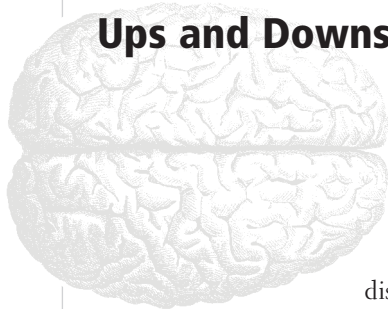
ferent frontier: the biochemistry of the brain, perhaps relative to autism.

“There are a lot of fascinating questions out there,” he says.

— MARY JO CURTIS

PUNCHLINES

Ups and Downs



IN A NEW STUDY BY RESEARCHERS at Brown Medical School and Bradley Hospital that appeared in the *Journal of Child and Adolescent Psychopharmacology*, bipolar

disorder was found to be far more prevalent in juveniles than previously

thought. A mania rating scale, the K-SADS, was applied to 391 consecutive admissions to a psychiatric inpatient unit. The results indicate that many cases of teen depression actually stem from manic depression. This wide application of a mania rating scale will lead to a more targeted treatment of depressed teens.

Can't Get Enough

THOUGH THE NATIONAL CENTER ON SLEEP DISORDERS research advocates nine hours of sleep a night for teens, only 20 percent get the recommended hours. This discrepancy, caused by the incompatibility of the body’s changing circadian rhythms and the demands of school schedules, leaves

teens sleep deprived and unable to function properly. Results include one in four teens falling asleep in class, sleepy drivers, and an increase in the risks of obesity, heart disease, diabetes, and infections, according to the widely reported findings of Professor of Psychiatry and Human Behavior Mary Carskadon, Professor of Medicine Richard Millman, and Associate Professor of Pediatrics Judy Owens.

Insulin and Alzheimer's

IN A RECENT STUDY THAT APPEARED IN THE *JOURNAL OF Alzheimer's Disease*, researchers at Brown Medical School and Rhode Island Hospital replicated the symptoms of Alzheimer’s disease by inducing diabetes in the brains of rats. The resulting neurodegeneration indicates that insulin is the key controlling factor in many of the symptoms of Alzheimer’s.

Protein Team Turn-on

STUDENT RESEARCHERS AT BROWN UNIVERSITY AND University of California-Berkeley have published a study in the *Proceedings of the National Academy of Sciences* demonstrating that two proteins, TAF4b and c-Jun, in conjunction turn on genes that control the production of cells that nurture developing eggs. This discovery could lead to the development of drugs for the treatment of infertility and ovarian cancer.

— ROSIE EMLEIN

COURTESY: BRAD WEINBERG; PEPIN PRESS

A DAY IN THE LIFE

Don't Leave Home Without Them

MOST TRAVELERS ENJOY BRINGING home souvenirs from sojourns in exotic locales—but not the kind that prompt a trip to the doctor's office.

Associate Professor of Medicine Maria D. Mileno, MD, and her staff at The Miriam Hospital's Travel Medicine Service specialize in tropical medicine and international health. Director of the service for 12 years, Mileno advises 1,500 to 2,000 people annually on strategies to stay healthy while traveling abroad.

"We see a wide variety of interesting people with all kinds of itineraries—those going into malaria regions for travel, work, and research," she says. "We see everyone from students, professors and business travelers, to missionaries and relief workers."

Mileno focuses on both prevention and education, particularly for malaria—a risk in Asia, Africa, India, and some parts of South America.

After taking a careful medical history from travelers, she tailors immunizations to their health history and medications, as well as to their destination, itinerary, and trip length.

"These are people who are well, not patients, but their immune status

she recommends they be vaccinated.

"Hepatitis B can be spread through medical care abroad involving needles or blood products, as well as through sexual contact," she says. To reduce risk of malaria, she tells them they "must prevent mosquito bites and be alert to fever symptoms even up to a year later."

On rare occasions Mileno has advised people to reconsider their travel plans because of health risks. One

High fevers can indicate malaria or typhoid; parasites can cause problems months after a trip; and skin problems may be a symptom of an STD.

is important [to know]," she explains. "There may be risks they're not aware of. They're just eager to go on an adventure."

Mileno makes certain her clients are knowledgeable about hepatitis B, and

newly pregnant woman postponed a family reunion in India.

"During pregnancy the risk for death from malaria is most significant, and there was also an outbreak of [bubonic and pneumonic] plague at the time," the doctor recalls. "I advised her she'd do better traveling with a newborn the following year."

Mileno is also called upon when travelers return home with mysterious symptoms. Many ailments—such as urinary and sinus infections—can be treated by a primary care physician, but sometimes serious illnesses can be mistaken for a flu or virus. High fevers can indicate malaria or typhoid; parasites can cause problems months after a trip, and skin problems may be a symptom of an STD.

As a specialist in infectious disease, Mileno also works with HIV patients at Miriam Hospital, teaches Brown medical students, and is associate editor of *The Travel Medicine Advisor*. — M.J.C.



Mileno (right) and Assistant Professor of Medicine Milu Kojic, pictured at The Map Center in Providence, are a good resource for globetrotters.

Clinic appointments are available Wednesdays, Thursdays, and Fridays or by special arrangement by calling (401) 793-4075.

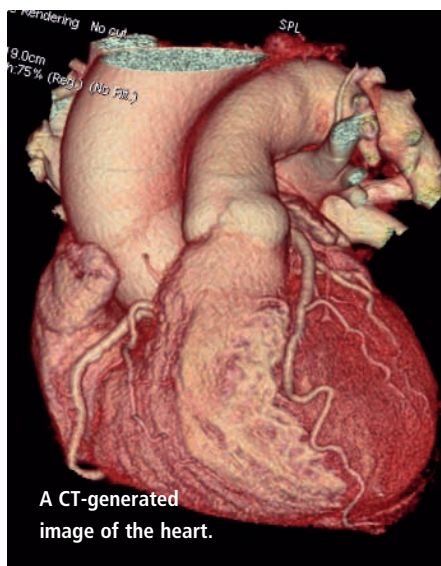
Vitals

TECHNOLOGY

Moving Images

THE PATIENT'S EKG PULSED BRIEFLY ON THE SCREEN. THE IMAGES TAKEN BY THE CT scanner flashed in rapid succession, replicating the flow of blood through his coronary arteries. Though unexpected, the news was good: his circumflex artery was only mildly blocked and coronary artery bypass would not be necessary.

Improved visualization of the heart and surrounding structures is one of the chief benefits of using computed tomography (CT) angiography and magnetic resonance imaging (MRI) for cardiac diagnoses. CT angiography, with its very high spatial resolution, is proving valuable for providing details of anatomy—including the non-invasive imaging of coronary artery disease. MRI is a powerful tool for imaging cardiac function and physiology.



show cardiac function. What's more, they have a high accuracy rate when compared with the gold standard, catheter angiography. "If the exam is normal and there's no evidence of disease, then there is a high likelihood that the patient does not have disease," Atalay explains.

CT scanning can be a noninvasive way of gathering more information before jumping to the riskier cardiac catheterization.

The technology makes it possible to obtain images with very high resolution, in short time. The key to acquiring clear images is synchronizing data acquisition with an electrocardiogram. Making three revolutions of the patient per second, the scanner is timed to collect data between heartbeats, when the heart is still.

In the past four or five years, MRI, too, has been used more often for diagnostic testing of the heart.

"It offers very high temporal resolution, so that we can see subtle motion abnormalities that may be missed with other techniques," according to Atalay.

Newer MRI machines have the ability to image dead heart muscle, a technique called viability imaging. Using a small dose of contrast, this technique shows scarring left by heart attack and the images can be an important prognostic tool. "If you see 50 percent or more of the heart wall is dead, then surgery or stenting will not restore function," Atalay says.

The Department of Diagnostic Imaging will expand its education program later this year, offering an elective in cardiac imaging techniques to radiology residents and cardiology fellows.

— K.C.



COMMUNITY

Library House Calls

RHODE ISLAND LIBRARY PATRONS will now have an easier time finding quality health information, thanks to a \$25,000 Consumer Health Information Grant from the National Library of Medicine.

Mary Ann Slocomb, director of Rhode Island Hospital's Peters Library, and Tovah Reis, Brown's Medical School librarian, recently coordinated six courses designed to help public, hospital, school, and university librarians guide patrons to the best sources on the Internet. According to national surveys, some 52 million Americans turn to the Internet today for health information.

"People go to Google, and that's not the best resource," says Reis, who notes search results often direct users to sites intended for medical professionals. "We showed the librarians it's best to use consumer sites such as Medline-Plus, which can be changed from English to Spanish with just one click."

Ninety-five librarians from across the state attended courses such as "From Snake Oil to Penicillin: Evaluating Consumer Health Information on the Internet." Participants also received packets of Medspeak, a consumer brochure issued by the Medical Library Association, and were advised of other available publications.

To visit Medline Plus, go to <http://www.nlm.nih.gov/medlineplus/>.

— M.J.C. □

Match Day



KATHY ANDERSON
PEDIATRICS

University of Hawaii
John A. Burns School
of Medicine, University
of Hawaii

ALKA BASIL

INTERNAL MEDICINE
McGaw Medical Center
Feinberg School of Medicine,
Northwestern University

STEPHANIE BEALL

OB/GYN
UCSD Medical Center,
University of California, San
Diego School of Medicine

ROBERT BECHER

SURGERY
Wake Forest Baptist Medical
Center, Wake Forest
University School of
Medicine

This Calls for a Toast!

AS THE GIANT CLOCK STRUCK NOON ON March 16, Andrews Dining Hall came alive with smiles and shouts of joy as 81 students learned where they would be heading for residency training. Associate Dean for Medical Education Phil Gruppuso and his group provided swinging jazz as members of the faculty and local alumni joined the assembly to wish the students well.

The top destinations were California and Boston—not to mention Providence, with 13 students accepted into Brown's own highly competitive residency training programs. The top two residency specialties were internal medicine and pediatrics, with surgery and emergency medicine tied for third.



MYRON ALLUKIAN
SURGERY

Hospital of the University of
Pennsylvania, University of
Pennsylvania School of
Medicine

ALEXANDER AMBY

FAMILY PRACTICE
Memorial Hospital of
Rhode Island, Brown
Medical School

ANDREW BECK

PATHOLOGY
Stanford University,
Stanford University School
of Medicine

ADAM BIER

ORTHOPEDIC SURGERY
UCLA Medical Center,
David Geffen School of
Medicine at University of
California, Los Angeles

Match Day

VANESSA TONEY BOBB

PSYCHIATRY
New York Presbyterian
Hospital, Weill Medical
College of Cornell University

ANTHONY BREU

INTERNAL MEDICINE
Beth Israel Deaconess
Medical Center, Harvard
Medical School

PERRY BRITTIS

RADIOLOGY
Beth Israel Deaconess
Medical Center, Harvard
Medical School

INTERNAL MEDICINE
(PRELIM)

St. Vincent's Hospital,
University of Massachusetts
Medical School

HANNAH AWAI

PEDIATRICS
University of Connecticut
Health Center, University of
Connecticut School of
Medicine

HEIDI BROWN

OB/GYN
University of Pittsburgh
Medical Center, University
of Pittsburgh School of
Medicine

PARAG BUTALA

SURGERY
Mt. Sinai Hospital, Mt.
Sinai School of Medicine

EMILY CARO-BRUCE

FAMILY PRACTICE
Swedish Medical Center,
University of Washington
School of Medicine

JAMES CARROLL

SURGERY
University of Massachusetts



Medical School,
University of Massachusetts
Medical School

CHARLES CHAN

ORTHOPEDIC SURGERY
SUNY at Stony Brook, State
University of New York-
Stony Brook

JEFFREY CHENG

ENT
Mt. Sinai Hospital, Mt.
Sinai School of Medicine

GRANT CHU

INTERNAL MEDICINE
UCLA Medical Center,
David Geffen School of
Medicine at University
of California, Los Angeles

ERICA CHUNG

PEDIATRICS
University of California,
San Francisco School of
Medicine, University of
California, San Francisco
School of Medicine

CHRISTINE COMBS

INTERNAL MEDICINE

Brown University Internal
Medicine Residency,
Brown Medical School

KEITH CORL

EMERGENCY MEDICINE
Rhode Island Hospital,
Brown Medical School

ANTONIO CRUZ

INTERNAL MEDICINE
(PRELIM)
Roger Williams Medical
Center, Boston University
School of Medicine

DERMATOLOGY

Rhode Island Hospital,
Brown Medical School

GREGORY DADEKIAN

INTERNAL MEDICINE
PRIMARY
Yale-New Haven Hospital,
Yale University School of
Medicine

GEOFFREY DOUGLAS

SURGERY
David Grant Medical Center
Program, David Grant
USAF Medical Center

STEPHEN FLYNN

PEDIATRICS
Children's Hospital of
Philadelphia, University of
Pennsylvania School of
Medicine

KATJA GOLDFLAM

EMERGENCY MEDICINE
Brigham & Women's
Hospital, Harvard Medical
School

SHAYLA GRAHAM-BROCK

FAMILY PRACTICE
Lehigh Valley Hospital,
Pennsylvania State University
College of Medicine

NICOLE GRENIER

DERMATOLOGY
Rhode Island Hospital,
Brown Medical School
INTERNAL MEDICINE
(PRELIM)

Brown University Internal
Medicine Residency,
Brown Medical School

JONATHAN GROSSBERG

NEUROSURGERY
Rhode Island Hospital,
Brown Medical School
SURGERY (PRELIM)
Rhode Island Hospital,
Brown Medical School

ANNA HAEMEL

DERMATOLOGY
University of Wisconsin
Hospital & Clinics,
University of Wisconsin
School of Medicine and
Public Health

ALLAN HANSEN

INTERNAL MEDICINE
(PRELIM)
UCSD Medical Center,
University of California,
San Diego School of
Medicine
EMERGENCY MEDICINE
Scripps Mercy Hospital,
University of California, San
Diego School of Medicine

AMANDA IRMEN

PEDIATRICS
National Naval Medical

— ELIZABETH YU '02 MD'06

"Allan [Hansen '02 MD'06] and I were thrilled to be able
to match together in California!"

Center, National Capital Consortium

BEVERLY JOHNSON
INTERNAL MEDICINE
PRIMARY

New York Presbyterian Hospital, Weill Medical College of Cornell University

CHRISTOPHER JUE
INTERNAL MEDICINE
Brown University Internal Medicine Residency, Brown Medical School

EDWARD JUNG
RADIOLOGY
NYU School of Medicine, NYU School of Medicine
INTERNAL MEDICINE (PRELIM)
Washington Hospital Center, Georgetown University School of Medicine

WOJIN KIM
SURGERY
Cedars-Sinai Medical Center, David Geffen School of Medicine at University of California, Los Angeles

MONICA KUMAR
EMERGENCY MEDICINE
Keck School of Medicine of the University of Southern California,

Keck School of Medicine of the University of Southern California
INTERNAL MEDICINE (PRELIM)
Brown University Internal Medicine Residency, Brown Medical School

FELICIA KUO
PSYCHIATRY
University of Massachusetts Medical School, University of Massachusetts Medical School

ANDY LAI
INTERNAL MEDICINE
PRIMARY
University of California, San Francisco School of Medicine, University of California, San Francisco School of Medicine

JENNIFER LEE
ANESTHESIOLOGY
Massachusetts General Hospital, Harvard Medical School
MEDICINE (PRELIM)

Lahey Clinic, Tufts University School of Medicine

JASON LEWIS
ANESTHESIOLOGY
Massachusetts General Hospital, Harvard Medical School

INTERNAL MEDICINE (PRELIM)
Brown University Internal Medicine Residency, Brown Medical School

ONNA LO
FAMILY PRACTICE
Sutter Medical Center of Santa Rosa, University of California, San Francisco School of Medicine

MOHSIN MALIK
DERMATOLOGY
Robert Wood Johnson Medical School, University of Medicine and Dentistry of New Jersey—Robert Wood Johnson Medical School
INTERNAL MEDICINE

(PRELIM)
Brown University Internal Medicine Residency, Brown Medical School
JYOTHI NAGRAJ MARBIN
PEDIATRICS-PRIMARY
University of California, San Francisco School of Medicine, University of California, San Francisco School of Medicine

AKANKSHA MEHTA
UROLOGY
Rhode Island Hospital, Brown Medical School
SURGERY (PRELIM)
Rhode Island Hospital, Brown Medical School

YASMIN METZ
INTERNAL MEDICINE
New York Presbyterian Hospital, Weill Medical College of Cornell University

KIMBERLY MILLER
TRANSITIONAL
University Health Center of Pittsburgh, University of Pittsburgh Medical Center
OPHTHALMOLOGY
Western Pennsylvania Hospital, Temple University

CHRISTINE MONTROSS
PSYCHIATRY
Brown University Psychiatry Residency, Brown Medical School

FERNANDO MORENO
FAMILY PRACTICE
Jamaica Hospital Medical Center, Mt. Sinai School of Medicine

KATHERINE MORENO
SURGERY (PRELIM)
University of Washington, University of Washington School of Medicine

— JYOTHI NAGRAJ MARBIN '96 MD'06

“I am so excited about my match—it is exactly what I was looking for in a residency program! My husband and I are happy to be moving to San Francisco!”



LUCAS FOGLIA (2)

Match Day

— STEVE FLYNN '01 MD'06

"I'm so excited to be going to CHOP because it offers limitless opportunities in pediatric education, and the people there are terrific."

JEFFREY OGBARA

INTERNAL MEDICINE

Hospital of the University of Pennsylvania, University of Pennsylvania School of Medicine

URVI PAJVANI

DERMATOLOGY

Strong Memorial Hospital, University of Rochester School of Medicine and Dentistry

INTERNAL MEDICINE

(PRELIM)

University of Illinois College of Medicine, University of Illinois College of Medicine

ANDREA PARADA

RADIOLOGY

Hospital of the University of Pennsylvania, University of Pennsylvania School of Medicine

TRANSITIONAL

University of Texas Medical Branch-Galveston, University of Texas Medical Branch-Galveston

CHARLES PARK

SURGERY

University Hospital of Cincinnati, University of Cincinnati College of Medicine

STANLEY PELOSI

ENT

Mt. Sinai Hospital, Mt. Sinai School of Medicine

LESLIE PHAM

OPHTHALMOLOGY

University of Iowa Hospitals & Clinics, University of Iowa Carver College of Medicine

TRANSITIONAL

Presbyterian Medical

Center, University of Pennsylvania Health Systems

MICHAEL PIROZZI

INTERNAL MEDICINE

University of Utah Affiliated Hospitals, University of Utah School of Medicine

JESSE RITVO

FAMILY MEDICINE

Fletcher Allen Health Care, University of Vermont College of Medicine

THERESA ROSS

INTERNAL MEDICINE

Naval Medical Center-San Diego, Naval Medical Center-San Diego

PRIYA SATEESHA

INTERNAL MEDICINE

PRIMARY

Mt. Auburn Hospital, Harvard Medical School

LEAH SCHERZER

PEDIATRICS

St. Christopher's Hospital for Children, Drexel Medical School

CHERYL SHANNON

INTERNAL MEDICINE

University of Utah Affiliated Hospitals, University of Utah School of Medicine

SHIRIN SIOSHANSI

RADIATION-ONCOLOGY

New England Medical Center, Tufts University School of Medicine

TRANSITIONAL

John Peter Smith Hospital, University of Texas Southwestern Medical Center

ERIN SMITH

EMERGENCY MEDICINE

Harbor UCLA Medical Center, UCLA School of Medicine

HILARY SMITH

PEDIATRICS

Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine

SARAH SQUIRE

RADIATION-ONCOLOGY

Wake Forest Baptist Medical Center, Wake Forest University School of Medicine

INTERNAL MEDICINE

(PRELIM)

East Tennessee State University Program, Quillen College of Medicine

COLIN STACK

EMERGENCY MEDICINE

Beth Israel Deaconess Medical Center, Harvard Medical School

ERIN TEEPLE

ORTHOPEDIC SURGERY

Rhode Island Hospital, Brown Medical School

REBECCA TRAUB

NEUROLOGY

New York Presbyterian Hospital Program, Columbia University College of Physicians and Surgeons

INTERNAL MEDICINE

(PRELIM)

New York Presbyterian Hospital Program, Columbia University College of Physicians and Surgeons

STEPHANIE TUTTLE

PSYCHIATRY

Walter Reed Army Medical Center, National Capital Consortium

UZOMA UKOMADU

ORTHOPEDIC SURGERY

Martin Luther King Jr.

Drew Medical Center, Charles R. Drew University of Medicine and Science

SNIGDHA VALLABHANENI

INTERNAL MEDICINE

University of California, San Francisco, University of California, San Francisco School of Medicine

SIMMY VARGHESE

INTERNAL MEDICINE

Oregon Health & Science University, Oregon Health & Science University

DANIEL VAZQUEZ

SURGERY (PRELIM)

University of South Florida College of Medicine, University of South Florida College of Medicine

ANN WALLING

PSYCHIATRY

Cambridge Hospital, Harvard Medical School

MELANIE WATTS

EMERGENCY MEDICINE

Brigham & Women's Hospital, Harvard Medical School

CATHY CLARKE WELLS

RADIOLOGY

Beth Israel Deaconess Medical Center, Harvard Medical School

INTERNAL MEDICINE

(PRELIM)

Griffin Hospital, Yale University School of Medicine

CYRUS YAU

MEDICINE-PEDIATRICS

University of Medicine and Dentistry of New Jersey-Newark, University of Medicine and Dentistry of New Jersey

ELIZABETH YU

PEDIATRICS

UCSD Medical Center, University of California, San Diego School of Medicine





John Marshall, with a neuron projected behind him, is trying to protect your brain cells.

Nicotine Fix

THERE ARE A THOUSAND CANCER-CAUSING CHEMICALS IN cigarettes, but one compound—nicotine—might actually be good for the brain.

For years, researchers have observed a markedly decreased incidence of Alzheimer's and Parkinson's disease in smokers. Nicotine has also been shown to enhance learning and memory, helping people with attention deficits stay focused. But what's behind these phenomena?

Professor of Medical Science John Marshall wants to know. His lab focuses on neuroprotection—that is, helping neurons stay alive, particularly under adverse conditions in the brain. Marshall says scientists have been studying nicotine, a chemical that in low doses is actually quite harmless and seems to exhibit neuroprotective qualities.

"There's a lot of interest now in nicotine as a therapeutic agent. Nicotine can actually promote the survival of neurons. But what are the molecular mechanisms? Why is it having these effects?" Marshall says.

He and his colleagues have observed that nicotine behaves similarly to insulin-like growth factor (IGF), a protein involved in the response of cells to growth hormone. By studying growth factors critical to neuronal development, they found that IGF regulates the activity of calcium channels. These ion, or L, channels in the membrane allow calcium to enter the cell in response to electrical activity. Marshall's research indicates that nicotine may act on these channels, as well.

"Calcium channels appear to be very important for keeping neurons alive," Marshall explains. "But, there is actually an optimal level of activity for these calcium channels."

Too much calcium can lead to neuronal death, and that can happen in cases of epilepsy or stroke. Keeping the right balance is essential for survival.

Nicotine binds to acetylcholine

Back to Basics

receptors in the cell membrane, and appears to regulate the L channels. That L channel activity is required for the upregulation, or increase, of proteins linked to neuroprotection.

In that way, nicotine can actually protect the neurons from insults. Take, for example, a stroke situation. As neurons begin to die, they release glutamate, a neurotransmitter essential for cell-to-cell communication. Too much glutamate, however, can lead to neuronal death resulting in severe cognitive and motor deficiencies in the victim. Nicotine seems to be protective, Marshall says, decreasing the amount of death produced by glutamate.

NO BUTTS ABOUT IT

MARSHALL WARNS THAT JUST BECAUSE nicotine might be good for your brain cells, it's no reason to light up. "Cigarette smoking is incredibly bad. Nicotine itself is quite safe."

Long-term studies are needed, though, he says, in order to understand the mechanisms in play. The goal is to develop interventions that would regulate the ion channels in the same way, interrupting the sequence of cell death and protecting the neurons. The role of nicotine is just one piece of the larger puzzle surrounding these channels, and Marshall and colleagues are trying to understand how they work in the hope of developing new drug therapies.

"In that regard," says Marshall, who is based in the Department of Molecular Pharmacology, Physiology, and Biotechnology, "we've been very interested in these glutamate receptors."

One of their successes has been developing new peptide drugs that decrease the activity of one glutamate receptor, which factors in the degeneration of neurons in epilepsy. Results of this work, done in collaboration with Dr. Dale Mierke at Brown and a colleague at Wayne State in Michigan, have shown that these drugs protect the neurons when they are overstimulated.

— KRIS CAMBRA

Close Up

To Do: Fix Haiti

A MONTH AFTER WILFREDO PÉREZ '08 MD'12 ENTERED POSH Northfield Mount Hermon boarding school, the kid in the room next door got a helicopter for his birthday. Some of the students there didn't blink an eye, but Pérez was shocked. Maybe that's because he spent some of his own birthdays without a home to call his own.

That sort of culture clash has marked Pérez's journey from poverty and homelessness to Mount Hermon to Brown. But it's never stopped him. In fact, it's revealed in him an uncanny knack for relating to all sorts of people and for adapting to any situation he finds himself in.

FEET FIRST

IT WAS WHILE LIFEGUARDING THAT Pérez first saved someone's life. He'd applied for the job at a nearby theme park because he needed to earn some money and he thought lifeguarding would help him overcome his paralyzing fear of water. One problem: he didn't know how to swim.

That didn't keep him from applying. As he stood in line with other lifeguard hopefuls taking the 500-meter swim test, Pérez watched how the swimmers before him moved their arms and legs.

"Then I jumped in. I don't think I was doing it right at first ... I looked over at the person next to me and how they were curving their arms," Pérez says, laughing at the memory. "All of this was happening so fast in my head and all of a sudden, I just got it going and I did the 500 meters." He got the job.

You could say Pérez approaches life much like the swim test—jumping in with both feet, confident he's smart enough to figure it out.

Now 19, Pérez grew up in New Hampshire and Massachusetts with his mother, younger sister, and brother. His mom was 15 years old when he

was born; his father left when he was a baby. The family moved 40 times throughout Pérez's childhood, and by the time he reached high school, he had attended 12 different schools. The only constant in his life was poverty.

Finally, the family settled in Northfield, Massachusetts, a small town near the Vermont border, and Pérez was thriving at the local high school. He joined a number of clubs, made friends, and was selected to be part of Upward Bound, a program that

helps minority students prepare for college. Through Upward Bound, he was offered a full scholarship to Northfield Mount Hermon. Reluctantly, he left the public school he was coming to love and treaded, once again, into unknown waters.

Pérez immersed himself in activities and in his courses. He became the first person in his family to graduate from high school. "I clung to it ..." says the slight, baby-faced Pérez. "I was getting a chance to have all these awesome experiences."

Yet even as he was living at the posh private school, his family once again became homeless. His friends, it seemed to him, had nothing to worry

about except schoolwork. He remembers getting upset when they would complain about the pressures of school. "I just wanted to say 'Can you imagine doing this when you know your mother is sleeping in a car tonight?'"

Though Pérez considered leaving school to get a job to help his family, or perhaps even just to stand in solidarity with them, he was talked out of it by a wise school counselor and also by his mother. "It would have hurt her more than helped," he says. "She would've felt it was her fault that I lost this chance."

OPERATION HAPPY BIRTHDAY

PÉREZ IS NOT EXACTLY SURE WHY HE was selected for the PLME from thousands of worthy applicants, but he thinks it might be because of Operation Happy Birthday. The idea stemmed from his belief that many of the world's problems—including homelessness—can be solved if people just feel that they are worth something.

"Can you imagine doing this when you know your mother is sleeping in a car tonight?"

As a student at Mount Hermon, he started Operation Happy Birthday, an organization that holds birthday parties for kids in homeless shelters.

"Birthdays were always the worst days of my life," he says. "[W]e need to recognize these kids, let them know their lives are still worth celebrating."

Pérez has continued Operation Happy Birthday at Brown, enlisting some 60 volunteers from the school and from Johnson & Wales University. Students from the JWU culinary arts program volunteer to bake the cakes. And now, "OHB" has captured the attention of local philanthropists who are helping him turn it into a full-fledged non-profit organization.

Pérez takes his white coat for a spin.



The mission of the organization has broadened, and OHB now offers mentoring and tutoring services for adolescents living in group homes in Providence.

DANCING IN CIRCLES

WHEN NOT HEADING UP OHB, VOLUNTEERING interpreting services at the Rhode Island Free Clinic, or doing schoolwork for his double concentration in Hispanic studies and community health, Pérez can be found dancing, either practicing or competing with Brown's ballroom dance team. Of course, when he signed up for the team at Student Activities Day his first semester, he'd never taken a dance class in his life. In characteristic fashion, he soon moved up from

the beginner's class to the competition team.

Despite these successes, however, college life has not magically wiped away Pérez's problems. "That's the thing ..." he says, casting his deep-set brown eyes downward, "people think just because I'm at Brown all of that is behind me, but I'm still in the process of getting my life together."

Like many students, Pérez's first year was tough, says his advisor, Dr. Mercedes Domenech. "All of these students are so bright," she says. "They all come here as valedictorians and once they're here, they are just one among many valedictorians."

Under the best circumstances, the transition from high school to college is stressful and challenging. But for

someone like Pérez, the stress was coming from home and from school. During his freshman year, his sister attempted suicide. Just 10 months older than she, Pérez says he has been like a father figure to her. Their sibling bond was inextricably woven with threads of shared pain and disappointment. "She told the doctors, 'It's so much easier to be dead than to struggle every day of your life,' and she's right," he says.

Once again, pangs of guilt for not being there overwhelmed Pérez. But this time, instead of wanting to rush home, the incident strengthened his resolve. "I need to fight this ... I'm suffering just as much as my sister, but she needs to have someone to look up to."

Then, his mother, just 35 years old and already chronically ill with dia-

Close Up

betes, was diagnosed with cancer. After surgery last summer, she's cancer free, but Pérez seems guardedly optimistic.

In a crowded café on the Brown campus where he sits talking with a visitor, his cell phone lights up. It's his mom. "She needs help with her homework," he says, smiling. His mother earned her high school diploma and attends college with the hope of eventually going to law school. "If all goes according to plan she'll become a lawyer just as I become a doctor."

THE LIST

PÉREZ SPEAKS CANDIDLY, UNHESITATINGLY about his past, but at the same time wants to guard his family's privacy. He doesn't want to be known at Brown as "another Hispanic kid who fell through cracks but pulled himself up" he says. He's finding, though, that sharing his experiences is helping him scratch off entries on his "Lifetime To-Do List."

One of them was meeting President Bill Clinton; he did that when Clinton spoke at Brown last year. He also wanted to meet another president: Ruth J. Simmons. Simmons, the daughter of sharecroppers in rural Texas, rose through the ranks of academia to become the first African-American president of an Ivy League university. Pérez turned down a free ride at



Pérez met his idol, Paul Farmer, when he was on campus to deliver a lecture this winter.

at the gala event launching Brown's \$1.4-billion campaign, Pérez hushed the crowd with his story.

"I have been homeless, have gone hungry," he told the audience, "have witnessed a world where mothers cry themselves to sleep because of all that is going wrong that they wish would go right."

Simmons took the stage and embraced him tightly. Two down.

MOVING MOUNTAINS

NUMBER ONE ON THE FUTURE DOCTOR'S list is a short sentence for a tall

odyssey in Haiti, as gifts—two of them signed by the author. It's more than coincidence. People who know Pérez know he will be "that" kind of doctor.

"Will does well with people at all levels," says Jill Luxenberg '08, a close friend of Pérez's who is now volunteering for Operation Happy Birthday. "He will work in an urban setting, with real people with real problems and not say 'oh, no, that's too sad' or 'it's too hard' ... He has that coming in and that's something other people here have to learn."

"I always enjoy meeting with Will," says Domenech. "He is so full of energy and ideas."

Pérez rattles off some of the remaining items on his list, omitting some that he says, looking sideways, "... are personal, for my family." They range from the poignant—buying his mom a home of her own—to the practical—starting an SAT prep fund at his old school for students like him.

Some of his goals, like becoming the first Hispanic president of the United States, you might dismiss as adolescent whimsy if you were talking to just any 19-year-old. But coming from Will Pérez, you get the sense that it's only a matter of time.

— KRIS CAMBRA

"I always enjoy meeting with Will," says Mercedes Domenech. "He is so full of energy and ideas."

Bowdoin for a spot in the PLME, in part, because of Simmons's story—he sensed that Brown could offer the kind of support he knew he would need.

He finally met her for the first time last October, on a stage in front of 600 people. Selected to introduce Simmons

order: "Fix Haiti." Like his inspiration, Dr. Paul Farmer, Pérez has an interest in infectious disease and hopes to help the Caribbean nation ravaged by AIDS. He says he's received four copies of Tracy Kidder's *Mountains Beyond Mountains*, the story of Farmer's

Is Medical School for You? Take It for a Test Drive.

NEEL SHAH '04 MD'08 THOUGHT HE MIGHT LIKE TO ATTEND BROWN and then go to medical school when he decided to enroll several years ago in the University's Summer and Continuing Studies program "So You Think You Want to be a Doctor."

"The course presented an opportunity to explore both," says Shah, now a second-year medical student and president of the Medical Student Senate. Last summer he was a teaching assistant to class instructor Dr. Tariq Malik, clinical assistant professor of medicine. "When I was a pre-med student in college, I had an image of

medical school in my head that I could work toward. ... (The course) was one of the many factors that influenced my decision to matriculate to Brown."

According to Malik, the summer course—which has drawn numerous applicants to Brown Medical School—gives high school juniors and seniors

a three-week version of medical school, from anatomy classes and trips to the cadaver lab, to visiting operating rooms and doctors' offices. It's no small task, he admits, for both the instructors and the students to handle so much in such a short span.

"Students experience the hospital environment through various departments, clinics, and the emergency room, and they have classes with medical school professors and lectures that aren't all that different from what medical students have," he says. "It's a challenge to give lectures at a level they can understand, especially since the material is no different."

Some 78 American and international students from China, Japan, Hong Kong, and Singapore participated last summer in the decade-old course. In addition to their classes and clinical work, they learned to use the medical library for research and visited the museum at Rhode Island School of Design. The latter provided lessons in the art of observation.

"If they can divine what an artist was trying to show, they'll have more acute observation abilities when they see patients," explains Malik. The instructor admits to putting his students "through the mill" with days that began at 7 a.m. and lasted until 5 p.m.—unless they had to spend the evening in the library.

"We made sure they had breakfast and a full stomach so they wouldn't pass out later in a lab—and that has happened," he says. "They didn't just come here for a good time. They worked hard."

Although Malik has occasionally encountered students who discovered they didn't want to be doctors after taking the course, Shah found it solidified his plans to attend Brown and study medicine.

"The course demystified medical students and academic physicians," he says. "Sitting in the [Biomedical Center] every day made medical school more tangible." — MARY JO CURTIS

JOHN ABROMOWSKI



Students get some hands-on experience.

Essay

BY CHRISTINE MONTROSS MD'06

Mixed Emotions

Sometimes a family needs counsel even more than compassion.

I HAD BEEN WORKING IN THE HOSPITAL WARDS ONLY TWO WEEKS when I had my first reaction that was charitably described as “ineffectual” by the senior resident teaching me. The very first patient who was ever assigned to me for (carefully supervised) care was a 52-year-old man with lung cancer that had metastasized to the brain, who came to the hospital with increasing leg weakness. The patient, Mr. C., had recently completed a massive series of radiation treatments to the head; for now, scans of the brain showed no tumors. He was ecstatic about that recent news. In the emergency room with his sister and teenage daughter, he was in good spirits, purely anxious to have us tell him that his weakness was a temporary side effect of treatment, and send him home.

In fact Mr. C. was admitted to the hospital, where he stayed under my care for nine days. One by one, the senior physicians, residents, and I ruled out potential causes of the leg weakness. It was possible that his spinal cord was being compressed by a new tumor, but the MRI showed no such growth. Perhaps the steroids that he was taking to slow the cancer were causing the change, but tapering down

the dosage of prednisone had no effect. We consulted neurologists and oncologists, and in the meantime, Mr. C. stopped being able to move his bowels. He suddenly had excruciating pain in his abdomen and a spike in the number of his white blood cells. A new scan of his belly showed uncharacteristic brightness in part of his small intestine, suggesting that the blood to a portion of his bowels had been occlud-

ed and his intestines in that area could be infected at best, or rotting at worst. A surgeon was consulted, but by now Mr. C's pulse and blood pressure were out of the range considered safe for surgery. In addition, he and his family, so recently celebrating the news of his cleared brain metastases, were now questioning how much sense it made to undergo major surgery in light of these new and multiple problems.

By the eighth hospital day, Mr. C's abdominal pain was so bad that he had to be heavily medicated; he had moments of lucidity, but was terrifically fatigued and sedated. It was at this point that the oncologist came to speak to Mr. C and his family about their diminishing options, which now included the possibility of having to keep Mr. C alive at all costs, even if it meant being hooked up to a ventilator or defibrillated. The alternative was a less aggressive solution which would essentially ease Mr. C's transition toward death.

The oncologist had encouraged me to take an active role in the conversation, and my senior resident, who had cared for Mr. C on many occasions over the course of his illness, accompanied us, and agreed that the purpose of my clinical training was in part to

become comfortable in circumstances like these. I knew all three of Mr. C's sisters by name and knew his three young daughters as well; I also had studied the case closely over the last eight days, and so felt like the discussion was a natural one for me to begin. I explained to the family and Mr. C, who was drifting in and out of the conversation, that we perceived Mr. C's body to be failing. I tried as best I could to explain the options that were available and the decisions which had to be made. The resident and oncologist gently entered into the conversation at times to clarify questions that the family members had, and then stepped back, indicating that I should continue. When I reached the end of the explanation, there was a long stretch of quiet, with all six women crying.

Finally, the eldest daughter, 22, whom her father had designated to be his power of attorney and therefore make decisions like these, lifted her head, and through her tears, earnestly asked me, "If this were your father, what would you do?"

I began to cry. Not an audible or sobbing cry, but a cry that made my voice quiver as I tried to respond. "It's difficult..." I began to stutter. Before I could continue in the midst of my emotion that had now gotten mixed with hers, the oncologist stepped right in front of me, and began to speak calmly of the reality of the situation in either option, of the strong and real feelings that would naturally and rightly accompany any such decision. He reviewed the objective facts of each option, gently fielded questions from anyone who asked them, and exuded a calm compassion. All the while, he gently steered the family toward a decision.

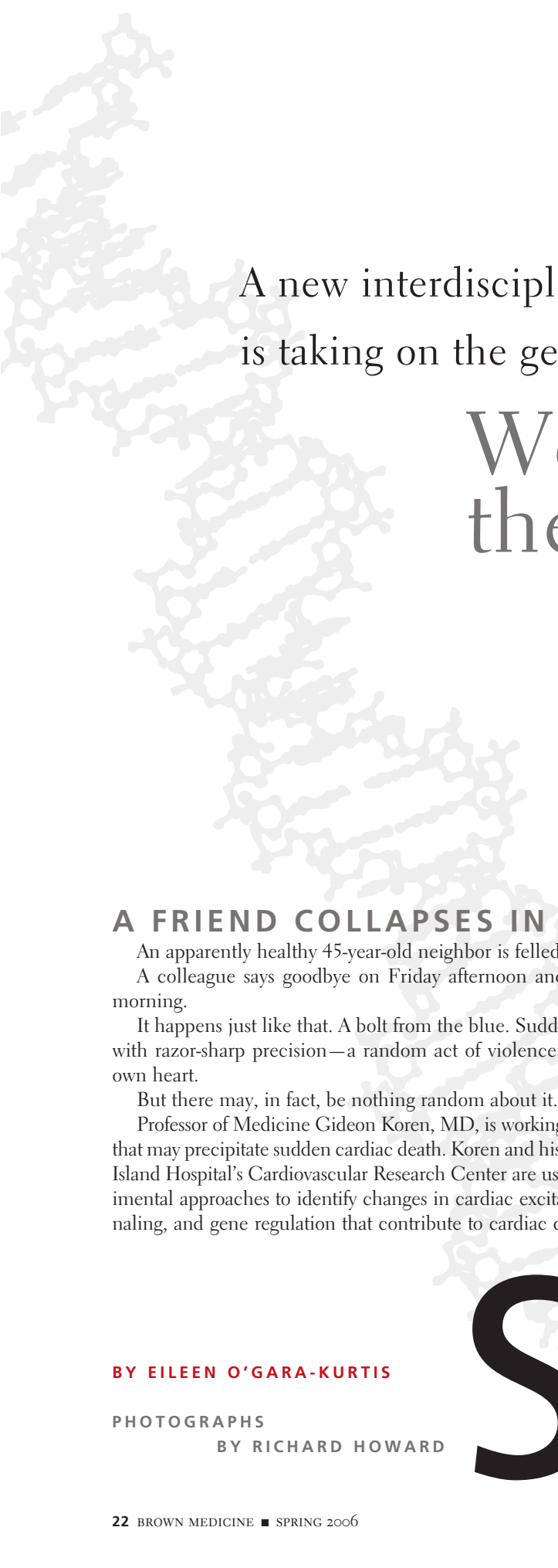
As I stood in the recesses of Mr. C's room watching the oncologist speak with simultaneous warmth and professional distance, I realized that when the daughter asked me what I would do, she needed most for me to be



clear. This situation demanded professional clarity in the midst of personal turmoil; the oncologist's ability to mix true caring with an unflinching focus on the necessary decision prevented the daughter from becoming paralyzed. My own uncontrolled emotion and confusion when she posed the question to me only contributed to her feelings of helplessness and uncertainty.

The lesson of how to balance empathy with medical guidance was not in any of my textbooks, but it would be one of the most critical skills for me to try to master before becoming a doctor. □

Christine Montross MD'06 is writing a book about the history of anatomy and her own experience of dissecting a cadaver.



A new interdisciplinary center at Brown
is taking on the genome.

Welcome to the revolution.

A FRIEND COLLAPSES IN YOGA CLASS.

An apparently healthy 45-year-old neighbor is felled on his morning run.

A colleague says goodbye on Friday afternoon and doesn't live to see Monday morning.

It happens just like that. A bolt from the blue. Sudden cardiac death kills quickly, with razor-sharp precision—a random act of violence unleashed from within one's own heart.

But there may, in fact, be nothing random about it.

Professor of Medicine Gideon Koren, MD, is working to identify genomic processes that may precipitate sudden cardiac death. Koren and his team of investigators at Rhode Island Hospital's Cardiovascular Research Center are using a broad spectrum of experimental approaches to identify changes in cardiac excitation and contraction, cell signaling, and gene regulation that contribute to cardiac disease. Sudden cardiac death,

CCMB Professors
Lawrence (left) and
Istrail pause in their
quest to harness
the genome.

BY EILEEN O'GARA-KURTIS

PHOTOGRAPHS

BY RICHARD HOWARD

SPEED



MATTERS

MANIFESTING THE INVISIBLE

AMONG KOREN'S GOALS IS THE COMPLETION of genome-wide searches, within different species, to identify genes associated with heart disease and sudden cardiac death—the so-called “repeat offenders.” It's a behemoth task, requiring sophistication in bioinformatics as well as a broader understanding of the scientific and clinical implications of the work.

To secure the necessary expertise, Koren recruited Professor of Computer Science Sorin Istrail, who is also a professor at Brown's new, interdisciplinary Center for Computational Molecular Biology (CCMB), to his team.

“[This work] takes you down to the same [cellular] level where disease happens—it moves us into the quantitative, predictive biology, away from the quali-

“The confluence around clinical programs, experimental research, bioinformatics, and [computer] modeling gives us the four pillars of truly cutting-edge science.”

which accounts for about half of cardiovascular death worldwide and is the leading cause of death in Rhode Island, is at the center of Koren's research. A diverse team of colleagues—including clinicians, laboratory-based researchers, and computer scientists—contributes to the work.

“The confluence around clinical programs, experimental research, bioinformatics, and [computer] modeling gives us the four pillars of truly cutting-edge science, and creates the potential to build a powerhouse for the study of sudden cardiac death,” says Koren. “There is no way that one scientist alone, thinking about the problem, can have all the skills to solve it.”

tative world of biology without genomic sequence,” says Istrail, who came to Brown in 2005 from Celera Genomics, which had famously decoded and sequenced the human genome four years earlier. “We have such an opportunity to bring genomics to the bedside.”

There was a sense of urgency in the air at Celera, he recalls, as scientists raced to discover the secrets of the genome. “It was a tremendous time in our lives. The world was alive.”

“Something at Brown is very similar,” Istrail adds. “The best students. The best colleagues. Passion for working on the hardest problems.”

Istrail's decision to leave Celera for academia had a lot to do with teaching—he's part of a team developing new undergraduate and graduate courses, including a graduate curriculum in Computational Molecular Biology, and is actively working with students on research projects—as well as an opportunity to join colleagues from a broad range of disciplines in creating something new.

In addition to his own research on gene regulatory networks, genetic basis of disease, and protein folding, he's working with Professor of Pathology and Laboratory Medicine Murray Resnick, MD, and Assistant Professor of Pathology and Laboratory Medicine Edmond Sabo, MD, to develop a quantitative assessment of tumor cell morphology that will assist in diagnosis and treatment decisions. And he has developed a new course, Medical Bioinformatics, to give medical students an introduction to computational biology and bioinformatics with applications to the genetic basis of cancer and heart disease.

For Istrail, the work is not theoretical. He lost his father to cancer. “I have a personal vendetta against this disease.”

“Speed matters,” he says. “Speed matters.”

NEW PARTNERSHIPS FOR A NEW AGE

THAT ETHOS—VISIONARY, ENTREPRENEURIAL, interdisciplinary, passionate—defines the Center for Computational Molecular Biology.

Brown established the CCMB in 2005 on the strength of a \$20 million gift. Its mission: to advance research that will apply the data-processing tools of computer science, mathematics, and statistics to the challenge of navigating the vast sea of new biological information unleashed through the sequencing of genomes for humans and other species over the past decade.

The research—involving scientists working in such diverse fields as computer science, applied math, physiology,



biotechnology, and several disciplines within biology—will generate key insights into the deep biological processes that control normal functions, as well as those that cause illness.

“This generous and visionary gift highlights the University’s unique strengths in developing multidisciplinary programs,” said President Ruth J. Simmons in announcing the launch of the Center. “Computational molecular biology is a young and rapidly developing field in which Brown University will play a significant national role.”

The new Center builds on Brown’s tradition of nurturing multidisciplinary research and learning; its strengths in genomics, as demonstrated in the work of Professor of Medical Science John Sedivy and his colleagues at the Center for Genomics and Proteomics; and on its strength in computational biology. The University was the first institution in the nation to offer a baccalaureate degree in the field when it launched its undergraduate program nine years ago, under the leadership of Professor of Computer Science Franco Preparata, Professor of

Biology David Rand, and Professor of Chemistry William Suggs. More than 30 students have graduated from the program since then.

The design of the CCMB is also congruent with a more global trend toward blending of disciplines throughout the scientific community, says Assistant Vice President for Research Initiatives Pamela O’Neil, PhD ’91, who had previously served as a program director at the National Science Foundation. “Interdisciplinary research pushes fields forward, and it’s now easier to get funding when that kind of approach is demonstrated. The NSF and the NIH want to see a history of collaboration, and they want to encourage investigators to work on big things.”

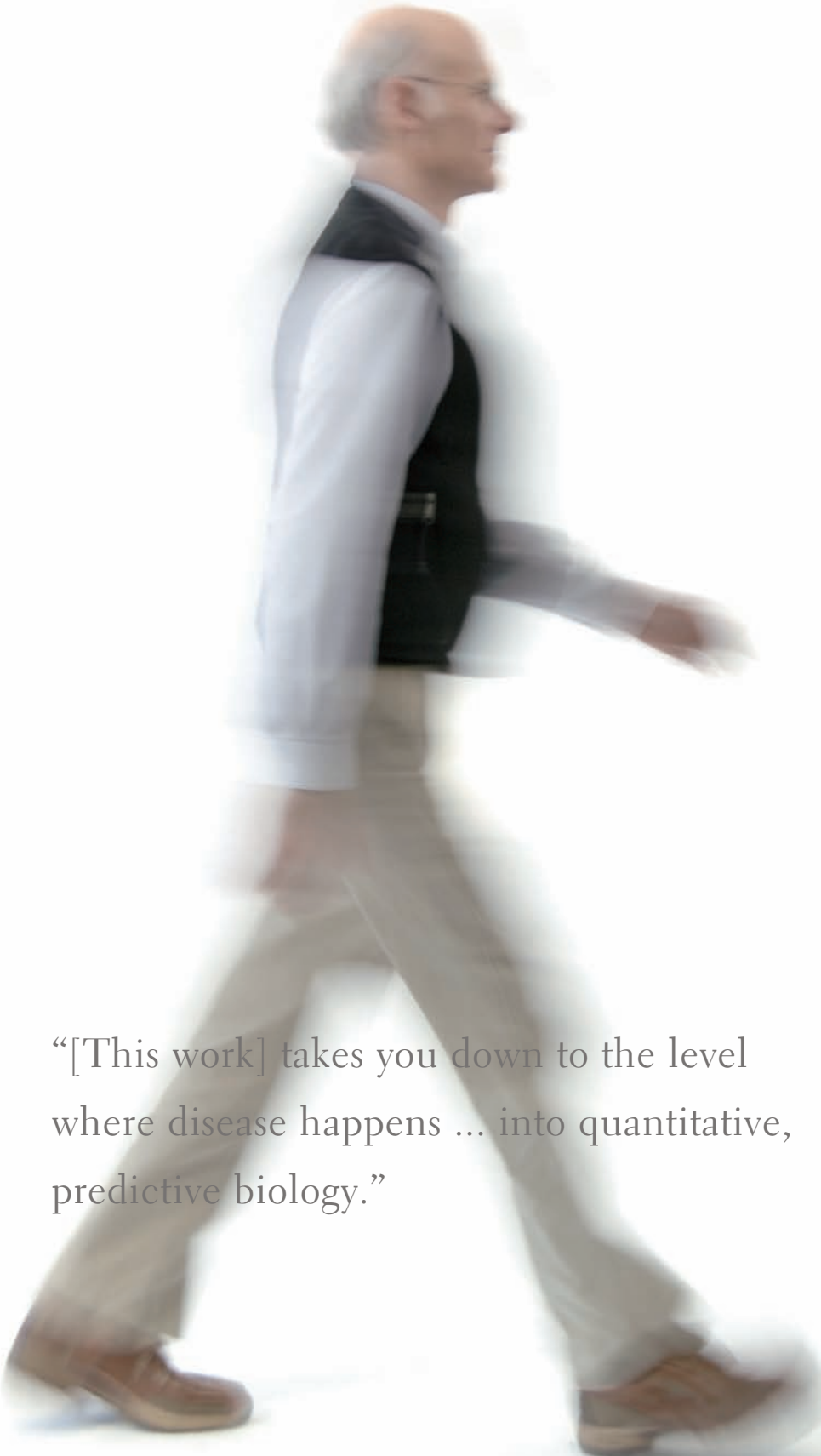
THE GENOME MADE ME DO IT

“THIS IS NOT A FIELD FOR THE RISK-averse.” Professor of Applied Mathematics Charles “Chip” Lawrence is sitting in his book-filled office overlooking the green treetops of Providence’s East Side, tucked away in a back corner of his department’s ornate edifice. Lawrence, who arrived at Brown as the first director of the Center for Computational Molecular Biology after a decade at Wadsworth Labs, is a familiar figure on campus—a tall man in an Indiana Jones fedora, leading a very different kind of enterprise, something of perhaps Spielbergian proportions.

“We’re building a new interdisciplinary entity, with multiple departments that haven’t had a lot to do with each other in the past,” he explains. “The genome is forcing us to do it.”

Lawrence tips his chair back and steeples his fingers.

“It’s very simple,” he explains, with the warmth and enthusiasm of a natural teacher. “There’s a new guest at the party, an 800-pound gorilla. That’s the genome. The genome has generated an enormous amount of data, and we have to learn to deal with it. If you’re interest-



“[This work] takes you down to the level where disease happens ... into quantitative, predictive biology.”

ed in biology, you just have to deal with this gorilla.”

Lawrence isn't afraid of the gorilla. Like most of his contemporaries, he's been blazing his own trail for nearly a quarter-century. A respected Bayesian statistician, he was working in cancer epidemiology in New York when a colleague recommended an early book on bioinformatics. One read, and he was hooked.

After embarking on a continuous, self-designed curriculum in biology and biochemistry to complement his own credentials—seizing opportunities along the way to work with colleagues in the concurrently evolving fields of biology, computer science, and statistics—he focused on computational biology starting in the 1980s, with areas of inquiry that included biopolymer sequence alignment, the prediction of protein structure and functions, and transcription regulation.

“With statisticians and biostatisticians, it was really hard to get their attention [in the early days],” he recalls. “But [in the 1990s] technologies such as microarrays—which measure changes in the expression of genes—generated vast amounts of data. That changed everything. That's when it became clear that big things were going on, and that statisticians were essential to extracting information from these large data sets.”

ANCIENT QUESTIONS, NEW TECHNOLOGIES

THE MAPPING OF THE HUMAN GENOME published the book of our species. But we don't yet know how to read it.

“It will take at least a century to learn [how to read it],” says Lawrence. “Thoughtful hard work, imagination, and patience will be required to unlock its secrets.”

“We have this fundamental source of clearly relevant data, gathered in the absence of hypothesis,” Lawrence continues, noting that the process of uncovering the genome was the antithesis of

ABOUT THE CCMB

BROWN'S CENTER FOR COMPUTATIONAL Molecular Biology draws on the talent of scientists from a variety of disciplines.

DIRECTOR: CHARLES (CHIP) LAWRENCE

PROFESSOR OF APPLIED MATHEMATICS
Department of Applied Mathematics

SORIN ISTRAIL

PROFESSOR OF COMPUTER SCIENCE
Department of Computer Science

DALE F. MIERKE

PROFESSOR OF MEDICAL SCIENCE
Department of Molecular Pharmacology, Physiology and Biotechnology

DAVID M. RAND

PROFESSOR OF BIOLOGY
Department of Ecology and Evolutionary Biology

JOHN SEDIVY

PROFESSOR OF MEDICAL SCIENCE
Department of Molecular Biology, Cell Biology, and Biochemistry

To learn more about each researcher's areas of inquiry, visit <http://research.brown.edu>, click on "Search Brown Research," and enter his name in the search field. To learn more about the CCMB, visit <http://www.brown.edu/Research/CCMB/index.html>

traditional hypothesis-driven biological research. "We must learn to utilize that resource—using all of our disciplines, including genetics, proteomics, evolutionary and molecular biology, computer science, mathematics, and statistical inference. There are so many questions. What are the genetic differences between us? How do genes flow among populations? What are the molecules and mechanisms that regulate the expression of genes? What can we learn about the past and the future of the species?"

"There's a new guest at the party, an 800-pound gorilla. That's the genome."

There is a responsibility to pursue depth as well as velocity, he says. "It's a very competitive field, and the maturing of the field will task us with thinking more deeply and focusing our energies. Brown has particular strength in regulatory genomics, for instance. We need to find the balance between depth and speed."

"In biomedicine, we've always had that tug between understanding the basic science and getting the discovery to the patient," he continues, noting that the two are not necessarily mutually exclusive. "Look at the work done with HIV [to develop protease inhibitors] in the 1990s. Each drug targets a specific product of the viral genome. Understanding the molecular processes of these products was key to the development of HIV drugs. We've got to advance the basic science and harness that knowledge for the betterment of humankind and the living earth."

Humans have always hungered to understand and make manifest that which is unseen ... to name, describe, comprehend, and control life's mysteries. In the five decades since the discovery of DNA, science has struggled to keep pace

with our ravenous quest for knowledge. What genes turn on or off in the progression to cancer? Is there a genetic thread linking sudden cardiac deaths within families? What are the molecular mechanisms behind aging?

It may be no coincidence that there is something about the double helix that evokes the Mobius strip—the never-ending loop of infinity. Will the road to capturing the full meaning of the genome be infinite? Perhaps. New questions will be asked and answered with the constant adaptation of species over time.

There is a quiet revolution under way, as we begin to apply 21st century scientific methodology to the ageless questions posed by the genome. The enormity of the enterprise is not lost on those who are leading the way.

"Just participating in this revolution," says Chip Lawrence, "is an exciting opportunity." □

Eileen O'Gara-Kurtis is the founder and president of Silver Branch Communications based in Seekonk, Massachusetts. She is a frequent contributor to Brown Medicine.

BARRY LESTER, PHD, AND JAMES PADBURY, MD

OPIN

The Mouse That Roared

Biomedical discoveries that will improve human health cannot occur without animal studies. But it's not a direct leap from mice to men.

A RECENT NEWS BULLETIN REPORTED, "ONE HIT OF METH causes birth defects." The report was, of course, talking about methamphetamine. West of the Mississippi, methamphetamine has become the illegal drug of choice for pregnant women, and there is legitimate concern for its effects on the unborn child. The problem with this report, however, is that it was about a rat study, not a human study. The methods that they used to produce the "birth defects" (injecting the drug directly into the peritoneum) are not applicable to humans. This was explained in a follow-up story called "One Hit of Meth Causes New Defects." Extrapolating findings from animals to humans has always been a controversial topic of both public and scientific debate.

There is no question that animal research ("preclinical" in the scientific jargon) is vital to the study of human ("clinical") problems. The main reason for doing preclinical studies is because they provide the kind of experimental control that you can never achieve in "the human condition." When you have experimental control you can test causal mechanisms. For example, in the study of prenatal drug exposure using rats, you can control when, how much, and how often during pregnancy the fetus is exposed to the drug, and you can randomly assign animals to these different conditions.

But there are several reasons why it does not necessarily work this way with pregnant women. First, we do not have the experimental control with humans that we have with animals. We cannot randomly assign pregnant women to various conditions of drug use. Second, the human condition is far too complex to duplicate in animals. The real life of the pregnant drug user typically includes polydrug use, poverty, poor nutrition, poor reproductive history, genetic factors, and probably many more factors that we either don't know about or can't meas-

VISION

ure. Third, there are species differences at every anatomic and physiologic level, including how the nervous system develops. If a rat shows a behavioral deficit due to prenatal drug exposure, such as poor swimming in a water maze, what does that mean for children? The rat brain is obviously different from the human brain. Drug effects in humans, for example, often show up in higher-level cognitive abilities (or executive function), which are controlled by an area of the brain called the prefrontal cortex. The rat does not have a prefrontal cortex, so it doesn't make sense to use a rat model to study these behaviors.

But none of this is new. Scientists are usually careful to qualify preclinical studies with phrases such as "may have clinical implications." Instead of asking, "Why can't animal studies be applied to the human condition?" we should be asking, "How are animal studies relevant to the study of human problems?"

The value of preclinical studies is that they generate hypotheses that can be tested or at least explored in clinical studies. Preclinical studies help narrow the focus, and give us a better idea of what to look for in clinical studies. In other words, preclinical studies generate models for how things might work in the "real" world. Based on preclinical models we look for the same effects in clinical studies; if we get similar results we might suggest that similar mechanisms or processes are at work.

We think of research as a signal-to-noise problem. The "truth," the signal, is there. But it is hard to detect because of all the noise, and the more complex the problem, the more noise. So scientists study the problem from different angles, with different species, in different human populations, hoping that the signal will eventually emerge. In most cases it is through a convergence of findings in different arenas (such as from one species to another or investigators replicating each other's findings) that scientists begin to gain confidence in their hypotheses. Animal studies help us capture the signal.

We have entered a new era of research in which preclinical research will be as important if not more important than it ever was. The National Institutes of Health have launched a "Roadmap" initiative which is redesigning how we think about research. A major component of the NIH Roadmap is "translational" research, motivated, in part by the tremendous potential unlocked by the mapping of the human genetic sequence. This "new biology" calls for research from bench (preclinical) to bed-

side (clinical) to practice (treatment). There are translational initiatives already under way here at Brown, including our own work, where we use mouse models to determine how drugs like cocaine affect genes in the placenta and whether

these mechanisms explain the neuro-behavioral effects we see in human infants with prenatal cocaine exposure.

The new emphasis on translational research helps clarify the role and importance of animal studies. While it is a gross error to extrapolate findings from a single animal study to humans, continuous back-and-forth translation from animal work to human work

is at the very heart of the scientific enterprise, and is ultimately what leads to treatment and prevention. The mouse may not roar, but it has a voice. □

**If a rat shows
a behavioral deficit
due to prenatal
drug exposure,
such as poor
swimming in a
water maze, what
does that mean
for children?**

Dr. Lester is professor of psychiatry and human behavior and pediatrics and director of the Brown University Center for the Study of Children at Risk at Women & Infants'. Dr. Padbury is associate chair of the Department of Pediatrics and chief of pediatrics at Women & Infants'.





Y o u r M i n d

At Brown, brain surgery
eases severe cases of mental illness.

BY KRIS CAMBRA

ILLUSTRATIONS BY BRUNO MALLART

AT ONE TIME, MARIO DELLA GROTTA HAD ABOUT 2,000 TELEPHONE numbers memorized. Sure, it was convenient for making a reservation at Camille's or calling the IRS, but they weren't numbers he really needed. His mind just wouldn't let him forget.

Della Grotta, 37, suffered from a case of obsessive-compulsive disorder (OCD) so severe he spent about 14 hours a day completing his rituals and compulsions. Eventually, he could no longer continue to work at his job in the secretary of state's office. He was completely disabled.

Today, five years after he reached the depths of his disease, Della Grotta has completed a college degree and is heading back out into the workforce. What changed?

He let doctors at Brown implant an electronic device in his brain.

THE CUTTING EDGE

ITS DETRACTORS HAVE COMPARED "PSYCHOSURGERY," as it is sometimes called, with everything from lobotomy to mind control, but the latest techniques in neurosurgery for mental illness—most of which have been pioneered in this country by Brown Medical School physicians—are helping some of the sick-

est patients who suffer from intractable OCD and depression.

Two options are currently available. The first is gamma knife capsulotomy. The gamma knife, first developed in Sweden for treating brain tumors, uses beams of radiation to burn lesions in the area of the brain that, because of abnormal neurotransmissions, causes the symptoms of OCD. The other option is deep-brain stimulation (DBS), the procedure Della Grotta had in 2001. Originally developed to treat patients with Parkinson's disease, two electronic units are implanted in the chest and connected to the brain by tiny wires. Electrical currents zap the brain, interrupting the messages that result in OCD, like a pacemaker for the brain.

Though it is becoming more readily accepted in the fields of psychiatry and neurosurgery, psychosurgery is not yet widely practiced, and with good reason. In the wrong hands, these procedures could hurt more than they help. They also do



not make patients 100 percent better, but a scientifically significant portion of the time they make them well enough to enter into therapies that will help them even more, to go back to work, and to not spend every waking moment wanting to die.

THE INNOVATORS

BEHIND THESE PROCEDURES ARE TWO Brown/Butler Hospital psychiatrists, Benjamin D. Greenberg and Steven A. Rasmussen '74 MMS'77 MD'77, both associate professors of psychiatry and human behavior. Greenberg is director of outpatient services and Rasmussen is medical director at Butler. Both are experts in the treatment of OCD.

"There is a proportion of patients with OCD—a small minority—that are severely ill. We can't help them enough with current behavioral therapy or med-

in adolescence or early adulthood, it is a leading cause of disability (in terms of number of years disabled). An estimated 80 to 85 percent of those who receive treatment will experience relief with medication and behavioral therapy, while the remainder have intractable cases.

Severity of OCD is typically measured by the Yale-Brown Obsessive Compulsive Scale, or YBOCS. The higher the score, the more extreme the OCD.

But Greenberg doesn't think improvements in psychometrics are the only valuable measures. "It's just as important to look at their real-world lives. Maybe more important, actually."

OUT, OUT DAMNED SPOT

MARIO DELLA GROTTA DESCRIBES HIS life before surgery as "torture."

He speaks softly and deliberately, his

that told him to do the same actions over and over. A typical day meant waking up at 4 a.m. and lying in bed for a few hours completing mental rituals, planning what he would do that day. About 7 or 8 o'clock he'd begin three or four hours of shaving and showering rituals. By noon, he'd be ready to start the day. But, he says, "it would just snowball from there," until every waking moment was lost to these compulsive behaviors.

He thought about dying all the time. "If I commit suicide, it will stop."

Under the care of Dr. Jane Eisen, assistant professor of psychiatry and human behavior, Della Grotta began taking serotonin reuptake inhibitors, or SRIs, the baseline treatment for OCD. Meds were upped, combined, and changed, but some 40 configurations did nothing to help his OCD.

An estimated 80 to 85 percent of those who receive treatment will experience relief with medication and behavioral therapy, while the remainder have intractable cases.

ications," Greenberg says. These are the people for whom surgery is an option.

Once thought to be rare, OCD is actually a major disease burden. About 3.3 million American adults ages 18 to 54 have OCD, and because of its onset

unlined face appearing much younger than his 37 years. Thoughtful and intelligent, Della Grotta's recollections of his worst days with his disease evoke a constant battle within his mind between a fierce intellect and the nonsensical urges

He tried behavior therapy, but was physically unable to complete the exposure and response-prevention exercises, such as touching a toilet seat without washing his hands or, one of his greatest fears: touching pennies. "I just hate pen-

He thought about dying all the time. "If I commit suicide, it will stop."

nies, they're nasty and they leave your hands smelling like money."

He even went into inpatient therapy at the renowned institute at McLean Hospital in Belmont, Massachusetts. He didn't last a week. He was mentally crippled when they shut the water off during his extensive showering routine or when he found no soap in any of the bathrooms.

Back in Providence, Eisen referred him to Ben Greenberg, who, in addition to offering the gamma knife surgery, was about to start testing deep-brain stimulation in patients with refractory OCD. But there was a catch: there was one more medication Della Grotta hadn't tried, and he wasn't a candidate for surgery until absolutely every therapy was attempted.

"We don't just do brain surgery. We're looking for anything that will help patients and the less invasive the better," Greenberg says.

INTO THE BRAIN

DELLA GROTTA WAS GIVEN A CHOICE between the gamma knife or deep-brain stimulation. The gamma knife is non-invasive—patients can go home the same day—but it is irreversible. A small part of the brain, although only white matter, is lost forever. DBS is invasive, but reversible. If the patient experiences no response, the impulses can be turned off and the leads removed. But placing something in the brain puts them at risk for infection and hemorrhage.

The gamma knife procedure is performed at Rhode Island Hospital's New England Gamma Knife Center, under the guidance of Dr. Georg Norén, professor of clinical neurosciences (neurosurgery). Norén trained with Lars Leksell, the inventor of the gamma knife, in Sweden 30 years ago.

During the procedure, a stereotactic

frame is screwed to the patient's skull (with local anesthesia) to keep the head completely still and allow for transfer of information from the images to the planning system to the gamma knife. The patient then undergoes an MRI to pinpoint the structures in the brain to be targeted. The patient lies on a motorized bed that glides into the body of the gamma knife. The beams of radiation are directed at nerve fibers that run from the lower part of the frontal lobe through the anterior limb of the internal capsule to the top of the thalamus. "That's the circuitry involved in OCD," Norén says, "and it goes in both directions." The anterior part of the internal capsule does not contain motor fibers, and only white matter is destroyed. The 201 beams of radiation converge into one powerful focus that hits its target with precision, accurate to less than half a millimeter. That's roughly the size of the period at the end of this sentence.

In all, four lesions are made bilaterally—two in each half of the brain. The volume is just .2 cm³ per side.

"It turns out healthy brain tissue is much harder to destroy than tumor," Norén says. Patients with OCD receive almost 10 times the radiation that cancer patients do, and each lesion requires 90 to 100 minutes of treatment. That adds up to more than six hours in the gamma knife. Patients almost always leave the hospital the same day.

To assess patient response, Greenberg and Rasmussen use a very conservative definition: at least a 35 percent drop on the Yale-Brown Obsessive-Compulsive Scale plus a minimum 15-point improvement on the Global Assessment of Functioning Scale, which rates social, occupational, and psychological functioning. One group of 16 patients followed after receiving the bilateral gamma capsulotomy saw 10 of the patients, or 62 percent, meet the response criteria at three-year follow up.



"I was a child when I lost my father to cancer and I do not know

HARD WIRED

MARIO DELLA GROTTA CHOSE DBS because he liked the idea that if it didn't work, he could just turn it off. He was the first person in the United States to receive DBS for treatment of obsessive-compulsive disorder.

Two circular scars can be seen through Della Grotta's close-cropped

hair from where the leads were inserted into his brain. The wires run down either side of his head, behind his ears, and connect to units embedded under the skin, just where you'd imagine the top of each lung.

Dr. Gerhard Friehs, associate professor of clinical neurosciences (neurosurgery), performed Della Grotta's surgery. Originally approved by the FDA for use in patients with Parkinson's disease, tremor, and dystonia, the use of deep-brain stimulation for treating OCD came about quite by accident. Physicians noticed an improvement in mood in

stimulation can make a choice for patients that is truly between life and death."

At the time of his surgery, Della Grotta's wife was about to give birth to their first child, a daughter. Though he was realistic about the risks of the procedure, he says he had confidence in his doctors. Still, he'd had the Chinese character for "child" tattooed on his wrist the

"Because of psychiatric procedures having a disastrous outcome in the '30s and '40s we've been ultra conservative in publicizing [the availability] or suggesting inclusion criteria should be broadened."

weekend before, in honor of the baby he feared he would not live to meet.

He, too, was set into a stereotactic frame. He then underwent an MRI, which helps the surgeon identify the coordinates in which to place the electrodes. Friehs drilled small holes in Della Grotta's skull, and placed the probes deep into the brain, in the anterior limb of the internal capsule. Friehs says the entire process usually takes about eight hours, though it can take longer.

Della Grotta was awake while the stimulators were placed and turned on. "The patient has to be awake," Friehs says. "There's no other way for us to know if there are stimulation-related side effects."

In the operating room, one of the doctors assisting asked Della Grotta to hold some pennies after the stimulators were turned on. "I said no, I couldn't do it," Della Grotta recalls. The surgeon asked him again to try, and Della Grotta did. He held them in his hands and tossed them back and forth.

DUE CARE

THE TEAM OF PSYCHIATRISTS AND NEUROSURGEONS at Brown has treaded cautiously into the realm of psychosurgery.

"Because of psychiatric procedures having a disastrous outcome in the '30s and '40s we've been ultra conservative in publicizing [the availability] or suggest-



which is worse, losing a parent or living with OCD.”

ing inclusion criteria should be broadened,” says Steven Rasmussen.

The fact is, the Food and Drug Administration does not regulate surgical procedures—anyone with an idea and the equipment can develop new techniques. In essence, physicians are left to regulate themselves.

Greenberg and Rasmussen developed a screening process that carefully scrutinizes each potential case. First and foremost, the patient must be well enough to provide informed consent. Then, an independent committee reviews the case. A consent monitor, a former Butler Hospital chaplain and member of the Brown ethics committee, advocates on behalf of the patient.

“He really gets to know the patients,” Greenberg says. “He makes sure they ask every question they can.”

And many are turned away. “We screen eight patients for every one we recommend for surgery,” he says.

“Because these procedures are still experimental, we only take people who have failed all existing treatments,” Rasmussen says.

Complicating this “sticky” ethical territory are the patients’ desperate requests for surgery. Rasmussen continues, “Are there patients who only respond partially to SSRIs and who have terrible sexual side effects or weight gain? Yes, and there are quite a few who want surgery. But until the safety and efficacy of the procedures are definitively established, this has been our recommendation and will be until we have enough of a long-term follow up to ensure safety. We want to be cautious.”

Until now, in fact, Greenberg and Rasmussen have been reluctant to publish the results of their work, fearing that anyone with a gamma knife or capability of doing DBS would attempt to perform the surgeries. Now, with 12 years of follow-up on gamma knife patients and five on those who had DBS, they feel ready to report on the efficacy of the procedures.

Desperate Measures

WITH DEEP-BRAIN STIMULATION HAVING SUCH A MARKED IMPACT ON mood, the next natural step was to consider using it to treat patients with intractable depression.

Working with physicians at the Cleveland Clinic, doctors used DBS for the first time in a patient with treatment-resistant depression, without comorbid obsessive-compulsive disorder, in 2003. Since then, five patients with depression have received DBS.

Again, the implant is reserved for patients who have not responded to conventional therapies. Dr. Benjamin Greenberg says, “There are many more treatments for depression than for OCD ... many more psychotherapies, medications, and electroconvulsive therapy (ECT). All of our patients [in the study] have failed to respond adequately to all three.” At this point, they do not believe it is appropriate to include patients who have not had exposure to ECT, because that is still the most effective treatment for depression in those who can tolerate it.

While this study is at a much earlier stage than using gamma knife or DBS for OCD, Greenberg says the results are promising. Implants may be the last option, but they are providing a new alternative to patients who are otherwise untreatable.

THE ROAD AHEAD

AFTER RECEIVING EITHER GAMMA KNIFE or deep-brain stimulation, patients are not miraculously cured. They still take medication, and most are able to engage fully in the behavioral therapies that had failed before.

Since the surgery, Mario Della Grotta and his wife have welcomed a second daughter and he was able to return to college and finish his bachelor’s degree. He was just accepted into an MBA program and will enroll this fall. He still struggles with OCD, but it is a fraction of what it once was.

Deep-brain stimulation helps him get through every day. One time, a few years

after the implants were turned on, Della Grotta walked into a convenience store to buy the *Wall Street Journal* and a muffin. Within 15 minutes of leaving the store, he was obsessively counting his money and accounting for the few dollars he’d just spent. “What is happening to me?”, he thought. It was like he was back in the worst days of his disease. Sure enough, the store’s metal detectors had switched his stimulators off.

“I will always have OCD,” he says. “... [B]efore I had brain surgery I said it was worth doing if I had a 10 percent improvement. I’d say I have 70 to 75 percent improvement. It’s like waking up from a bad dream.” □

Archives

BY STANLEY M. ARONSON, MD, AND GALE M. ARONSON

Sugar Cane, Coconut Trees, and Nurses on Horseback

Clinical Electives in the Formative Years

FROM ITS BEGINNINGS MORE THAN THREE DECADES AGO, BROWN MEDICAL SCHOOL HAS STRIVEN TO provide its students with a richly structured and relevant curriculum. There was the core medical curriculum required of all of its students, and then there was a menu of elective courses that offered sufficient latitude and diversity to meet students' vision of an adequate medical education.

In those early years, the Medical School was small, as was its full-time faculty. Yet, with the indispensable aid of many volunteer physicians in the Rhode Island community, it was able to assemble 112 clinical electives in medicine, surgery, pediatrics, women's medicine, psychiatry, and community medicine, as well as numerous interdisciplinary electives on subjects such as care of the dying, chemical addiction, forensic medicine, genetics, ethics, population biology, nutrition, medical art, principles of medical administration, and medical Portuguese and Spanish.

In the 1970s, students occasionally identified clinical electives at other U.S. medical schools that satisfied their particular educational desires; accord-

ingly, some enrolled in such electives—but only after assurance by the other school that the visiting student would be appropriately supervised and that no additional tuition would be charged.

In 1973, before our medical students had yet entered their years of supervised clinical education, an effort was undertaken to define a handful of meaningful elective experiences at sites outside of Rhode Island, particularly in settings that required the student to work within alternative modes of medical care. The seven sites described below were chosen, but only after members of Brown's medical administration had first personally experienced each elective course. In some instances, faculty accompanied the student; in certain places, the on-

site physician was a faculty member. Room, board, and sometimes transportation were provided for most of these extended electives. (Electives listed with an asterisk are still offered.)

Jamhuriat Hospital, Kabul, Afghanistan

STUDENTS WERE REQUIRED TO TAKE an intensive course in Farsi before working for a month in the hospital and its clinics, which were located both in Kabul and in the outlying provinces.

Island Medical Center, Vinalhaven, Maine

LOCATED 15 MILES OFF THE COAST OF Maine, this island has a year-round population of about 1,400 and an economy based on lobster fishing and local

granite quarries. Medical care was rendered by one full-time physician with an office well equipped with diagnostic and therapeutic facilities. The student was expected to live on the island and work closely with the island's physician.

Faculty of Medical Sciences, Federal University of Sergipe, Brazil

THE STATE OF SERGIPE, WITH A POPULATION of 821,000 in the 1970s (now 1.8 million), is located on Brazil's subtropical northeast Atlantic coast, with an economy based largely on rice, sugar cane, and coconut. It was an economically depressed region with numerous health problems, including endemic schistosomiasis, kala azar, and tuberculosis. In 1973, a new medical school had recently been established in the capital, Aracaju. Before participating actively in the medical clinics, the Brown medical student had to enroll in an intensive course in conversational Portuguese in the Aracaju Language Institute.

*** Frontier Nursing Service, Leslie County, Kentucky**

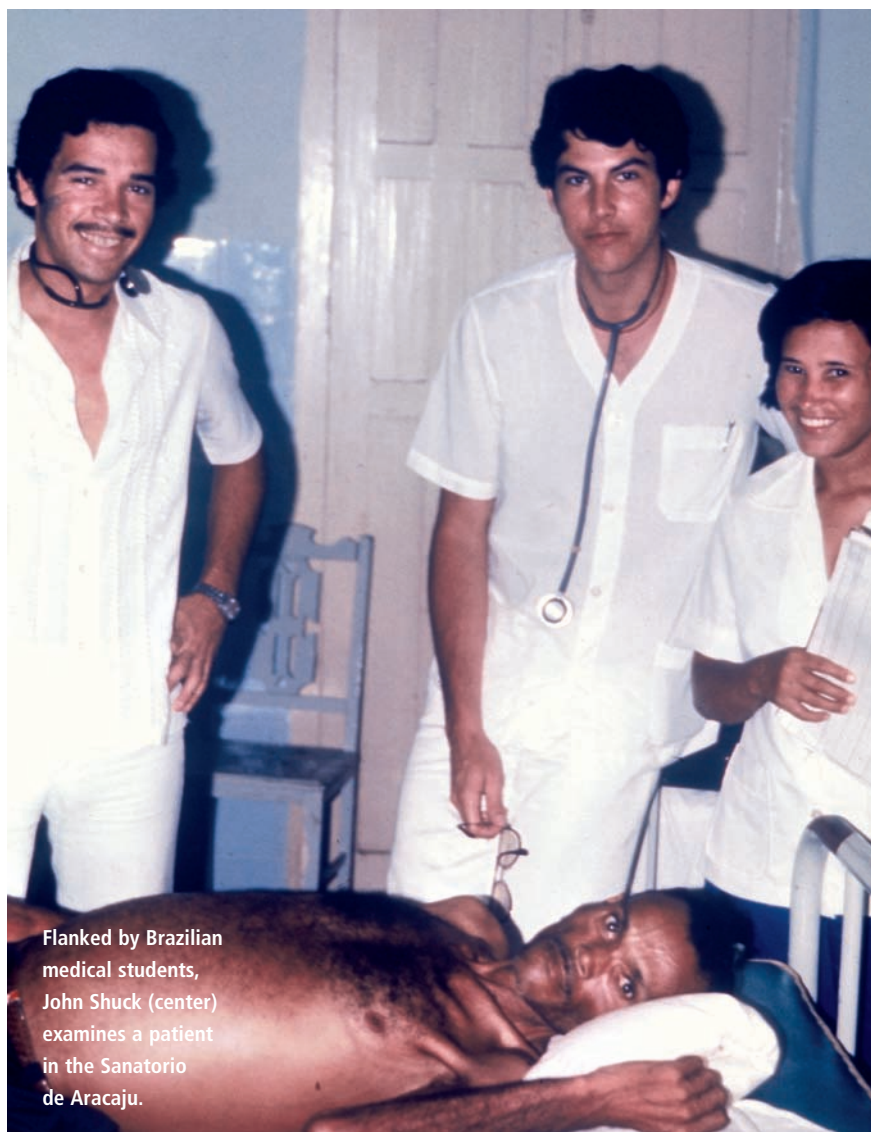
PEOPLE OF THIS ECONOMICALLY AND educationally deprived coal-mining region of 11,000 (12,400 in 2004) were cared for by a cadre of nurse practitioners ("nurses on horseback") and a few consulting physicians working in a coordinated network of rural clinics.

*** Mississippi Family Health Center, Jackson, Mississippi**

STUDENTS WORKED IN A WELL-equipped private family medicine clinic supervised by Robert Smith, MD, clinical instructor emeritus of community health. Dr. Smith, a long-time advocate for community health centers in rural and urban Mississippi, is still in practice.

Indian Health Service, Hopi Reservation, Keams Canyon, Arizona

STUDENTS WORKED BOTH IN THE Indian Service 34-bed hospital and in a network of outpatient clinics.



Flanked by Brazilian medical students, John Shuck (center) examines a patient in the Sanatorio de Aracaju.

*** Blue Hill Memorial Hospital, Blue Hill, Maine**

A NORTHERN COASTAL COMMUNITY with an excellent local hospital. Students lived in the hospital and worked with a physician-preceptor. (Today, students find housing outside the hospital.)

WHAT DID BROWN MEDICAL STUDENTS think of this program? John Shuck '74 MD'77 wrote the following in one of the school bulletins: "Medical school is many things, but it is seldom regarded as a broadening experience. If anything, it is perhaps considered a narrowing one, and certainly on occasion, it is a harrowing one." He then made an articulate plea for the continuance and expansion of these atypical educational opportunities in unconventional forms of medical practice.

Shuck, who currently practices interventional cardiology, continued: "...[S]pending several months away

from Brown has been a sort of therapy. By graduation I will have spent six weeks in Jackson, Mississippi, and eight weeks in Sergipe, Brazil. These electives were enriching in many aspects: probably foremost, they allowed me glimpses into communities and societies about which I was heretofore relatively ignorant. I learned much about myself and about how individuals from different backgrounds interact. I became particularly conscious of the interaction between disease, the individual and society, and of the role of the physician in such interaction."

The Afghanistan elective helped to establish a worthy tradition, and now Brown medical students, in legitimate pursuit of their education, can be found in scores of sites with unfamiliar geographic names on every continent of the globe. □

For a list of clinical electives currently offered, visit http://bms.brown.edu/academics/clinical_electives.html.

Emeriti Album

RECOGNITION

Career Topper

THEY WERE VANGUARDS IN THEIR TIME, ESTABLISHING NEW departments, introducing cutting-edge health care to the state of Rhode Island, and laying the foundation for today's nationally recognized Brown Medical School and Division of Biology and Medicine. We salute these sagacious faculty members who recently achieved emeritus status and thank them for their dedication to building our academic medical center.

STEPHEN KAPLAN, MD Clinical Professor Emeritus of Medicine

AFTER COMPLETING HIS RESIDENCY training at the Jewish Medical Center on Long Island and a fellowship in clinical pharmacology at Yale-New Haven Medical Center, Stephen Kaplan came to Brown in 1969 and provided years of service to the Medical School during its formative years. He started as an instructor in the Division of Biology and Medicine; in 1984, he became professor of medicine. During that time, he organized an extremely popular elective in rheumatology, and organized and supervised the core clerkship in internal medicine. From 1977 to 1988 he also served as adjunct assistant professor of pharmacology and toxicology at the University of Rhode Island. In 1985

he served as associate dean for medical faculty affairs before being named, in 1988, dean of Wright State University School of Medicine and, in 1991, associate vice president for health affairs. After serving at SUNY-Buffalo as professor of medicine and division chief of general internal medicine, he spent two years in primary care clinical practice before returning to Rhode Island.

Based at Memorial Hospital of Rhode Island, Kaplan has been a valued preceptor in the Internal Medicine Clinic, imparting important rheumatologic expertise to medical students and residents as well as serving as an advocate for the patient.

DOUGLASS H. MORSE, PHD Professor Emeritus of Biology

DOUGLASS MORSE JOINED BROWN University in 1979 as the Hermon

Carey Bumpus Professor of Biology. He received his PhD in zoology from the Louisiana State University and taught at the University of Maryland before coming to Brown. He spent a year as a senior visiting researcher at the Edward Grey Institute at Oxford. Morse's well-supported research has focused on the field of behavioral ecology, with particular focus on whether an organism's early life experiences affect its choice of hunting and feeding sites or where and how it looks for sexual partners.

Morse is widely regarded, both nationally and internationally, as a top field ecologist. As chair of the Section of Population Biology and Genetics from 1982 to 1993, chair of the Department of Ecology and Evolutionary Biology from 1990 to 2002, and interim dean of biology from 1990 to 1993, Morse played a major role

"Doug leaves a towering legacy of excellence in the Division that we should all be proud of."

in building Brown's Graduate Program in Ecology. He has also been an active member of many committees, such as the Executive/Advisory Committee for the Program in Biology and the Steering Committee for Strategic Planning for the Division of Biology and Medicine.

A fellow of the American Association for the Advancement of Science, Morse currently serves on the editorial boards of both the *North-eastern Naturalist* and the *Journal of Insect Biology*.

"In his 26 years at Brown [Doug Morse] founded and built ... one of the leading ecology and evolutionary biology training groups in the country," says EEB chair Mark Bertness. "Doug leaves a towering legacy of excellence in the Division that we should all be proud of."

JOHN A. MURPHY, MD
Clinical Assistant Professor Emeritus
of Obstetrics and Gynecology

JOHN MURPHY COMPLETED HIS RESIDENCY at Rhode Island Hospital and Providence Lying-In Hospital. A member of the clinical voluntary faculty for 25 years, he began his teaching career at Brown in 1976 as a clinical instructor in obstetrics and gynecology and in 1982 became clinical assistant professor. He served for many years as an attending at Women & Infants Hospital, where he taught numerous residents and medical students and was widely hailed for his deep interest in and commitment to teaching.

"John Murphy has been a stalwart member of the clinical voluntary faculty since he himself completed resi-

dency here," says Donald Coustan, chair of the Department of Obstetrics and Gynecology. "He has taught generations of medical students and residents in the operating room and at the bedside."

His distinguished career at W&I also includes service as team chief of a resident supervisory team, as medical staff president, and as member of the tumor board. He continues to volunteer at the Rhode Island Free Clinic.

GEORGES PETER, MD
Professor Emeritus of Pediatrics

AFTER COMPLETING HIS INTERNSHIP and residency in medicine and pediatrics at the Strong Memorial Hospital in Rochester, NY, Georges Peter served as a commissioned officer for the U.S. Public Health Service at the National Institutes of Health from 1966 to 1968. He then completed his fellowship at Boston Children's Hospital. He joined Brown in 1972 as an assistant professor of medical science, and became a professor of pediatrics in 1984.

Peter's research has focused on

infectious diseases, particularly on the development of bacterial vaccines and antibiotics. "During Dr. Peter's career at Brown, he established a distinguished national and international reputation in pediatric infectious diseases," says Dr. Penelope Dennehy, director of the Division of Pediatric Infectious Disease at Hasbro Children's Hospital. "His most noteworthy accomplishment was as editor of five editions of the American Academy of Pediatrics *Red Book: Report of the Committee on Infectious Diseases*, the preeminent resource on infectious diseases for pediatricians worldwide. The 2003 and 1997 editions of the *Red Book* were dedicated to him."

From 1998 to 2004, he was chair of the National Vaccine Advisory Committee and in 1994 chaired the Advisory Commission on Childhood Vaccines, U.S. Department of Health and Human Services. He received a 2004 Special Recognition Award from the assistant secretary of health of DHSS for his service. He also served as president of the Pediatric Infectious



Douglass H. Morse



Conrad W. Wesselhoeft



Georges Peter



Wilson F. Utter

Emeriti Album

Disease Society from 1993 to 1995, and was honored with the society's Distinguished Physician Award in 2002.

Peter has served the Rhode Island community as well, as founding director of the Division of Pediatric Infectious Diseases at Rhode Island Hospital from 1976 to 2005, vice chair of faculty affairs for the Department of Pediatrics from 2001 to 2005, and chair of the department's Academic Review and Promotions Committee from 1987 to 2005. Consistently praised as a teacher, he has played an active role in teaching and advising Brown medical students across all four years.

THOMAS D. ROMEO, MD **Clinical Assistant Professor Emeritus of Community Health**

THOMAS ROMEO HAS A LONG CAREER of community, academic, and public service experience. His 12-year tenure from 1981 to 1993 as director of the Rhode Island Department of Mental Health, Retardation and Hospitals under three Rhode Island governors has provided Brown students and faculty in community and public health courses with a rich source of practical and relevant knowledge. At Brown, he has served as clinical assistant professor of community health since 1996. Prior to that, he had been a clinical instructor in the Department of Community Health since 1980, providing instruction and clinical experiences related to public sector management and operations in public sector geriatrics. A co-leader of the Affinity Group in International Medicine and Health, he is also a longtime promoter of collaborative opportunities between Brown Medical School and the University of Rhode Island, where he has been an adjunct faculty member since 2002. He is the recipient of a 2003 Lifetime Achievement Award from URI's College of Human Science and Services, in addition to numerous other honors from various entities for his distinguished service and leadership.

According to of Professor and Chair of Community Health Vincent Mor, Romeo is "a fixture in Rhode Island, a fixture in government, and a fixture at Brown," someone who opens doors and whose "contributions have been significant and advice, sage."

WILSON F. UTTER, MD **Clinical Associate Professor Emeritus of Pediatrics**

WILSON UTTER TRAINED AT THE MARY Hitchcock Memorial Hospital and at the Boston Floating Hospital before joining the staff of Women & Infants Hospital and Rhode Island Hospital (and, later, Hasbro Children's Hospital). He has contributed more than a quarter century of distinguished teaching and precepting to Brown Medical School. Universally commended by students and colleagues as an exemplary instructor and gracious role model, he was the recipient of the Clinical Faculty Excellence in Teaching Award in 2002, a three-time recipient of Hasbro Resident Teaching Awards, and a Medical Staff Service Award from Women & Infants Hospital. He is also a past president of the New England Pediatric Society Council.

In the words of Professor of Pediatrics Edwin Forman, "He is a first-class pediatrician in all respects. His name is always among the first that I call upon for a variety of teaching positions. He has been a favorite among the house staff. His mature and objective comments have been a great help to me."

CONRAD W. WESSELHOEFT JR., MD

Clinical Professor Emeritus of Surgery

CONRAD WESSELHOEFT COMPLETED his residency training in general surgery at New England Medical Center, in pediatric surgery at Children's Hospital in Washington, DC, and in thoracic surgery at George Washington University Hospital. He came to Rhode Island in the late 1960s and was one of only two pediatric surgeons in

the state. Early in his career, he worked to develop the first surgery program for children at Rhode Island Hospital and Women & Infants Hospital. He has been the attending surgeon in the Division of Pediatric Surgery at both Hasbro Children's Hospital and Women & Infants Hospital since 1968, and a consultant in pediatric surgery at St. Joseph's Hospital since 1969.

In 1972 he was appointed instructor in surgery at Brown Medical School. Since 1990 he has been clinical professor of surgery. He is a dedicated teacher of both students and residents both in the operating room and on rounds, where his instruction has been critical to the educational program of both pediatric and general surgery. He has served as preceptor of the surgery clerkship and he made significant contributions to the development of Brown's pediatric surgery residency program. His many years of teaching excellence were recognized in 2000 with the Medical School's Ambulatory Teaching Award for Clinical Faculty.

In the late 1990s he played a key role in the development of an innovative, minimally invasive procedure for pectus excavatum, which he adapted for use at Hasbro Children's Hospital. He was also instrumental in the development of the state's first pediatric intensive care unit (PICU) at Rhode Island Hospital. He is a member of numerous hospital committees and societies, and is widely published in peer-reviewed journals.

"Dr. Wesselhoeft was an integral part of bringing the pediatric surgery programs in Rhode Island to the national prominence that they hold today. He continued to make tremendous, innovative contributions to our program at Hasbro until his retirement in September," says Dr. Thomas Tracy, pediatric surgeon-in-chief at Hasbro Children's Hospital. "It's the closing of an important chapter in the history of surgery at our hospital and in Rhode Island." — **SARAH BALDWIN-BENEICH**

AND KRIS CAMBRA

Alumni Album



Alumni Profile | GARY L'EUROPA

Treating Headache with Heart

SUSAN SARTINI-PERRY CRIED THE FIRST TIME SHE MET GARY L'Europa MD'83. But it was a good thing.

"I'd lived my whole life with migraines," she remembers, "and I'd been from doctor to doctor to doctor. They'd all said the same thing. *You need to learn to relax.*"

But it was hard to relax, knowing that she could be plunged into the abyss at any moment—imprisoned in a dark bedroom, barricaded against light and sound, disconnected from everything except the throbbing pain in her head. The migraines—triggered not just by stress, but also by fatigue, a change in time zones, a glass of wine at dinner, having her morning coffee a half-hour later than usual—would come about once a week and last for three or four days. She missed a lot of work. Family vacations were ruined.

Today, the headaches only come about twice a month. Susan credits treatment she's received for the past eight years at NeuroHealth, a Warwick, RI, multidisciplinary medical center led by L'Europa, one of 32 fellows of the American Headache Society. She commutes there from her home in Lakeville, MA, or her office on Cape Cod.

"He understood," says Santini-Perry. "I didn't have to convince him."

SPECIALTY CARE WITH A PRIMARY CARE ETHOS

L'EUROPA WELCOMES HIS PATIENTS to a four-story, shingled New England-style structure illuminated by natural light and warmed by cherry woodwork

created by his father, Rocco L'Europa—a cabinetmaker who also took on extra work years ago to help pay his son's way through medical school. (A plaque honoring the elder L'Europa's work is one of the first things visitors see upon entering the building.)

NeuroHealth's structure, aesthetics, and philosophy echo another of L'Europa's early inspirations, the family doctor he saw when he was growing up in Johnston, RI. "He was on Broadway [in Providence], in an old Victorian house. It was welcoming. It looked like a home. I didn't want my office to look like a doctor's office."

L'Europa had planned to become a primary care physician. He was turned onto neurology during a rotation under Professor of Clinical Neurosciences (Neurology) Joseph Friedman, MD. In fact, Friedman joined NeuroHealth last year and now serves as director of its Parkinson's Disease and Movement Disorders Center, where he is treating patients as well as pursuing NIH-funded research.

Interest in headache came later, during internship at Roger Williams Hospital and residency at University of Massachusetts Medical Center. "During residency, I had a lot more time to spend with patients in clinic," says L'Europa, noting that the experience gave him new empathy for headache sufferers—as well as the roots of a philosophy of care that drives him today.

"Migraine is an actual disease, but a lot of physicians—and the public—don't consider it a disease. People with migraine don't get a lot of sympathy. And 50 percent of patients go undiagnosed. One of the most important things we do is educate the patient, and often their spouse, about *what migraine is.*"

It's a complex disorder, he explains, with several co-morbidities owing to the role of serotonin as a factor in the condition. People who get migraines are 18 times more likely to suffer from anxiety and have a higher incidence of depression. Undiagnosed, they frequently self-medicate with massive

Alumni Album

doses of pain reliever, sometimes triggering life-threatening gastrointestinal conditions and often ending up with excruciating “rebound headache” from medication overuse.

In addition to medication—often with off-label drugs originally intended to treat something else—migraine patients benefit from a multidisciplinary approach addressing the bio-

“Migraine is an actual disease, but a lot of physicians—and the public—don’t consider it a disease. People with migraine don’t get a lot of sympathy.”

chemical and lifestyle factors that trigger episodes. Treatment might include physical therapy, behavioral therapy, and the use of vitamins such as riboflavin and magnesium.

With this approach in mind, L’Europa founded NeuroHealth in 1998, after 11 years as a solo practitioner. Today, more than 30 physicians, nurse practitioners, therapists, and clinicians team up to devise creative, effective treatments for patients suffering from Parkinson’s disease, Alzheimer’s disease, multiple sclerosis, and other conditions, as well as headache. The building also houses state-of-the-art rehabilitation and imaging facilities.

“Our goal is not only clinical excellence, but excellence in care from the patient’s perspective,” says L’Europa. “Everyone here is qualified—but having good credentials isn’t enough. You need to be able to develop rapport with patients.” — **EILEEN O’GARA-KURTIS**

EYE ON ALUMNI

Happy Marriage: Owner's Manual

“IF YOUR WIFE IS NOT HAPPY, YOU will not be a happily married man.” So goes the premise behind the *The Secrets of Happily Married Men* by Clinical Professor of Psychiatry and Human Behavior Scott Haltzman ’82 MD’85. The self-help primer blends current research with candid insights from Haltzman’s personal and professional experiences as a happily married man and as a couple’s therapist. Add these elements to personal accounts shared by married men on Haltzman’s virtual support group, www.drscott.com/, and you get an insider’s manual on how to stay on the safe side of the nation’s soaring divorce statistics.

The book departs from traditional therapeutic interventions, which often call on men to step miles outside their

comfort zone. “Women define problem solving through verbal expression,” Haltzman explains. “Men don’t tend to feel confident in this respect, especially when talking about their emotions. [But] recognizing and labeling your feelings are the very underpinnings of psychotherapy. When you apply this model to marriage therapy, you create an area where men feel anxious and incompetent.” Haltzman tempers the mushy with the manly, encouraging male readers to “treat marriage like it’s your job.” This man-on-a-mission sensibility, Haltzman believes, appeals to an instinctive task orientation and “removes the expectation that a man has to do something terribly difficult to make his marriage better.” — **JUMOKE AKINROLABU**



Found in Translation

IN THE LATE 1970S MARK BLUMENKRAZ Mark Blumenkranz ’72 MD’75 MMS’76, P’05, ’08 was a promising new researcher at the Bascom Eye Institute, studying treatments for retinal disease.

“At the time ocular drug therapy consisted of eye drops,” he recalls. Blumenkranz wondered how pharmacology could be applied to stem the rapid progression of retinal scarring, a phenomenon that often results in detachment of the retina and ulti-

COURTESY SCOTT HALTZMAN



Mark
Blumenkranz

mately, blindness. His curiosity led to a discovery that forever altered the course of ocular drug therapy. "I did lots of research in cell culture modeling systems to discover that we could use drugs for chemotherapy to treat scarring disorders," he explains. Blumenkranz and colleagues determined these anti-cancer drugs, called anti-metabolites, were effective in arresting the development of scar tissue while

His curiosity led to a discovery that forever altered the course of ocular drug therapy.

preserving normal tissue in the eye. "The principal benefit was its extension to the treatment of glaucoma," he explains. Subsequent trials of the drug elevated anti-metabolite therapy to the standard of care in treating glaucoma and earned Blumenkranz his place in the annals of ocular pharmacology.

Today Blumenkranz is professor and chair of ophthalmology at Stanford, where he continues to advance translational research oppor-

tunities. He established the Division of Ophthalmology and Tissue Engineering at Stanford to apply a multidisciplinary approach to treatments. Recent developments include a patented corneal implant and a class of cold cutting tools that lessen damage to delicate eye tissue during surgery. "We believe this class of tools will improve upon the quality of surgery now possible and will serve as a prototype for more sophisticated forms of ocular surgery."

— J.A.

Practice to Policy

"I HAVE ENTERED ALL JOBS WITH THE idea of being a vocal advocate for the underserved," Kima Joy Taylor '91 MD'95 says. That voice will undoubtedly be amplified by her recent appointment as assistant commissioner for the Division of Health Promotion and Disease Prevention for the Baltimore City Health Department. The position gives Taylor oversight of the city's HIV prevention, counseling, testing, and treatment initiatives, infectious and acute communicable disease epidemiology, and chronic disease and harm reduction programs, among other concerns. It's a job well-suited to Taylor's larger-than-life views on public health policy, views sharply focused by her post-residency work as a pediatrician at a community clinic in Washington, D.C. with a patient roster loaded with uninsured families. "If the patients had serious problems, you had to struggle to find a specialist that would see them," she says. And there were other concerns, issues that extended beyond the confines of the primary care setting. "There were problems with housing including high lead levels, rodents

that bit the patients, dust-mites and other bugs that wreaked havoc on patients with asthma. I realized that as a pediatrician you can break down all those barriers for maybe one patient a day, but that leaves tons of people still facing the barrier."

"I realized that as a pediatrician you can break down all those barriers for maybe one patient a day, but that leaves tons of people still facing the barrier."

So Taylor made the leap from primary care practice to health policy, relocating to the Boston area to begin a Commonwealth Fund Harvard University Fellowship in Minority Health Policy. Within a year, she'd earned a master's degree in Public Health Policy and Management. Taylor then returned to the Capitol and in 2004 began work as a health and social policy legislative assistant to U.S. Senator Paul Sarbanes.

In addition to the daily operations of her office, Taylor is motivated to identify and narrow health care disparities in the Baltimore community. "It is an initiative that is in its infant stages," she says of the project. "Cardiovascular disease and diabetes [care] seem like the biggies right now, but who knows where our initial needs assessment will lead us?"

— J.A.

Alumni Album

CLASS NOTES

1985

John Ho has been named senior VP of corporate strategy at Charles River Laboratories International Inc., in Wilmington, MA.

1986

Jeffrey Hines '83 has been appointed to the Cervical Cancer Elimination Task Force by Georgia State Governor Sonny Purdue. The Task Force will review data regarding cervical cancer and recommend actions to reduce its occurrence. Hines is an attending gynecologic oncologist with Southeastern Gynecologic Oncology and a clinical instructor of obstetrics and gynecology at the Morehouse School of Medicine.

1996

Mehri Brown '92 writes, "My husband is Jolyon Miller '72. We met at the Coffee Exchange in Providence over eight years ago. Professionally, I am doing well. I am an assistant clinical professor at UCSF in the Department of Psychiatry. I am the psychiatrist on an Assertive Case Management Team working with folks with severe mental illness. I also have a small private practice."

1997

Hari Naidu '93 writes, "I am on the faculty at Cornell Medical Center, as an interventional cardiologist. I am mainly clinical, but also teach residents and fellows, and spend about 15-20 percent of my time doing outcomes research. I also still interview students for PLME and Brown. My sister (**Lata Naidu** MD'95) is in private practice in ophthalmology, in Darien, CT. She is married, and doing very well. Others in my class (off the top of my head): **Adam Tobias** '93: faculty at BI in Boston, as a plastic surgery attending; **Lisa Baute** '91: faculty at MGH, as

an OB/GYN attending; **Erik Sirulnick** '93: private practice in Las Vegas, in electrophysiology; **Rudy Banik** '93: voluntary faculty at Einstein, as ophthalmologist; **Andy Fujimoto**: works as family practice doc, in Kaiser System in LA; **Phani Dantuluri** '93: works as orthopedic surgeon in Philadelphia; **Abeel Mangi** '93: fellowship in CT surgery at Columbia; **Nisha Gupta**: '94 residency in anesthesiology at MGH (she switched out of plastic surgery).

I'll see you all in a year and a half, for my 10-year med school reunion."

Geema Shetty '97 and **Vivek Masson** '97 were married October 2005 in a ceremony in New York, NY. The ceremony was attended by many Brown Med alums, including **Neetha Shetty Alva** '95 and **Teena Shetty** '95, as well as **Melissa Gill** '96 MD'01, **Rachel Masch** '88 MD'93, and **Anish Sheth** '98 MD'01.

1998

George Tsoulfas '94 is completing a transplant surgery fellowship at Massachusetts General Hospital in Boston, MA. He writes, "I am doing well and finally getting done with training (although I am sure one can argue if that really ever happens). After that I am going to the University of Rochester as an assistant professor in their transplant surgery division."

2000

Teena Shetty '95 and **Mihir Desai** '89 were married January 2005 in Bangalore, India. The ceremony was attended by several Brown Med alums, including **Neetha Shetty Alva** '95 and **Geema Shetty** '97. She completed a neuromuscular fellowship at Brigham and Women's Hospital in Boston, MA. She writes, "We'd love to hear from

classmates." Teena can be reached at teena_shetty@yahoo.com.

Raymond Hong '96 married Kate Park '99 in Pelham Manor, NY on February 19, 2005. The ceremony was attended by **Lewis Shin** '96 and **Robert Shin** '96. The couple resides in San Diego, where Raymond is a fellow in musculoskeletal radiology at the USCD. He can be reached at rayhong75@aol.com.

Joshua Schiffman '96 is a fellow in Pediatric Hematology/Oncology at Stanford University. He is also part of the Clinical Cancer Genomics Group at Stanford, where he researches the predisposition to and genetic alterations of childhood leukemia and brain tumors. His email address is JSchiffman@stanfordmed.org.

2005

Nadine Dubowitz '00 is a first-year resident in primary care at the University of California, San Francisco. She writes, "I miss Brown! I'm doing well and so happy to be here in San Francisco! I'm surviving internship ... it's a demanding program, but I'm really enjoying both the patients I take care of and the co-residents I work with. The primary care program fits my own philosophies on medicine and attracts other like-minded residents. There are also lots of former Brown-ies running around here, both undergrad alum and Brown Med. In fact, my R2 last month was also my freshman chemistry TA in chem 22! And Kara Chew '01 is here with me, which is truly wonderful. As for the city, I adore it! I miss being away from my family (especially because I became an auntie in August!) but I'm enjoying the mild weather and the wonderful vibe that SF offers ... filled with great restaurants, cafes, parks and the ocean so close by." □

BANK OF AMERICA COMMUNITY FELLOWS

MODEL PHYSICIANS: Alums are recognized for their commitment to socially responsible medicine.

"IS THIS WHAT I WENT TO MEDICAL school for?"

When Shoshana Landow MD'98 found herself asking that question, she knew it was time to change jobs. "I'd lost my way," she says, looking back.

In 2004 Landow left a private, upscale dermatology practice in Manhattan and went to work for the Young Adult Institute (YAI), a unique human services organization that provides medical care to people with developmental disabilities.

"I realized that I had gone to medical school to help people who might not be helped if I weren't there, not to compete with other doctors to treat the overserved of Manhattan," she says, adding that her previous patients had the capability of seeking out three, four, and five dermatologists for their opinions.

YAI serves people with a variety of disabilities—mental retardation, genetic disorders, psychiatric illnesses. They live with their families or in group

homes and attend educational activities.

"This is a group that traditionally received poor health care, with no continuity," Landow explains.

With primary care physicians, specialists, social workers, and even dentists all in the same location, patients can receive care from a cooperative team of doctors. Landow says that because all the doctors are there, they all talk to each other, and that results in excellent, well-rounded care.

In addition, Landow runs her own private practice in Brooklyn with a diverse population that is composed mainly of immigrants and the middle and working class. About 10 to 20 percent of her patients do not have insurance. "This is New York," she says, laughing. "We have a lot of starving artists."

She is also a volunteer attending at the monthly residents' clinic at Kings County Hospital in Brooklyn, which serves patients who have no insurance at all.

Landow, who was an undergrad at Princeton and completed her internship at Rhode Island Hospital before residency at SUNY Downstate, says she is thrilled and somewhat surprised to have been awarded the Bank of America Fellowship, noting that they are traditionally given to primary care practitioners.

Without a doubt, her career change shocked some of her mentors and colleagues. "They think I'm very odd and eccentric," she says of her preference to work with the underserved. "I tell them everyone where I come from (Brown) would think my choice is quite normal."

Read on to learn about the rest of the 2006 Bank of America Community Fellows.

SREEKANTH K. CHAGUTURU '99 MD'04

SREEKANTH CHAGUTURU IS A RESIDENT in internal medicine at Massachusetts General Hospital and a clinical fellow in medicine at Harvard Medical School. He is also a resident physician at Charlestown Healthcare Center, located in a Boston neighborhood that is plagued by heroin addiction. Seeing many of his patients contract hepatitis C as a result of their addiction, Chaguturu worked with local leaders and care providers to establish the first community hepatitis C treatment clinic in Boston. Chaguturu has also worked on global health initiatives. While at Brown, he became involved with Y.R. Gaitonde Centre for AIDS Research and Education (YRG CARE), India's largest non-governmental HIV treatment center, based in Chennai. He continues to volunteer there as a researcher and care provider. In an effort to make physicians more aware of international health issues, Chaguturu has spearheaded an initiative at Mass General to increase training for resident physicians in global health.

THOMAS J. DOYLE MD'03 HS'

THOMAS DOYLE IS IN HIS FINAL YEAR of training in Brown's general internal medicine residency. During his second and third years, he worked at the Providence Community Health Center's Central Health Center, treating an underserved population while broad-



Shoshana Landow

COURTESY SHOSHANA LANDOW

Alumni Album

BANK OF AMERICA COMMUNITY FELLOWS

ening his experience in caring for Latino and immigrant patients. Last spring he worked on a project with the Rhode Island International Institute to determine levels of access and areas for improvement to medical care among new immigrants and refugees who settle in Rhode Island. Doyle received a National Health Corps scholarship during medical school and will work in a medically underserved area upon completion of his residency training.

DERRICK RUSH HAMILTON MD'01

DERRICK HAMILTON IS A PEDIATRICIAN and medical director at Professional Care Services, and is a member of the emergency department staff at Le Bonheur Children's Medical Center in Memphis, TN. Professional Care Services is located within Fayette County, a federally designated medically underserved area, which has never had a pediatrician and remains plagued by poverty, mental illness, and

physicals. He accepts the nearly weekly invitations he receives to speak to various groups, because, in his words, "children and adults respect what physicians have to say." Hamilton says that despite the prospect of more lucrative jobs, he chooses to stay in Fayette County because he can make a tremendous difference in the lives of his patients, exerting a positive impact well beyond their health needs.

JASON B. HANN-DESCHAI NE MD'00

JASON HANN-DESCHAI NE IS A PEDIATRICIAN at Appoquinimink Pediatrics in Townsend, DE. He helped his practice establish a second location in an underserved area of Delaware, and he now works there full time. As part of his regular responsibilities, he sees children in the state's foster care system and cares for newborns prior to their placement with adoptive families through Delaware Catholic Charities. He has conducted a 12-week course

the Commission, he says, "I believe that it is important to act more broadly than within my own community. Our recommendations go to the governor and legislature to change laws and systems to better protect our children. It is hard but rewarding work. I am proud to have been asked to do it."

JULIA F. JOHNSON MD'02

JULIA JOHNSON IS A PHYSICIAN AT Curtis V. Cooper Primary Health Care Center in Savannah, GA. This federally funded clinic serves largely uninsured patients, many with multiple medical, social, and economic issues. Prior to her medical training, Johnson served with the Peace Corps for two years in Gabon, Africa. She provided essential health information to women and teenagers and developed preventive health programs as the regional AIDS/STD Project Coordinator for the Moyen-Ogooue Province. During residency training, she was a liaison for La Clinica Ambulante, a mobile free clinic in Asheville, NC. She spent a month in Guatemala, learning from a local obstetrician the predominant health care issues. She also did a rotation on the Blackfoot reservation in Montana to see first hand the issues affecting Native Americans in that region. Johnson's experience in Africa confirmed her decision to pursue a career in medicine, so she can help individuals who don't have access to care. "There is nothing grand about my commitment to this profession," she says. "It has simply been a lifetime of exposure to the huge divide between those with access and those with barriers."

LISA MENARD-MANLOVE MD'00

LISA MENARD-MANLOVE IS A FAMILY physician at Wood River Health Services in Hope Valley, RI. Wood River is a federally funded community

As the county's sole pediatrician, Hamilton takes on added responsibilities to fulfill the needs of this population.

inadequate health care. As the county's sole pediatrician, Hamilton takes on added responsibilities to fulfill the needs of this population. He writes a monthly "Ask the Pediatrician" column; mentors at-risk fourth through sixth graders; meets with the school superintendent to discuss health care goals and with the teachers of his patients who are struggling in school; works with the school speech therapist to identify and diagnose children with speech problems; and gives free sports

for fourth- and fifth-grade students about human relationships, sexuality, and sexual health. He speaks at local schools and to community groups about childhood asthma, food allergies, and child development. He recently agreed to serve on a panel organized by the Delaware Death, Near Death, and Stillbirth Commission to review all deaths and near deaths resulting from abuse and neglect, as well as to summarize the medical records of these children. Of his decision to serve on

health center; 20 percent of its patients have no insurance and an additional 20 percent are on Medicaid. She enjoys family medicine, she explains, because helping patients with their illness often involves taking into account their personal daily stressors. She often makes community presentations on women's health and wellness, breastfeeding, and end-of-life care training, and periodically writes a column on health-related topics for her local newspaper. In addition, she is a clinical assistant professor of family medicine at Brown Medical School. She takes pride in providing quality health care to individuals and families in her local community who are struggling with basic needs.

ERIC F. WALSH MD'00

ERIC WALSH IS COMPLETING A FELLOWSHIP in Adult and Pediatric Orthopaedic Trauma at Rhode Island Hospital and is a clinical instructor in Brown's Department of Orthopaedics. As a trauma surgeon he strives to provide his patients with information about preventive medicine in addition to treating the immediate problem. Working at the fifth-busiest emergency department in the country, Walsh frequently sees patients referred to RIH by facilities that cannot or will not accept patients without health insurance. This inability to receive care, for even the most grievous injuries, reinforces his commitment to work for the underserved, and he appreciates the diversity of his African American, Hispanic, Cape Verdean, and Portuguese patients. Walsh's commitment to service began after college, when he spent eight years as a U.S. Marine and naval fighter jet pilot. His military experience introduced him to poverty and unequal access to health care at home and abroad which, in turn, motivated him to pursue a medical career.

— KRIS CAMBRA



Sandy Udis with
Misa Perron-Burdick
MD'08, recipient of
the scholarship
endowed by Udis
and his wife.

OBITUARY

A Remembrance of Sanford W. Udis, MD

WHEN SANDY UDIS DIED, NEW ENGLAND lost its preeminent diagnostic radiologist, Brown University and Brown Medical School lost a devoted alumnus and generous supporter, and those of us who knew him well lost a cherished and endearing friend.

Sandy was born in Fall River, Massachusetts. Except for his years of education and his service in the army, he lived, worked, and prospered there, serving well the medical and social needs of his community.

Sandy attended Brown University, graduating cum laude in 1941. He then went on to Boston University School of Medicine and received his MD degree in 1944. After an internship at Boston City Hospital he enlisted in the United States Army as a captain. Following his honorable discharge he undertook residency training in diagnostic radiology at Boston City Hospital and Beth Israel Hospital. And since 1950, an interval of 56 years, Sandy has been chair of the radiology department at the Truesdale Clinic and Charlton Memorial Hospital in Fall River, earning a high reputation for his uncanny diagnostic skills.

Since his return to Fall River more than half a century ago, Sandy has devoted substantial time, funds, and talent to the needs of Brown University and to his community. A trustee emeritus of his alma mater, Sandy served as

president of the Brown Alumni Association and received the prestigious Brown Bear Award in 1982. He has worked for the Fall River United Way, its YMCA, and his synagogue, and has served on countless philanthropic and religious committees.

Sandy was one of the early stalwarts when the medical school at Brown was initiated in 1972. An associate professor of diagnostic imaging, he served on numerous committees ensuring the future of the School (including, most recently, the Advisory Council on Biology and Medicine), and was the first president of the Brown Medical Alumni Association. His services were recognized by numerous citations, including the Medical School's two highest honors: a special award that read, "To Sanford Udis, MD, in recognition of distinguished leadership on behalf of medical education in Rhode Island," which he received in 1988, and the W.W. Keen Award, which he received in 1990.

Sandy, honored citizen of Fall River, distinguished alumnus of Brown University, father of two Brown University graduates, revered physician, devoted friend to Brown Medical School and cherished personal friend: We will miss you deeply but we are profoundly grateful for all that you have done to make this small corner of the world better.

— STANLEY M. ARONSON, MD

DEVELOPMENT

Honoring the Life of a Young Alum



Back row, from left:
Emma Simmons,
Curtis Travis, Scott
Allen. Front row, Justin
Travis, Ava Travis

LEGACY AND COURAGE. THOSE WERE THE THEMES RUNNING through the moving tribute to the late Jimmie D. Clark MD'92 made at the tenth annual Brown Medical School Scholarship Dinner held on March 3, 2006.

Clark's classmates and close friends, Emma Simmons MD'91 and Scott Allen MD'91, spearheaded the effort to establish the Jimmie D. Clark MD'92 Term Scholarship with a leadership gift of their own. This is the Medical School's first one-year term scholarship, and classmates and friends of Jimmie's from around the world contributed to the cause. To date, the fund has far surpassed the \$15,000 needed to award the scholarship.

Curtis Travis, Clark's husband, and their two young children, Ava and Justin, traveled from their home in Tuscaloosa, Alabama, to attend the dinner.

In their remarks, Simmons and Allen remembered Jimmie as a "remarkable woman, of devout faith and convictions, [who] enjoyed life to the fullest though she was not a stranger to adversity."

A graduate of Tougaloo College, Clark entered Brown Medical School through the Early Identification Program. She returned to the South after graduation and worked tirelessly to improve rural health care throughout the region. At the time of her death in June 2005, she was serving as president of Alabama's chapter of the American Academy of Family Physicians, the first African American to do so.

SHORT-TERM COMMITMENT, LONG-TERM SATISFACTION

A NEW GIVING OPTION PROVIDES donors to the Brown Medical School Annual Fund (BMSAF) a meaningful way to connect with medical students.

Donors who give \$15,000 or more annually can establish a named, one-year term scholarship. The named scholarship will be awarded to one student who demonstrates financial need.

Term scholarship donors will receive biographical information about their student as well as an invitation to attend the annual Scholarship Dinner.

For more information about one-year term scholarships, please contact Bethany Solomon, interim director of the BMSAF, at Bethany_Solomon@brown.edu or 401 863-1635.

Simmons said Clark's legacy of helping those who are less fortunate will live on with the scholarship, which was awarded to Thelma Alleyne MD'09. Alleyne is a fellow Tougalooian and native of Jackson, Mississippi.

Curtis Travis took the podium to thank Emma and Scott for their help in establishing the fund. Illustrating Jimmie's deep love for and dedication to her patients, he read from a letter one of them sent him after Jimmie's death, describing the exceptionally kind and personal care she had received.

Simmons told the student recipient, "You have big shoes to fill."

— KRIS CAMBRA



KEEP IT MOVING.

Since the BioMedical Center renovations began last fall, Brown Medical School Annual Fund dollars have helped make the first phase of this project a reality.

But there's more to do, and you can help — before this year's June 30 deadline. The second phase of renovations will transform existing offices into brand-new study and seminar space exclusively for Brown medical students.

Because it helps underwrite faculty support, scholarship funds, and improvements to educational facilities, the BMSAF is the one of the best ways to have an immediate and direct impact on the life of Brown Medical School.

SEE FOR YOURSELF WHAT YOUR GIFT CAN DO. SUPPORT THE BMSAF BEFORE THE END OF THIS FISCAL YEAR.

Making a gift to the BMSAF is easy. Return the enclosed envelope with your contribution or make a gift online at www.gifts.brown.edu. Checks payable to the Brown Medical School Annual Fund may also be sent to Brown Medical School, Office of Advancement, Box 1893, Providence, RI 02912.

Note the gift amounts that qualify you as a 2005-2006 Brown Medical Society Fellow:

Benefactor - \$15,000 and up • **Distinguished Fellow** - \$5,000 to \$14,999 • **Senior Fellow** - \$2,500 to \$4,999
Fellow - \$1,000 to \$2,499 • **For recent grads: Fellow** - \$500 to \$999 (classes 1998-2005)

Questions? Call Brown Medical School's Office of Advancement at 401 863-3232 or contact Bethany Solomon directly at 401 863-1635 or Bethany_Solomon@brown.edu.

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