PITTMED

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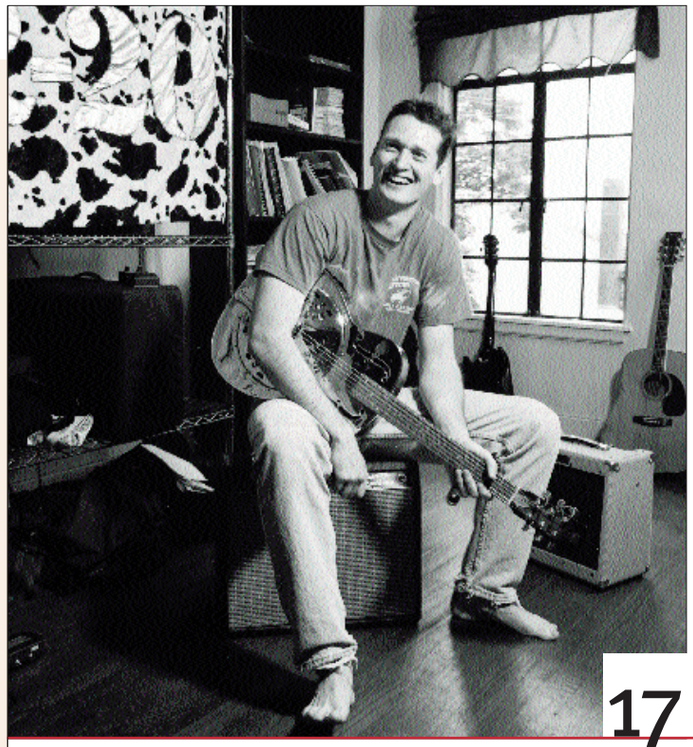
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FRANK WALSH—["Killer Mice"] Pittsburgh native Frank Walsh has been working as a fine art and commercial photographer for more than 13 years. His work has appeared in *Communications Arts*, *Photo District News*, and *Graphis*. Frank recently spent several weeks viewing the Pacific Northwest through his lens.

COVER

An ornery mouse may reveal much about how genetics imprints behavior and intelligence. (Photo by ©The Stockmarket/ David Aubrey)



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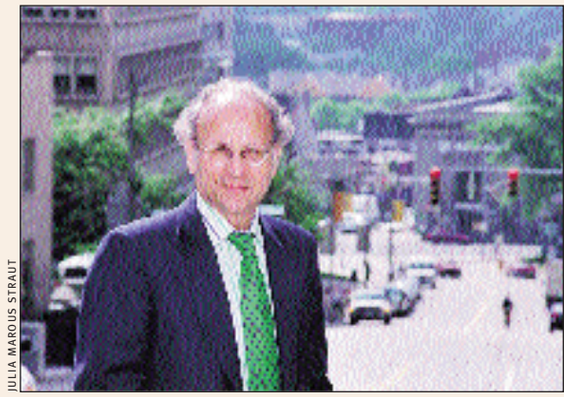
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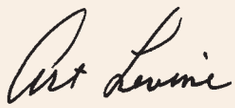


JULIA MAROUS STRAUT

The late Nobel laureate physicist Richard Feynman once wrote, "Science teaches us that the imagination of nature is far, far greater than the imagination of man." It's a humbling realization, and one that probably has kept generations of physicians and medical researchers inspired. Certainly there's no shortage of inspiration at the University of Pittsburgh School of Medicine. Since my appointment here last fall, I've had the privilege of meeting with our students during "brown bag lunches" and with every faculty member. The quality of the people Pitt attracts is impressive—our students are thoughtful and sophisticated and our faculty includes some of the finest teachers, clinicians, and investigators in the nation.

Pitt now places 12th among National Institutes of Health funding recipients. Our curriculum is a national model for group problem-solving and patient-based learning. And our vibrant relationship with UPMC Health System is unique in this age of struggling academic medical centers. In short, the school is positioned to become even stronger—that is, if we respond intelligently to opportunities and threats that come our way. We must invest in people, retaining and recruiting great professors and supporting excellent students. Pitt med graduates typically are faced with debts of nearly $104,000. These debts don't just affect students and their families, they affect the willingness of students to pursue careers in academic medicine or go into less profitable fields such as primary care. We must also invest in programs that will keep Pitt on the cutting edge, such as a Center for Human Genetics and a Very High Field MRI facility.

These are exciting challenges ahead of us, and I can't think of a better place to take them on. Here at Pitt, the work of advancing the human condition goes on in earnest every day. This new evolution of our magazine, *Pitt Med*, will give voice to the many great stories Pitt alumni, faculty, and students have to tell. I hope you'll share in our ongoing intellectual adventure.



Arthur S. Levine, MD
Senior Vice Chancellor for the Health Sciences
Dean, School of Medicine

Before coming to Pitt in November of 1998, Dean Levine served at the NIH, joining the organization in 1967 as a fellow and eventually rising to the position of scientific director of the National Institute of Child Health and Human Development. He has authored more than 240 scientific publications, and been widely recognized for his clinical and basic research achievements as well as his leadership in the scientific community. Dean Levine was clinically trained as a pediatric oncologist and scientifically trained as a molecular biologist.



ILLUSTRATION: BECKY SMITH

Devoted to noteworthy happenings at the medical school...Also, to stay abreast of Pitt health sciences news, including info on faculty, research, and employment opportunities, see http://www.health-sciences.pitt.med.edu

Faculty Snapshots

EVERY DAY, HUNDREDS OF SCHOOL OF MEDICINE FACULTY ENGAGE IN RESEARCH AND CLINICAL WORK THAT ADVANCES MEDICAL SCIENCE. HERE'S A SAMPLING OF SOME RECENT HIGHLIGHTS:

The University of Pittsburgh's Multicenter AIDS Cohort Study (MACS), founded in 1982 by **Charles Rinaldo Jr.**, professor of pathology, has been awarded $6.9 million from the National Institutes of Health. The grant is intended to fund, through the year 2004, the MACS and its research into the natural history and pathogenesis of AIDS in gay and bisexual men.

The Pittsburgh Center for the Neuroscience of Mental Disorders (CNMD), directed by **David A. Lewis**, professor of psychiatry and neuroscience, has received a $10.6 million grant from the National Institute of Mental Health (NIMH) to investigate the brain function disturbances that occur in schizophrenia. CNMD is one of only a few centers in the country funded by NIMH to study schizophrenia.



Ragni Lewis Abu-Elmagd

A team lead by Pitt's **Srinivas Murali** has determined that patients receiving donor hearts previously judged as unsuitable for transplantation (due to donor age, presence of coronary artery disease, or left ventricular dysfunction) display a short-term outcome comparable to that of patients receiving optimal donor hearts. According to Murali, associate professor of medicine and director of transplantation cardiology at UPMC's Cardiovascular Institute, programs of this sort can help maximize our limited donor resources.

Robert E. Schoen, assistant professor of medicine and epidemiology, will direct a newly established Center for Families at Risk for Colorectal Cancer. Colorectal cancer, though it is one of the most preventable forms of cancer, results in about 130,000 new cases per year.

Following favorable results in recent intestinal transplant studies, a research team lead by **Kareem Abu-Elmagd**, associate professor of surgery and director of intestinal transplantation at the Thomas E. Starzl Transplantation Institute, reports that intestinal transplantation is a viable and life-saving operation. Abu-Elmagd argues that the procedure should no longer be considered experimental, and that intestinal transplant patients should be eligible for Medicare coverage.

Margaret V. Ragni, professor of medicine and director of the Hemophilia Treatment Center of Western Pennsylvania, is overseeing the first clinical trials for *in vivo* gene therapy for hemophilia A and hemophilia B. The therapy offers promise for tens of thousands of men affected worldwide. *—RS*

THEY'RE NATURALS

WITH JUST FOUR PRACTICES, DAVID COGNETTI LED HIS SOFTBALL TEAM TO THE CHAMPIONSHIP AT THE SECOND ANNUAL MEDICAL CHARITY INVITATIONAL TOURNAMENT IN WASHINGTON, DC. THE CO-ED TEAM OF FIRST-YEAR STUDENTS RAISED HUNDREDS OF DOLLARS FOR THE RACE FOR THE CURE BREAST CANCER RESEARCH FUND. PITT HAD A STRONG SHOWING AT THE EVENT; ITS OTHER TEAM CLINCHED THIRD PLACE.



Fu

New Sports Complex to Be One of a Kind

BY ANNE-MARIE GALLAGHER

Freddie H. Fu says the reasons he went into sports medicine are simple: He likes sports; he plays them himself. Most of all, he enjoys healing people so that they can do what they love to do and perform at their peak level.

A new Sports Performance Complex, to be located on the former LTV South Side site, will offer comprehensive services for athletes of all stripes, says Fu, whose long list of titles includes David Silver Professor and chairman, Department of Orthopaedic Surgery and head team physician, Department of Athletics. "We wanted to put everything under one roof so that patients are treated more effectively and efficiently," he says.

Pitt med students, residents, and fellows will continue to help staff the clinic, as will every kind of health care professional related to sports medicine, from primary care physicians, to nutritionists, sports psychologists, and physical therapists. At the center, patients will be able to obtain key medical services—such as X rays and MRIs—on the spot, for what Fu calls "one-stop health care."

In addition to housing the Center for Sports Medicine, the complex also will serve as the training grounds for the Pittsburgh Steelers and the University of Pittsburgh Panthers. The complex will include Steeler and Panther offices, locker rooms, indoor and outdoor practice fields, and training areas. UPMC Health System officials believe the $30 million complex will be the only one of its kind, that is, the only facility that combines the resources of a major academic and clinical system with professional and collegiate sports team programs.

The Sports Performance Complex is expected to open its doors in the year 2000—then Pitt, and Fu, will be able to help even more people reach their personal best. ■

CANCER INSTITUTE EXPANDS

This fall, the Hillman Cancer Center for the University of Pittsburgh Cancer Institute broke ground for a $104 million building that will be attached by a pedestrian bridge to UPMC Shadyside. The expansion will accommodate twice as many outpatients—50,000 a year—and allow UPCI to add another 250 positions, doubling its faculty. The new center will open its doors in 2002.

Science Buffs

Chris Milcarek, professor of molecular genetics and biochemistry, was troubled by the American Association of University Women study indicating seventh grade appears to be a key year in which girls' interest in science drops significantly. So five years ago, she, with several other women colleagues, created Pitt's Young Women in Science Day, sponsored by the School of Medicine. For the day-long workshop, six local schools each send 15 girls to be "visiting scientists." The visitors participate in laboratory experiments, and each girl receives a packet that includes information on outstanding women in mathematics and science.

"We wanted to show that there are women who are scientists, and that science is fun," says Milcarek.

FOR MORE INFORMATION: gainesjr@msx.upmc.edu



JOANNE BARTONE/CIDDE



PITT HELPS LOCAL BIOMED INDUSTRY BLOSSOM | BY ANNE-MARIE GALLAGHER

"Pollination" is not the usual metaphor that springs to mind when the talk is of money. But as he considers the effects of a Pitt-backed venture capital fund on Southwestern Pennsylvania's economic growth, William Golden, managing director of Caduceus Capital, thinks it is an apt comparison.

"Pittsburgh is considered out of the mainstream in terms of venture capital," he says. "Once Pittsburgh has a little exposure, more venture capitalists will come to the city. It's a bee-and-pollen type of thing." The $60 million Caduceus fund was created to support promising biomedical and biotechnology companies. Pitt is backing the fund, along with UPMC Health System (the fund's primary sponsor), Carnegie Mellon University, and the Small Business Administration.

The first firm backed by Caduceus was Stentor, whose technology came from one of Pitt's fruitful laboratories. Stentor produces medical imaging software developed by Paul Chang, associate professor of radiology and chief of radiology informatics. Like Stentor, the remaining 14 companies Caduceus supports will be in the beginning stages of commercializing their technologies—since this is when they can best take advantage of area clinical research experts to conduct the trials needed to validate product viability.

Venture capital firms also have invested in the fund, including Mellon Ventures and PNC Equity Management Corporation, both from Pittsburgh; Sanderling, from Menlo Park, California; and TVM Techno Venture Management, from Munich, Germany. Golden attributes the fund's ability to attract venture capital firms to Caduceus's partnership with a major academic medical center: "Small companies tend to get distracted by the potential of their technology, and they lose touch with the real world," says Golden. Working with medical researchers and hospitals, he notes, will be "a refreshing real-world contact that will allow the companies to keep their feet on the ground." ■

Flashback

"When I was called about Three Mile Island, I was asked to comment on the symptoms of radiation in the range that could be lethal for up to 50 percent of the population. I was astounded. It was hard to believe that someone could even be asking that question. A day later, I found myself sitting across from then-Governor Thornburgh discussing various evacuation scenarios. He was very concerned, and I suddenly realized that he carried the final responsibility for the health and safety of the people of Pennsylvania. Fortunately, the systems designed for operating nuclear reactors worked, and virtually nothing got out [into the environment]. From a radiation perspective, TMI was a non-event."

—Niel Wald, professor of radiology in the School of Medicine, commenting on his role as a state-appointed radiation consultant during the Three Mile Island nuclear reactor crisis, which took place in 1979, near Harrisburg

Mellors Wins Bristol-Myers Squibb Award

BY ANNE-MARIE GALLAGHER

Defining failure doesn't seem a particularly auspicious research topic, but **John Mellors** believes that only by exploring the causes of treatment failure can we find new ways to thwart HIV and AIDS.

The good news is that he appears to be on the right track. Mellors is a professor of medicine, infectious diseases and microbiology, and pathology at Pitt, as well as the chief of the Division of Infectious Diseases and director of HIV/AIDS programs at UPMC Health System. He has changed the way researchers approach HIV and AIDS.



Mellors

His discovery in 1996 that viral load (the amount of virus in the blood) plays a key role in determining a patient's prognosis has paved the way for understanding the causes of treatment failure. This understanding and other advances laid the groundwork for researchers to develop triple-combination drug therapy, which has revolutionized HIV and AIDS treatment. Today with the right treatment, there's a potential that viral load can be suppressed indefinitely.

Last April, Mellors was granted the prestigious Bristol-Myers Squibb Award in recognition of the contributions he has made to the treatment of AIDS. He plans to use the half-million dollar, unsolicited grant to conduct studies and explore how certain therapies work in patients who have undergone numerous treatments and are likely to have a good deal of resistance to available drugs.

"I've had an impact on people's lives, and that's been very gratifying," Mellors says. "Early in my career, I believed I would be most honored by the esteem of my colleagues. But it's the gratitude of the patients that I find the most satisfying—the look in their eyes when they say 'thank-you.'" ■


SCOTT TURRI

NATIONAL LEADERS APPOINTED TO SCHOOL'S BOARD

In his first few months as senior vice chancellor and dean, Arthur S. Levine recruited several nationally recognized leaders in medicine and biomedical research to join the medical school's Board of Visitors. The school now benefits from the sage guidance of the following new appointees:

Jonathan D. Gitlin, MD '78, is professor of pediatrics and pathology as well as director of the Division of Pediatric Immunology and Rheumatology at Washington University of St. Louis. Gitlin has made important advances in Wilson's disease, aceruloplasminemia, and amyotrophic lateral sclerosis.

Story C. Landis is the scientific director of the National Institute of Neurological Disorders and Stroke (NINDS), where she oversees the 22 NINDS clinical and research laboratories housed on the National Institutes of Health's campus in Maryland. She has conducted extensive research on how neurons differentiate early in their development and how they transmit and receive information through synapses.



Richard P. Lifton is a professor and chair of the Department of Genetics at the Yale School of Medicine and a Howard Hughes Medical Institute investigator. Lifton has identified several genetic variants that lead to hypertension, a condition which afflicts 50 million Americans. His research promises to revolutionize the diagnostic and therapeutic approaches to this disease.

William A. Peck is executive vice chancellor for medical affairs and dean of the Washington University School of Medicine in St. Louis. Peck is one of the nation's leading researchers on the causes of osteoporosis. Peck has appeared as a scientific spokesperson for the media in programs such as *Good Morning America*, the *CBS Morning News*, and the *McNeil Lehrer Report*.

Larry Shapiro is the W. H. and Marie Wattis Distinguished Professor, chair of the University of California at San Francisco Department of Pediatrics, and chief of Pediatrics Services at the UCSF Medical Center. Shapiro has researched the genetic basis of errors in metabolism and also has studied the mechanics of sex determination in mammals.

Savio L-C. Woo is president of the American Society of Gene Therapy and founding director of the Mount Sinai Institute for Gene Therapy and Molecular Medicine, in New York. The institute translates biomedical advances into practical applications that can benefit patients. The March of Dimes recently awarded him one of the largest grants in its history to further his investigations on using inactivated viruses to deliver DNA for gene therapy. Woo's brother, Savio L-Y. Woo, is the director of the Musculoskeletal Research Center at Pitt. *—AU*

Chairs of Surgery and Medicine Appointed

After national searches, the school has filled two important positions with outstanding internal candidates. Timothy R. Billiar, Watson Professor of Surgery, has been selected as chair of the Department of Surgery. Billiar, president-elect of the prestigious Society of University Surgeons, has been the recipient of multiple awards, including the George H. A. Clowes Jr. Memorial Research Career Development Award from the American College of Surgeons and the Dolph O. Adams Award from the Society of Leukocyte Biology. Mark L. Zeidel, former interim chair of the Department of Medicine and professor of medicine and cell biology and physiology, has been selected as Jack D. Myers Professor and chair of the Department of Medicine. Among his many accomplishments, Zeidel, an elected member of the American Society for Clinical Investigation, has been recognized with the Robert Loeb Award, and more recently, a prestigious NIH MERIT Award for outstanding research. *—RS*

An Enviable Position: New Pitt/UPMCHS Partnership Keeps an Academic Medical Community Healthy | BY DEBORAH PATZ



National medical leaders warn that in the increasingly tenuous HMO/Medicare climate, dozens of academic medical centers could fall into bankruptcy in the coming years. Is it possible to sustain the lifeblood of academic medicine while keeping the nation's health care system off the critical list? Committed to answering affirmatively, the University of Pittsburgh and UPMC Health System (UPMCHS) have forged a stronger and more extensive partnership that aggressively treats both concerns while refusing to sacrifice one for the other.

Last fall, the two institutions inked a 10-year deal that infuses significant hard-money resources into the School of Medicine and other University health sciences teaching and research programs. The agreement offers the health system greater flexibility in responding to the traumas of the health care environment, as well as market distinction, by coupling its clinical services with high-level teaching and research.

"With the University-UPMCHS partnership, Pittsburgh is ahead of the curve in responding to the national fiscal crisis in academic medicine," says Arthur S. Levine, senior vice chancellor for the health sciences and dean of the medical school. "We are fortunate to be partnering with a health system that actively supports academic medicine and recognizes that investments in research and education ultimately contribute to financial stability in the health care delivery system, preservation of the academic mission, and direct patient benefits."

Through the years, both UPMCHS and Pitt have risen in prominence. The University's share of funds awarded by the National Institutes of Health grew more rapidly than that of any other American university from 1985 to 1995. And UPMCHS is now one of the nation's largest not-for-profit, nongovernmental health systems, with an almost $3 billion annual operating budget. The institutions severed fiscal and legal ties in 1997 to reduce the University's financial risk and enable UPMCHS to respond to volatile business conditions in health care. That accomplished, they developed a formal new partnership based on their continuing interdependence and historic allegiances. The agreement asserts a reality that both readily acknowledge—the strength of one contributes in great measure to the strength of the other.

Jeffrey A. Romoff, UPMC Health System president, says the agreement is equally advantageous to the health system. "The greatest benefit is to have the University's superb faculty delivering the highest quality and most innovative care in our clinical facilities." According to Levine, the formalized relationship provides crucial and reliable support for the school, as it faces even more challenging times ahead. Revenue from clinical practice is now the primary means of support for medical education nationwide. In 1961, for example, the average medical school realized just five percent of its income/operating expenses from clinical practice revenue. By 1994, that total had skyrocketed to 49 percent, increasing pressure on a system dealing simultaneously with declining reimbursements and increasing costs.

In seeking to preserve both the heart and the soul of academic medicine, the partnership places Pitt at the forefront of academic medical centers nationwide, notes Levine. ■

HOW THE PARTNERSHIP WILL BOLSTER THE SCHOOL:

- program support and discretionary funding estimated at $1 billion over 10 years
- capacity to explore promising research and educational opportunities with discretionary funds under Levine's control
- research space in the 295,000-square-foot Hillman Cancer Center under construction in Shadyside
- continued participation in UPMCHS governance with one-third University representation on its board and executive committee
- sole authority over academic matters and continued administration of federally funded research

NEW PRACTICE PLAN ESTABLISHED

Following a national trend, UPMCHS has unified 18 formerly distinct, department-controlled clinical practice plans into University of Pittsburgh Physicians (UPP), a nonprofit corporation operating as a UPMCHS component. UPP offers its physicians the advantages of size, strength, and unity in negotiations with insurers as well as management expertise in dealing with complex business issues. It also extends communication across clinical specialties and departments, enabling broad faculty representation. UPP's leadership is physician-driven, with a physician at the helm (Richard Baron, former chair of the Department of Radiology) and 26 physicians on its 34-member board.

OUR THANKS

We're grateful to the Allegheny County Medical Society Auxiliary for its donation in support of pediatric oncology research at the School of Medicine. The group raised thousands for the cause at its annual fashion show.



ROY ENGLEBRECHT

TREATING THE BLUES IN THE TWILIGHT YEARS

REYNOLDS SAYS WE'VE MISSED THE MARK

BY ALPAY ULKU

Charles F. Reynolds III, a professor of psychiatry and senior associate dean at the School of Medicine, waited intently for his computer to finish sorting the last chunk of data. When the calculations stopped, a simple line graph appeared on the screen. As graphics go, it was far from fancy: four dotted lines beginning in the upper left-hand corner and making a jagged path to the right. They looked like they could have been drawn by an Etch A Sketch. But what those four lines represented made Reynolds and his colleagues want to stand up and cheer.

The data validated Reynolds's hypothesis. It turns out that the way most of the medical community has been thinking about—and treating—depression in the elderly should be reconsidered.

"Many people thought of depression as a normal part of growing old," says Reynolds. "Our view is that depression is a disability that diminishes quality of life. Yet it is treatable, and when it's left untreated, it amplifies other health problems."

Though this idea is not new to the medical community, Reynolds and his team came up with the hard data. After an extensive 10-year study, funded by the National Institutes of Health and conducted at the Western Psychiatric Institute and Clinic, Reynolds—with collaborators Ellen Frank, professor of psychiatry and physiology; David Kupfer, the Thomas Detre Professor and chair of the psychiatry department; and James M. Perel, professor of psychiatry and pharmacology—proved that depression in the elderly is a recurring illness which can be treated with drugs and long-term, monthly psychotherapy.

In the case of this study, the drug that was used for treating depression was nortriptyline, a commonly prescribed antidepressant. Reynolds found that when he treated patients with nortriptyline and psychotherapy, the recurrence of depressive episodes was low, as indicated by a solid and level data line that ran across his screen. The results were less successful when nortriptyline was given alone. When a placebo was combined with psychotherapy, the line descended in little jagged steps, showing a high degree of recurrence over time. And when just a placebo was given, the line plummeted almost immediately and stayed in the high-recurrence zone. The results couldn't be clearer.

"I don't think it's generally appreciated how important long-term treatment is," says Reynolds. "The prevailing view is that short-term treatment is enough. But getting well is not enough—it's staying well that counts."

And staying well can be a matter of life and death. Reynolds says that approximately 70 out of every 100,000 older Americans commit suicide every year. "The rate of suicide among the elderly is substantially higher than the rate of homicide for the general population," says Reynolds.

Reynolds must still overcome a major obstacle before his research can begin helping the elderly. "We've got to persuade our friends in the medical insurance industry, and in Medicaid and Medicare, to take a long-term view of treating depression in later life in order to keep these patients well," he says. "Not to do so winds up escalating other types of medical costs."

Reynolds says that depressed patients ultimately cost the system more. "Typically, older people with depression have five, six, or seven chronic medical problems such as hypertension, congestive heart failure, and lung disease. If people are depressed, they lack the ability and motivation to participate effectively in their medical care."

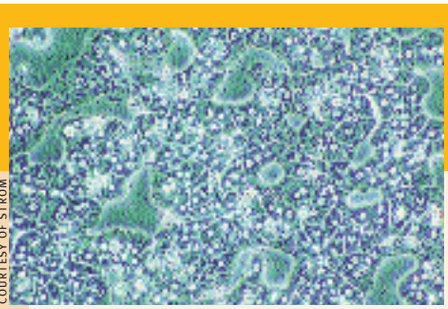
Reynolds adds that depression may worsen conditions such as Alzheimer's, eventually forcing caregivers to place such patients into nursing homes—a far more expensive outcome.

So he is conducting a broad-based public health campaign to get his data out. High-profile publications, including the *Wall Street Journal* and the *New York Times*, have interviewed Reynolds. And the nortriptyline study was published in the *Journal of the American Medical Association* last January.

Closer to home, Reynolds has begun a formal cost-benefit analysis in partnership with health economists at Pitt and Carnegie Mellon University, which, he says, will "demonstrate that combining medication and psychotherapy is cost-effective as compared to the use of drugs alone."

Reynolds says that Pittsburgh, with its large elderly population, could see significant benefits from the findings. And what goes around in Pittsburgh, says Reynolds, will come around throughout America: "Pittsburgh demographically is a very, very old city. It looks like what the rest of the country will look like in 2015."

Hopefully, through the efforts of Reynolds and others, a comprehensive, effective treatment for depression among the elderly will be well-accepted by the time the rest of the country catches up to Pittsburgh. ■



COURTESY OF STROM

Isolated human liver cells

HOMEWARD BOUND

CELL TRANSPLANTS OFFER HOPE FOR PATIENTS WITH LIVER DISEASE | BY LAURA SHEFLER

Toward the end of a long and momentous day—a day when an experimental cellular transplant would hand her a trump in her deadly wager against liver disease—10-year-old Maria Louisa Lujan decided she was tired of the hospital, of IVs, and of catheters. She announced that she was ready to go home. The girl's impatience with the procedure was, in a sense, a triumph for Pitt's Stephen Strom and his colleagues. A child who might otherwise have endured the risk and trauma of radical surgery was undergoing a relatively gentle treatment—one that left her awake and alert enough to complain.

Lujan, who flew in from New Mexico to the University of Nebraska Medical Center for the treatment, was born with a rare inherited disorder, Crigler-Najjar Syndrome Type I.

Normally our livers produce an enzyme that binds with or "conjugates" bilirubin, a byproduct of red blood cells, making it water-soluble so that the body can rid itself of it. In cases of Crigler-Najjar, unconjugated bilirubin builds up, causing jaundice and ultimately

brain damage. Liver transplantation is the only proven cure.

However, in Lujan's case, physicians and researchers, including Strom, associate professor of pathology at Pitt, cut her bilirubin level by more than 60 percent. The team used a cell-transplant method that is dramatically less invasive, and less costly, than an organ transplant. Through a catheter, doctors infused 7.5 billion liver cells, which Strom had isolated from a healthy organ that was unusable for conventional transplantation.

In the days that followed the procedure, Lujan's bilirubin levels dropped rapidly. Before the cell transplant, the girl had to spend 10 to 12 hours each day under special sunlamps that help to break down bilirubin. By week seven, she needed only six to eight hours a day.

"This was a clear, unequivocal demonstration that this technique worked," notes Strom, who co-authored a report that appeared in the May 14, 1998 *New England Journal of Medicine*. Because the patient lacked the genetic capacity to conjugate bilirubin, researchers could prove that the donor cells were alive and functioning. "We looked for the bilirubin conjugates after cell transplant," Strom says. "And they were present."

He and his colleagues plan a second cell transplant for Lujan.

"If it works as well as the first," he says, "it might actually cure her."

The improvements in Lujan's health offer hope for other patients with little-known metabolic diseases like Crigler-Najjar. These diseases, which account for approximately five percent of all liver transplants, often affect only one of the more than 500 different hepatic functions, such as conjugating bilirubin.

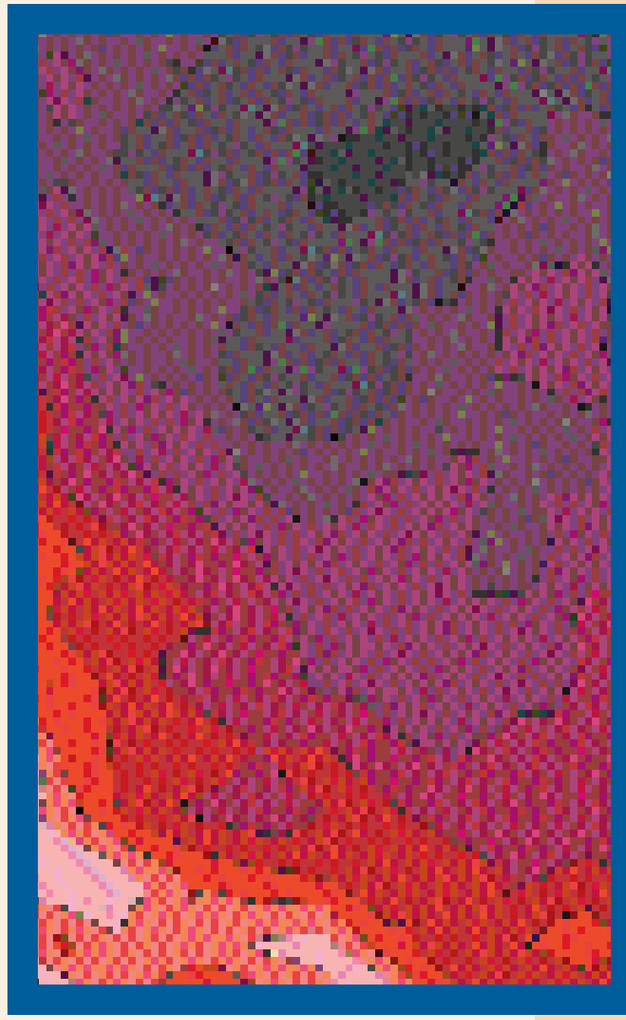
"Putting in another normal liver just to correct a one-gene defect is like rebuilding a whole town to repair one block," Strom says. "With most of these diseases, we think that if we can get 10 percent of the normal amount of the missing enzyme, it will probably cure the disease, or at least massively reduce the symptoms."

A coalition of liver experts from five major medical centers around the country has been running clinical trials of cell transplantation in patients with metabolic diseases, as well as those with sudden or "fulminant" liver failure. In these cases, the liver cells had been intended as an emergency "bridge" until a whole liver could be found. In two surprising instances, however, a complete recovery followed the cell infusion, eliminating the need for a whole organ transplant.

The number of people in fulminant liver disease trials has been too small to offer statistical evidence about whether the donor cells really contributed to patient survival. Still, toxicity levels often went down, and blood flow to the brain improved after cell transplant.

With more than 13,000 people waiting for liver transplants and fewer than 5,000 suitable organs donated each year, Strom believes that cellular infusions could make more livers available. In trials such as Lujan's, he has been able to effectively use livers that could not be used for whole organ transplants. In addition, this technique might allow surgeons to infuse cells from a single liver into more than one person, perhaps giving us many more patients who are ready to head for home. ■

FOR MORE INFORMATION: strom+@pitt.edu



BONE MARROW LINKED TO LIVER REGENERATION

Among the bodily organs, the liver commands special scientific attention because of its unique ability to regenerate, replacing cells lost to disease or injury. Recent studies by Bryon Petersen, research associate in the Department of Pathology, indicate that at least some of the replacement cells come not from the liver, but from bone marrow. Petersen anticipates that his findings, published May 14th in the journal *Science*, might someday lead to treatments that use a patient's own bone marrow cells to counter severe liver disease.

Petersen's experiments looked at rats recovering from liver damage. In one case, he transplanted bone marrow from male donors into female recipients. Then, by testing the recipient's liver cells for the Y chromosome, he was able to prove that some of the newly developed liver cells had descended from the donor's bone marrow cells.

In the past, researchers have coaxed bone marrow cells into producing bone, cartilage, and fat cells. Petersen's studies, however, represent the first time anyone has been able to use an adult animal's bone marrow—as opposed to embryonic bone marrow stem cells, which are precursors for a wide range of body tissues—to produce the cells of a major organ. *—LS*

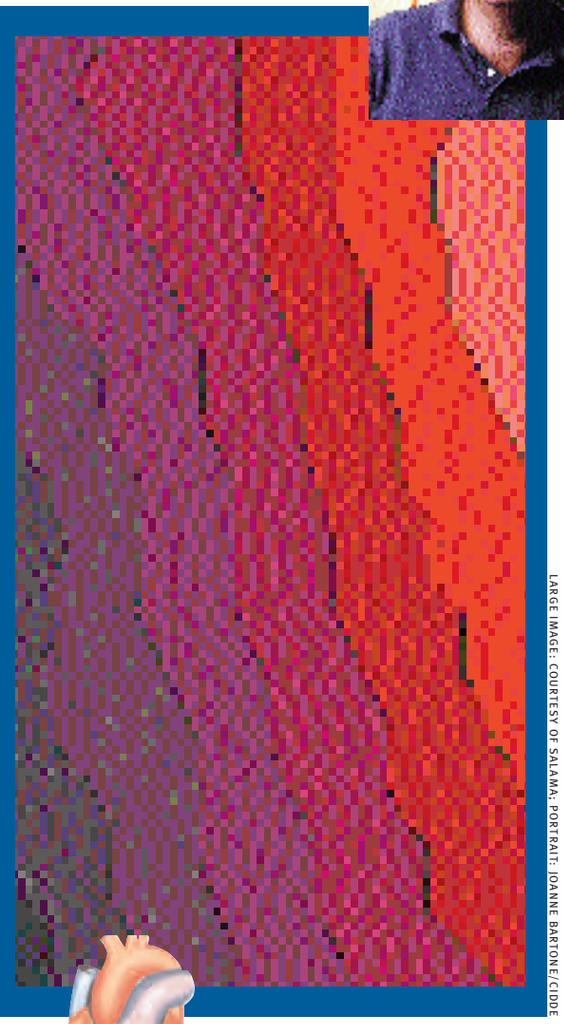
FOR MORE INFORMATION:
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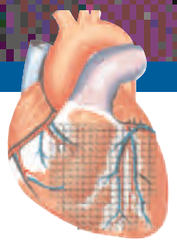
SHOT AT THE HEART

GUY SALAMA'S IMAGING TECHNOLOGY MAY LEAD TO NOVEL ANTIARRHYTHMICS

BY REBECCA SKLOOT







LARGE IMAGE: COURTESY OF SALAMA; PORTRAIT: JOANNE BARTON/CIDDE

Salama's optical imaging technique maps impulses spreading across the heart from a central stimulus (brown to red).
LEFT: Electrical impulses recorded from multiple sites, superimposed on an image of the heart

Guarding the entrance to Guy Salama's office, staring hard through the door and down the hall, is a Japanese Noh mask. It hangs in the midst of books, journals, and photos, eyes determined and hypnotic. It demands attention.

Salama nods toward the mask. "If you pay attention," he says, "you'll see more." And scattered around his office, awaiting a careful eye, there *are* others: a horned fellow next to the door, an ancient wiseman peeking between shelves . . . The key to finding them is taking a more inclusive visual approach.

In essence, a broader visual approach is what Salama has brought to his field, electrophysiology, but also to the larger world of medical science. For his PhD dissertation in the '70s, Salama, now associate professor of physiology at Pitt, discovered voltage sensitive dyes. These dyes, which fluoresce in response to cellular voltage changes, have facilitated breakthroughs in our understanding of neuroanatomy and cell-to-cell communication. Salama's dyes are now standard tools in electrophysiology labs.

These days, Salama uses optical imaging to study cardiac electrophysiology, the intricacies of the heart's electrical system. When it works normally, the heart passes an impulse smoothly from cell to cell, sending a surge of electrical impulse across the heart, culminating in one solid beat—like a wave approaching the shore, its swell growing until it crashes into the surf, then calming, dissipating, until the next wave crests. But this precise system is prone to its own El Niños. At any point, if one cell is not perfectly in sync, the wave can be redirected, or broken prematurely. This can mean arrhythmia and instant death, even if the system is only a millisecond off. We read about such failures of the heart's circuitry when they suddenly kill otherwise healthy athletes in mid play, or infants in their cribs.

Salama's most recently developed imaging technology has given him a new window through which to study arrhythmias, but he doesn't just want to watch them. He wants to stop them. Of course, treatments for arrhythmias do exist already. Pacers and defibrillators can regulate the heart rate, but not everyone can afford them. And there are antiarrhythmic drugs, but—sometimes they prevent arrhythmias, sometimes they cause them.

To develop antiarrhythmics, researchers applied standard electrophysiology techniques which use electrodes, either on the surface of a cell, or within its core, to measure voltage changes. For monitoring a cell, these do a fine job. But, as Salama points out, arrhythmias can arise from a transmission glitch at any point in the heart's electrical system. There is no one cell to monitor. Electrodes, while they monitor select points well, miss hundreds of others.

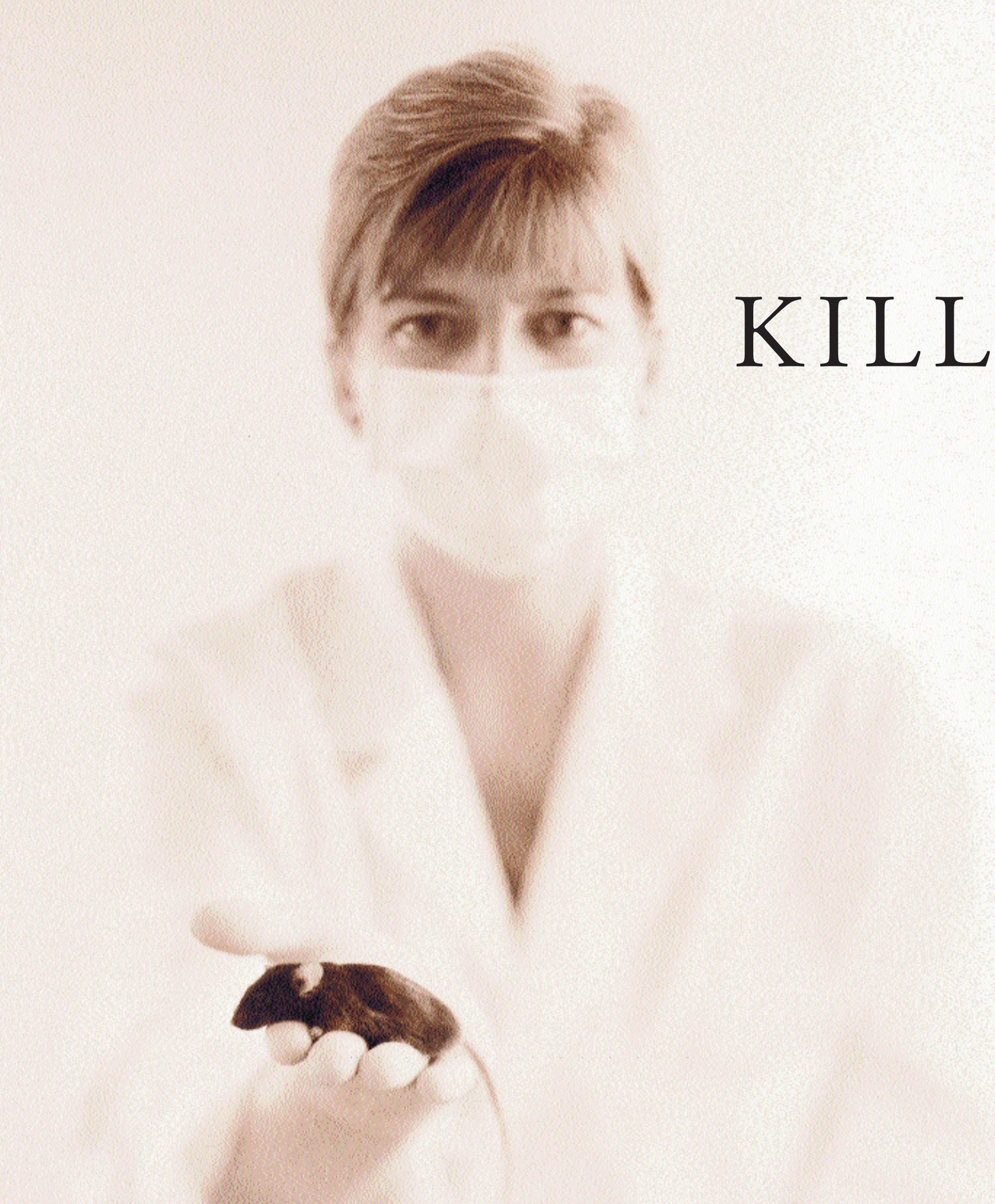
Despite their limitations, antiarrhythmic researchers used electrodes to monitor individual cells in solutions with experimental drugs—an approach which, according to Salama, "doesn't tell you anything with respect to a system where all the cells are coupled to form a functional pump." The circuitry that allows waves of impulses to flow smoothly across the heart depends on each individual cell in the chain. Not just one. And it happens in a beating heart, not in a petri dish.

How, then, is it possible to get a full picture of the heart by looking at only a few cells? Salama says, it's neither possible nor necessary. He has created an optical imaging technique that uses voltage sensitive dyes to illuminate 256 sites, every one of which would require thousands of electrodes to monitor, and it does so in a beating heart.

With his technology, Salama—and collaborators Barry London in cardiology and Jeanne Nerbonne at Washington University—has carried out the delicate feat of studying the hearts of mice genetically engineered to develop sudden death arrhythmias. His goal: to broaden our understanding of the heart's electrical system so that cheaper and more effective antiarrhythmics can be developed.

"Perhaps," Salama says, "antiarrhythmics can have a renaissance." He wants to start it. ■

FOR MORE INFORMATION:
http://www.cbp.pitt.edu/la_gs.htm



KILL

PAULA MONAGHAN-NICHOLS'S MICE COULD STAR IN A B-HORROR FLICK, BUT THEY'RE MORE LIKELY TO SHED LIGHT ON HOW DEVELOPMENTAL DEFECTS AFFECT NEUROPSYCHIATRIC DISORDERS. | BY ERICA LLOYD

ER MICE!

It's feeding time. Paula Monaghan-Nichols first checks to make sure the Enfamil isn't too hot by letting a drop fall on her wrist. "It should be 37 degrees."

As Monaghan rubs her finger over the backs of the mice in the cage, their dark coats shine. She positions the eye-dropper in one hand and picks up the smallest of the litter in the other, the creature responds by biting her latex-gloved hand. Monaghan, assistant professor of neurobiology and psychiatry at the School of Medicine, takes this in stride. But she needs to get this little guy, who is underweight and underdeveloped, to take a bite of something besides her finger, or it will starve. She offers a few soothing, "okay, okay"s—the mouse takes another chomp on her hand and breaks for the floor, but doesn't get far before Monaghan expertly places the runaway back in the cage.



Monaghan-Nichols

Monaghan and her lab assistants go through this ritual several times a day. Like a premature baby, the ornery mouse will not survive without being nursed with Enfamil. (This solution includes a shot of glucose to sweeten the smell and provide an extra boost of energy.)

"The Enfamil should be administered every two hours," says Monaghan. "We can't feed round the clock so we put wet food in the cage, as another supplement."

Hers is not a thankless exercise. Monaghan, an embryologist, has good reason to believe this animal will grow up to be an extraordinary study subject. By the time it is four to six weeks old, at sexual maturity, it will become extremely aggressive. In fact, it is likely to fight to the death with any of its siblings left in the cage—and, though it is the runt of the litter, this mouse will win.

Monaghan knows its fate because she has knocked out its *tailless* gene. When she first performed this alteration of a model mouse's genome, subtly changing its embryonic development, she was astonished by the profound changes in behavior that resulted. The mice she had created were mean, deft killers.

PHOTOGRAPHY | FRANK WALSH

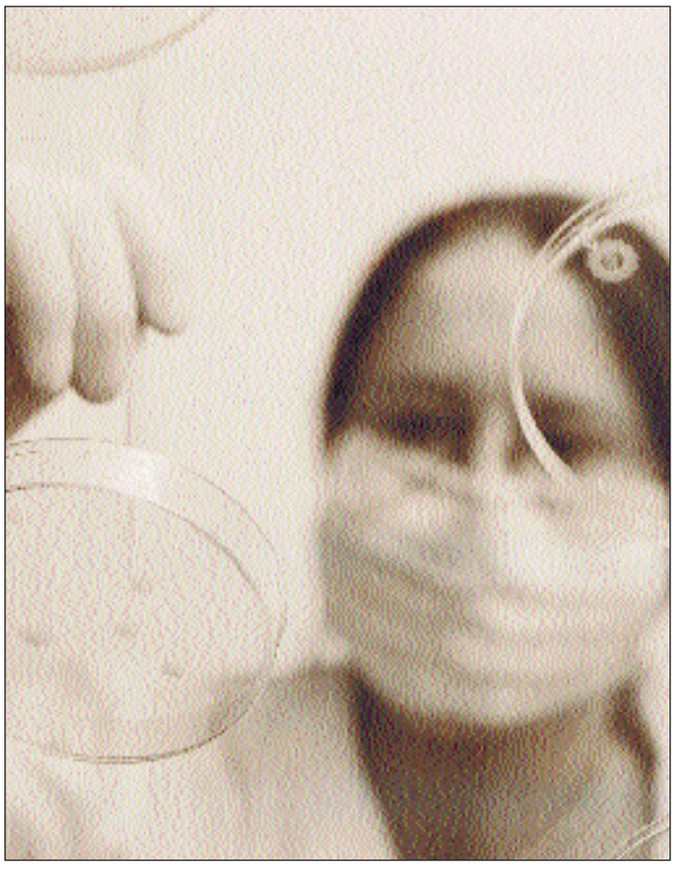
"I began to notice a lot of dead animals in the cage; and even though a mutant in most cases was 50 to 70 percent smaller than the others in the litter, it was always the one left in the cage without a single injury," she says.

"Initially I thought the females were not aggressive because you can house them with their sisters and mother and they don't tend to kill." But she soon found that females go into enraged attacks when stressed. Monaghan cannot easily mate her female mutants; they tend to kill their partners.

Oddly enough, these angry creatures are likely to contribute to our understanding of how subtle and very early developmental defects influence neuroanatomy and mental health—even how genetics imprints behavior and intelligence.

Monaghan expects her cantankerous mouse not only to become super aggressive, but also to have cognitive problems. Her mutant mouse models exhibit learning and memory disabilities, which she has shown by examining their ability to navigate mazes.

There's roughly a 65-million-year span between when mice and humans showed up on this planet, yet genetically the species are remarkably similar. They share similar genomes and 75 percent of their genes are homologous. While a post-doc in the German Cancer Research Center in Heidelberg, searching for genes that made early developmental



Research specialist Kristin Bond is selecting bacterial colonies containing constructs for conditional knock outs.

decisions related to the brain, Monaghan learned that *tailless* had been identified in *Drosophila*, the simple fruitfly studied extensively by geneticists. (The gene *tailless* is expressed in the brain, but takes its name from what happens to the gut region of *Drosophila* when the gene is knocked out.) Monaghan went on to isolate the *tailless* homologue in mice and humans.

Tailless fascinated Monaghan because it was expressed almost exclusively in the forebrain, which meant, first of all, that her model mice survived. (Many genes expressed in the brain also are responsible for developing other vital organs. Abnormalities can often be fatal, halting *in vivo* research projects in their tracks.) Second, finding a gene expressed so pronouncedly in the forebrain—which gives rise to the cerebral cortex in humans, where processes such as learning, emotion, and memory take place—is like research candy to a neurobiologist. These are regions that allow higher order thinking, that separate, as Monaghan puts it, humans from mice. Moreover, relatively few genes have been identified that control the development of structures in the brain and influence emotion and cognition.

The more Monaghan learned about *tailless*, the more she became intrigued. It turned out to be a transcription factor, a protein required for gene expression. "That was even more exciting because if you remove *tailless*, not only are you removing its function, you are potentially affecting other genes that might be doing things in the brain," she says.

If Monaghan were to closely examine the brain of her hungry but Enfamil-rejecting prepubescent mouse, she expects she would find its limbic region, a specialized region of the forebrain, decidedly smaller than in other mice. It turns out that *tailless* is expressed in the embryonic stem cells that are precursors to brain cells; and removing *tailless* from the equation at conception disrupts brain development. The system goes haywire, producing too few of some brain cells.

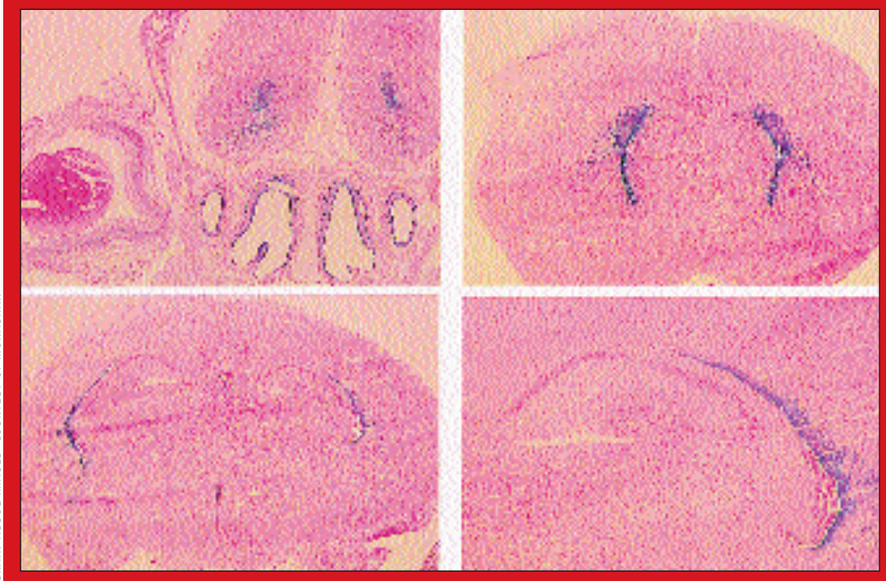
"You might think, no gene, no structure. But what was interesting in these mutations was that you have the structures—they just appeared to be smaller in some regions."

She points out that in her models, the hippocampus grows to a normal size. Ammon's horn, a group of cells in the hippocampus that is important for learning and memory, appears normal as well. However, the dentate gyrus, another hippocampal cell group, which is formed later in development, is reduced. Her lab is working now to characterize exactly how the neuroanatomy of these mutated animals differs from nonmutants. Working with Monaghan to understand the neuroanatomical problems of her models are Pat Card and Linda Rinaman in neuroscience and Pat Levitt, her department chair in neurobiology.

Monaghan is not sure how such anatomical abnormalities might manifest themselves in humans—"But it has been known for many years that if you affect these [limbic] structures in any way, it alters your emotional and behavioral responses," she says. "For example, patients who experience damage to the hippocampus usually manifest long- and short-term memory problems. And animals that have lesions in the amygdala become hypersexual and mate with anything that's around."

Understandably, Monaghan's work has sparked the interest of many. David Lewis, Western Psychiatric Institute and Clinic's associate director for basic research in psychiatry, is helping her consider neuropsychiatric implications of *tailless*. She hopes her work will lead to a clearer understanding of the structures and regions of the brain involved in human neuropsychiatric diseases and disorders so that some day more effective therapeutic approaches can be created. Vishwajit Nimgaonkar and Kodavali Chowdari, of Pitt's psychiatry department, already are collaborating with Monaghan on an ambitious project that looks at the human *tailless* gene as a candidate for specific psychiatric disorders.

By the time it is four to six weeks old, at sexual maturity, it will become extremely aggressive. In fact, it is likely to fight to the death with any of its siblings left in the cage—and although it is the runt of the litter, this mouse will win.



BRAIN TISSUE IMAGES COURTESY OF MONAGHAN

Sections through different brain regions; blue cells indicate where mutant genes are found (in six-day-old mice)

On her days off, Monaghan is likely to be found with her husband, Mark Nichols (who is in the pharmacology department and affiliated with the University of Pittsburgh Cancer Institute), long-distance running, hiking, rafting—just about anything that gets her outside. Yet this outdoors lover, and her generation of genetic researchers, has in effect pulled one over on nature, or at least taken it on a detour.

When Monaghan, a native of Ireland, was completing her PhD in the late '80s at the Medical Research Council in Edinburgh, Scotland, Mario Capecchi published a new technique for "knocking out" genes in mice. This technology made it possible for Monaghan and others to study early mammalian embryos and the role of particular genes during development. Today gene-knock-out technology is included in undergraduate biology textbooks, yet it is a demanding and tedious process for researchers to attempt on their own. Capecchi's technique uses electrical currents and drug selection to knock out genes from embryonic stem cells in mice and replace them with mutant genes. Creating just one mutant mouse model requires three generations of genetic engineering, a learned and delicate technical prowess, and expensive equipment. Monaghan relies on a colleague in pharmacology, Gregg Homanics, who has the equipment to perform the delicate task of micro-injecting blastocysts—the cellular masses that divide and eventually grow to become the mice Monaghan breeds in her attempts to produce mutant offspring. And even with all that care and planning, Monaghan must let nature take over; there's only a one in four chance that each parent's recessive gene will dominate, and produce a mutant.

The cost of purchasing custom knock-out mice from a biomedical firm, as many researchers do, is prohibitive for Monaghan at $40,000 to $50,000 a model. She speaks wistfully of a comprehensive and central knock-out mouse facility at Pitt. Not only would such a resource benefit her and other genetic researchers, it would allow nongeneticists to expand their parameters for discovery.

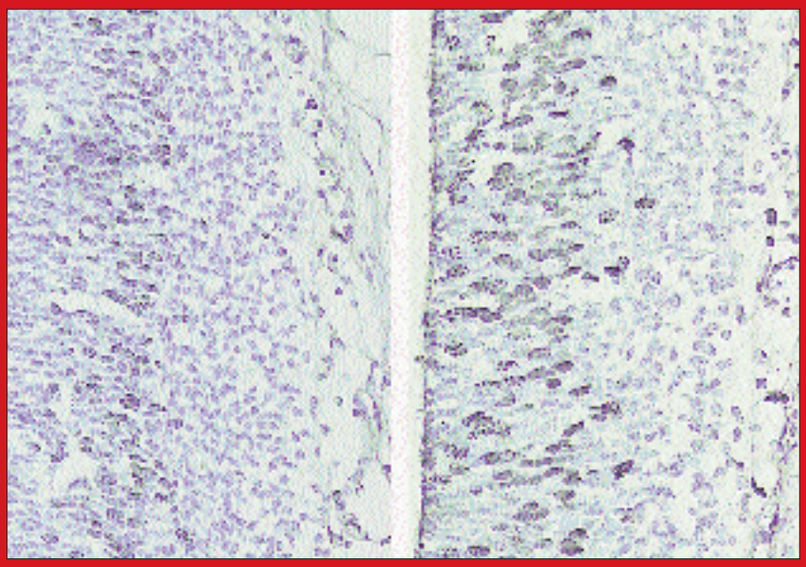
"Let's say you are an MD who is interested in research and you are working on Alzheimer's disease," says Monaghan. "Maybe you have

MELLOW MICE

One floor below Monaghan's angry mice live mice that are decidedly more relaxed. These animals are involved in research on alcohol and anesthesia, so sometimes, they are downright mellow. In his anesthesiology laboratory, assistant professor Gregg Homanics is knocking out genes in mice to model human systems. Homanics believes that alcohol and anesthesia affect the same, or similar, targets in the brain, but he's not sure. In fact, no one is.

Here's what we *do* know: Alcohol causes coordination problems and memory loss, and people become dependent on it. The estimated 25 million people anesthetized each year don't experience pain during surgery, and recover with no memory of the procedure. We don't yet know how these drugs work on the brain, and how they might be linked. Homanics wants to find out. Such knowledge may someday contribute to even safer and more effective anesthetics and, down the road, help alcoholics—through the creation of an antidote to block alcohol's effects, or a treatment for the addiction itself. *—RS*

FOR MORE INFORMATION ON GREGG HOMANICS'S WORK:
http://www.pitt.edu/%7epharmwww/Graduate/FR-Graduate.htm
(See neuropharmacology faculty.)



LEFT: Cortex of a normal mouse
RIGHT: Cortex of a mutant mouse model (Brown cells in mutant indicate that cells are proliferating abnormally.)

KNOCKING OUT HEART DISEASE

It wasn't until after her collapse, mid-stride during a track meet, that a 14-year-old girl's family discovered they carry the gene for "long QT syndrome." An estimated one in 7,000 people has hereditary long QT, but many don't know this until a family member dies suddenly. The mutant gene causes changes in the heart's potassium channels—the off-switches that relax the heart so it can beat again. These mutations can result in arrhythmia (abnormal heart rhythm) and sudden death. Assistant professor of medicine Barry London has created knock-out mice with long QT. With these models, London wants to uncover exactly which genes calm the heart between beats and to study the mechanisms of long QT to learn how it kills seemingly healthy people—like a 14-year-old runner. He hopes his research will lead to clinical approaches that will prevent future tragedies. "Gene therapy, in some distant, future world, might actually correct such defects," he says. ***—RS***

FOR MORE INFORMATION ON BARRY LONDON'S RESEARCH: http://www.upmc.edu/cardiology/

identified an interesting protein, and you think, 'Oh, I know that in all of my Alzheimer's patients this protein does something important. I wonder what it really does?'

"[A knock-out facility] opens the road to everybody. And at a center as big as Pittsburgh, medically, you have to have a facility like that if you want to compete." Monaghan may get her wish. Building such a facility is a priority for the school's dean, Arthur S. Levine.

Again Monaghan is poised with the eyedropper full of Enfamil. It's her third try at feeding the runt mouse, which finally abandons its stubborn protest and laps hungrily at the dropper. She proceeds to feed the others Enfamil as well, so that hers is a controlled experiment. Monaghan plans to test these models further; she says they are bound to have other behavioral problems.

This is a productive lab. Monaghan and doctoral student Mark Parrish are carrying out studies on other genes of interest, including the *Spalt* genes, which Monaghan and her colleagues in Germany identified and have been implicated in Townes Brocks Syndrome. In addition to these studies, she is refining her approach to examining *tailless*.

"You can imagine that if a human had a mutation in the *tailless* gene, people would know immediately that there was something wrong. They would be poor learners; they would probably be mentally retarded; they would have severe aggressive abnormalities. They might not even survive."

Neuropsychiatric disorders and diseases in humans are likely to result not only from missing genes, but from genes being switched off or abnormally regulated during development, Monaghan says.

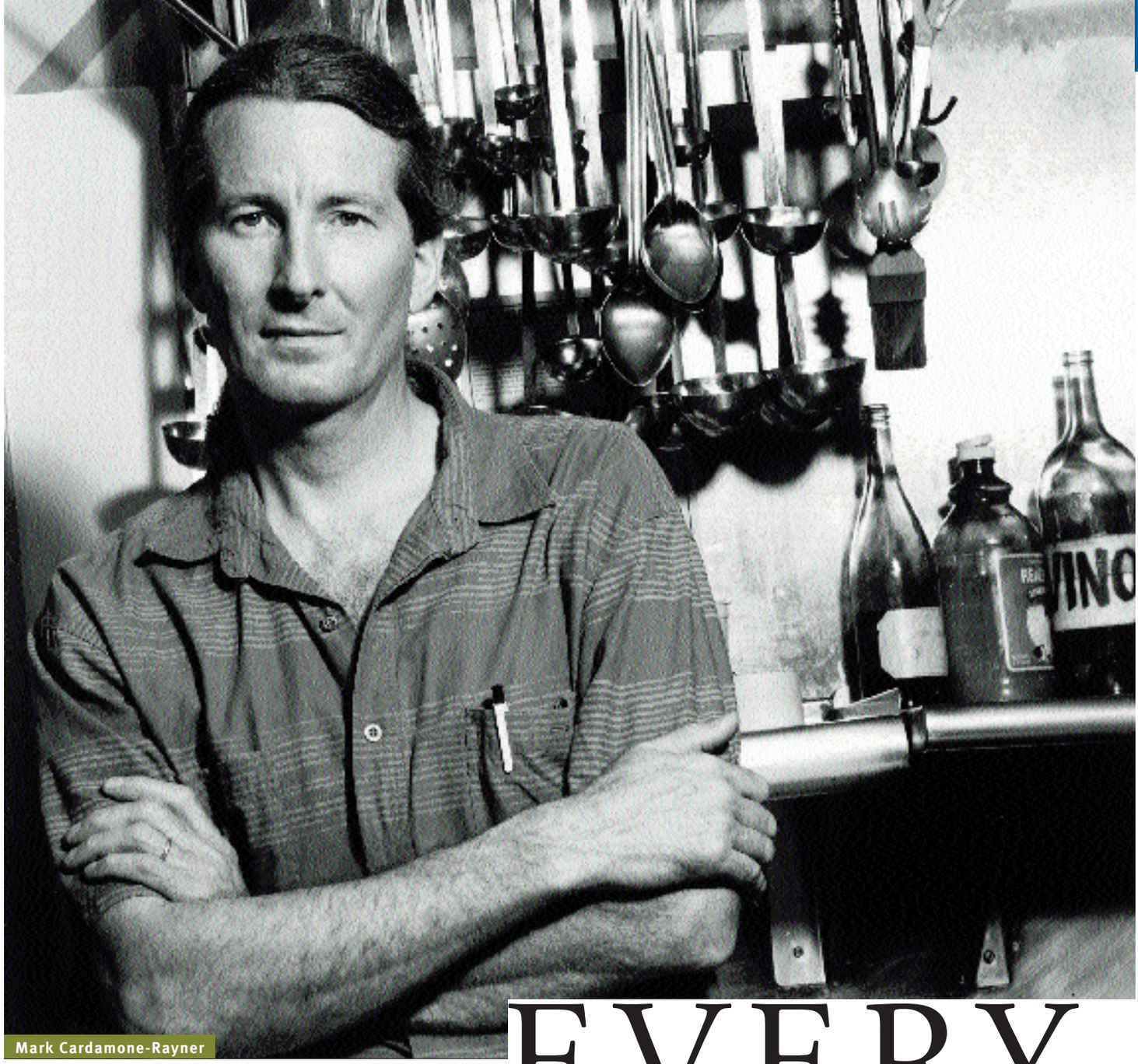
So removing *tailless* at conception, as Monaghan has, is "like taking a hammer to the problem," she says. But performing what is known as a conditional knock out—a procedure by which *tailless* can be removed during various stages of embryogenesis or from different brain regions—gives Monaghan an even more powerful tool to record the effects that changes in early development can have on neuronal growth, on neuroanatomy, and on the psyche.

Kristin Bond and Nancy Vranich, research specialists in Monaghan's lab, are spending their days examining 2,600 slides of mouse embryo forebrain sections taken from original knock-out models, searching, micron by micron, for abnormalities. Then, once the lab has successfully engineered conditional knock outs, they will do the same with thousands more slides and compare.

The massive task doesn't appear to daunt the young women, even though there's a chance the recessive gene didn't dominate in any of the models they are so carefully studying. Instead they seem to share their boss's contagious enthusiasm for the work.

"There were 11 in the litter," Bond says, looking at a freezer brimming with slides. "Hopefully, there's a mutant among them." ■

FOR MORE INFORMATION:
http://www.neurobio.pitt.edu/home.htm



Mark Cardamone-Rayner

EVERY WALK OF LIFE

BUTCHER, BAKER, NEPHROLOGIST. . . TODAY'S PITT STUDENTS HAVE A WIDE RANGE OF BACKGROUNDS

PROFILES | MIKE ROSENWALD

PHOTOGRAPHY | RICHARD KELLY

If you walk down the halls of Scaife these days you are likely to meet a "former-whatever-you-can-imagine." In their previous lives, Pitt medical students were (and some still are). . . Ballerinas. Classical Indian dancers. Rock, blues, alternative, and classical musicians. Composers. Vice presidents of sales. Attorneys. CPAs. Teachers. Farmers. Aerospace engineers. Plumbers' helpers. The list never ends.



Matthew Feuer

That's where the confusion starts. The patient often thinks Rayner's attending is the actual medical student.

And Pitt med students tend to be a little older than they used to be—the average age of incoming freshmen here is now almost 24. They also are more likely to have families. (Unlike the time when residents actually *lived* in hospitals and med school candidates with family responsibilities were encouraged to forgo the medical profession entirely.)

When school administrators pore through the thousands of applications they receive each year, they are not just looking at grades. More than ever, they want students who offer stellar academic records—and then some. Medical leaders are recognizing that much illness has social and behavioral roots. And as the nature of how health care is provided continues to toss and turn, patients are looking for mature, knowledgeable, and well-rounded physicians to lead them through the complicated maze of technological advances and managed care intricacies.

Pitt, by all accounts, is building on a proud tradition. The school attracts a thoughtful and engaging group of diverse men and women to its halls. And each year, they seem to get better and better.

Sometimes **MARK CARDAMONE-RAYNER'S** patients get confused. He walks into the room, takes their history, examines them, and says he'll be right back. Rayner leaves to find his attending physician, and then the two go see the patient together. That's where the confusion starts. The patient often thinks Rayner's attending is the actual medical student.

"You could say that can be a little uncomfortable, to be sure," Rayner says, with a chuckle. Rayner is not your average medical student. When he graduated earlier this year, he was 47 years old. He has three children. He has been married for 21 years. And he has cer-

tainly come a long way after he had himself "a pretty good mid-life crisis."

As a young man, Rayner opted out of college. In the early '70s, he was in a rock and blues band, and, as those things go, it seemed like enough at the time. When he finally decided, in 1974, that he needed to do something more, he went to culinary school. Five years later he was a certified executive chef. He opened Café Allegro on Pittsburgh's South Side and his family began to revolve around his gastronomic creations. His oldest daughter loved to wander in and out, a taste of this here, a taste of this there. She knew a good meal when it was in front of her; Café Allegro went on to become one of Pittsburgh's finest restaurants.

One day, Rayner says, as the big 40 approached, he realized he didn't want to run a restaurant for the rest of his life. After all these years, college seemed like the right idea.

"It was now or never," he says.

So, at 40 years of age, Rayner, a chef whose talents were unparalleled in the city, enrolled at Pitt. He majored in physics, and was so fascinated by the science that he thought about getting a PhD, but then decided on medical school. It was people's problems—not science's—that most interested him.

He knew it would be difficult to compete.

"Let's face it," he says, only half joking, "at my age, the brain cells are waning. I don't have the memory I once had." Rayner's strategy was not to waste any time, to focus himself immediately. He decided on his specialty—head and neck surgery—in his first year, and fashioned his studies accordingly.

Rayner and his family moved to Minnesota recently, where he is beginning his residency at the University of Minnesota. He says his oldest daughter, now 17, misses the restaurant days when she could wander in and out and dine on wonderful food, but she also likes the idea that her dad is a doctor. *—MR*

MATTHEW FEUER gets a kick out of thinking about what his old college buddies would say if they knew he was in medical school.

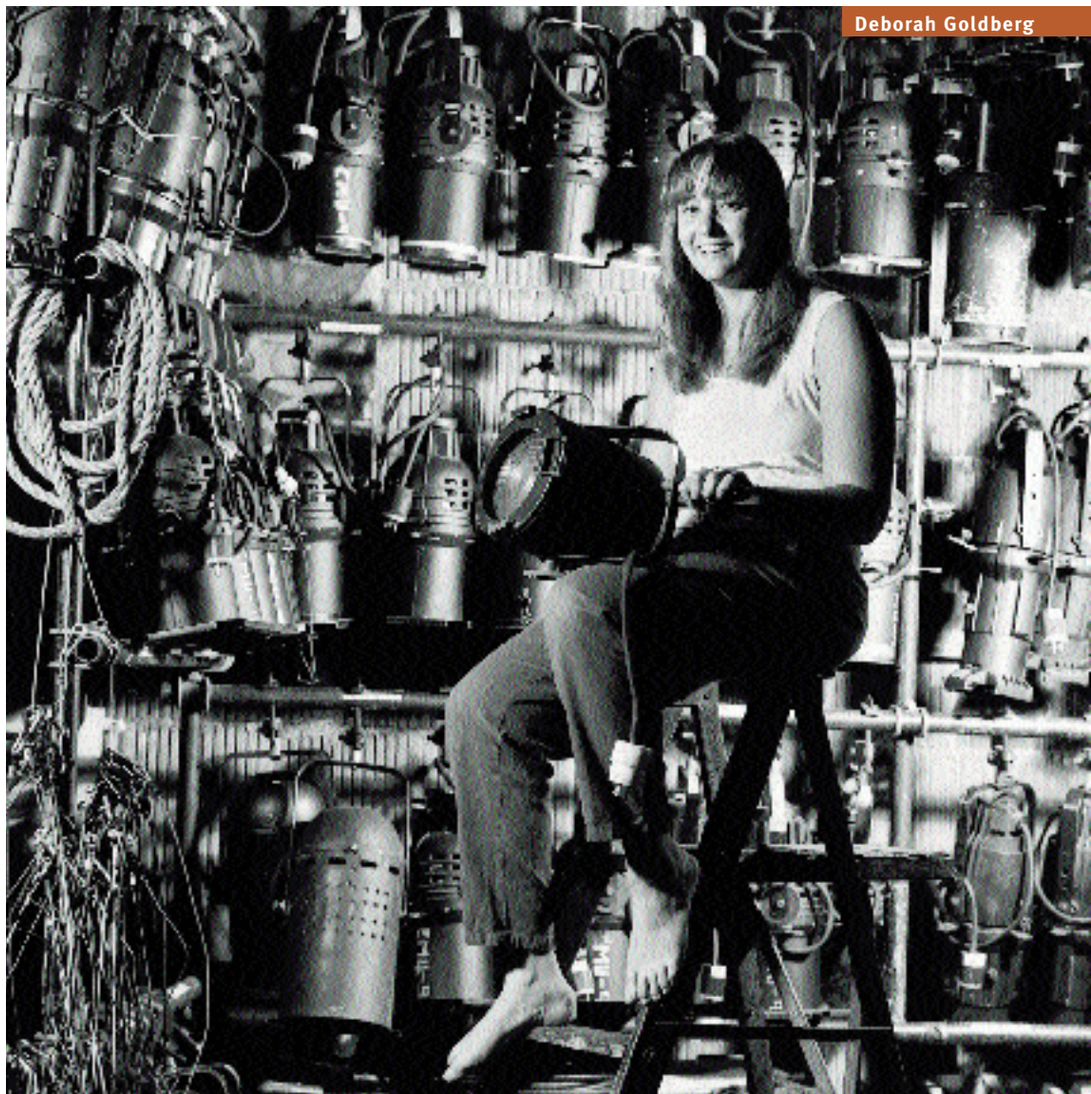
"They would be shocked," he says. "Wait. They would be stunned. Speechless. They wouldn't know what to say."

Feuer started at Williams College in Williamstown, Massachusetts, in 1987. He wound up pursuing a degree in history because, well, it was the quickest way out as he saw it. In between, Feuer took time off and worked in Williamstown as a plumber's helper, dairy farmer, and at other seemingly odd jobs. Then he started a blues band that went on the road. The tour was great, but Feuer felt obligated to finish what he'd started at Williams: "I had an opportunity not a lot of people had." So he went back to school, completed his degree, and moved to New York City where he hoped his band would take off.

WHO APPLIES— YESTERDAY AND TODAY

In the late '80s, Pitt and other schools began to seek out excellent students with nontraditional backgrounds. According to Edward Curtiss, professor of medicine and associate dean of admissions, Pitt has been so pleased with its resulting student body, the school now insists its recruits bring a healthy dose of life experience to the table. As a result, Pitt's student body has changed: the average age of entering Pitt med students has increased from 21 in 1979 to 23.8 in 1998; the number of women enrolled in the first year has risen from 42 in 1979 to 70 in 1998; students' average MCAT scores and GPAs are higher; and students come to Pitt with degrees in many fields other than science. Curtiss points out that Pitt actually encourages an undergraduate education that isn't strictly science-based. And for applicants with purely scientific backgrounds, Curtiss says they have a tougher job: "They have to show us they are well rounded by means other than their curriculum." *—RS*

	1979	1998
APPLICANTS	3,285	4,722
MATRICULANTS	136	150
AVERAGE MCAT OF APPLICANTS	9.0	9.5
AVERAGE MCAT OF MATRICULANTS	10.0	10.4
AVERAGE GPA OF APPLICANTS	3.29	3.37
AVERAGE GPA OF MATRICULANTS	3.47	3.63



Deborah Goldberg



Max and Andy Nowalk

In many ways, it did. They played plenty of gigs, opening for big names like The Marshall Tucker Band. Feuer was not, however, making enough money playing the blues to make ends meet.

After watching a man go into an epileptic seizure on a train to New York, and feeling "petrified" and "clueless," Feuer welcomed an opportunity to train as an EMT. He eventually became a certified paramedic. Then on a whim, one of his buddies said to him: "Hey, I'm going to this post-bac program for med school. Want to go with me?"

"I did," Feuer says. "I figured I was already dealing enough with the human body, so why not?"

Feuer took classes at New York University and, as he says, *voilà*, he wound up in medical school. He has started his second year.

He is, however, looking to start a band. —*MR*

DEBORAH GOLDBERG needs constant stimulus. "I'm like a freak about it sometimes," she says. "I always have to be doing something. My mind is constantly racing, going from one thing to the next."

Her frenetic pace has led her down some interesting roads. For a few years, after graduating with a BFA degree in stage management and lighting design from Carnegie Mellon University, Goldberg worked as a professional stage manager. She has also volunteered as an Emergency Medical Technician, worked with a deaf theatre company in Los Angeles, and was a sign language interpreter in Pittsburgh.

Now she is going to medical school.

Goldberg was working in Chicago at The Second City, the legendary improv theatre, with comics like John Candy, Chris Farley, and George Wendt when she suddenly realized, in her mid 20s, that she had reached her peak. She was not working as an EMT anymore and she missed helping people. It occurred to her that she wasn't too old to become a doctor.

Her first instinct was that she would never be able to get into medical school without a science degree. Outside of her fine arts classes at CMU, she took a class in history and one in computers. She looked into med school anyway—"No harm in looking," she says—and realized she only needed four classes, which she enrolled in at Pitt.

"Somehow I got through it all without losing my head and without losing my wife."

She now is in her fourth year at the school and eventually would like to have a family practice in Pittsburgh that caters to the deaf. To her knowledge, there are no physicians in the city who are completely fluent in sign language and she says deaf patients often stay away from doctors' offices for that reason.

Plus, Goldberg knows she has the experience beyond scientific training to be a caring physician. She can feel for her patients.

"Being in the theatre business, believe me, I've had to apply for unemployment," she says.

"I've had to make up excuses to have my lights turned back on. I've considered food stamps. I know what people's problems are like beyond their health." —*MR*

If **ANDY NOWALK** were to write a book about his experiences in medical school, he would call it "Detours." Nowalk has spent the last nine years wandering off in different paths, some intentional and some not so intentional. Sometimes he wonders if he has a short attention span. Other times he thinks to himself, *Well, I've never been traditional.*

Nowalk was born in nearby Greensburg. He went to Georgetown, where he majored in chemistry and minored in theology. "It seemed like a neat combination at the time," he says. "But, yes, I've often wondered about it myself." His mother and father pressed him to prepare for medical school, but like many 18-year-olds, he resisted his parents' wishes. Nowalk did dabble around medicine. He worked in nursing homes and as a part-time EMT. When he graduated, he hung around Washington, DC, and worked in an infectious diseases lab at the Navy's Medical Research Institute. "That's where I fell in love with bugs," he says.

Nowalk relented to his parents' wishes when he decided he wanted to enter an MD/PhD program, which he did at Pitt in 1990. The program would allow him to become a physician *and* a researcher. That's when the detours became even more complex. In loose chronological order, Nowalk involved himself with AIDS awareness programs in high schools; became active with the local chapter of the American Medical Student Association (AMSA); completed his first two years of medical school; was a full-time researcher studying sexually transmitted diseases; got married; won an intramural volleyball championship; finished his PhD in microbiology and chemistry; became the national president of AMSA and moved back

to Washington for a year; went back to medical school; published three first-authored papers; had a son named Max; and bought self-help books to figure out how to manage his crazy schedule.

"Somehow I got through it all without losing my head and without losing my wife," says Nowalk, whose wife graduated from Pitt's law school and works as an attorney. Nowalk recently began his residency in pediatrics at Pittsburgh's Children's Hospital.

"I felt like Superman sometimes, going into phone booths to change personalities," says Nowalk. "But it has been a lot of fun. I don't think I would change anything about it at all."

—MR

Call **TARA WILLIAMS'S** place, and even if no one is home, you'll be overwhelmed by Williamses. The answering machine features Williams and her five-year-old daughter, Simone, singing a heart-melting rendition of a Lionel Richie ballad. *Hello! Is it the Williamses you're looking for?* Simone starts the verse solo, and with as much preschool bravado as she can muster, but she softens quickly into an uncertain falsetto. Her voice is soon fortified by Mom's strident and guiding alto: *Well, leave a message, and we'll get right back to yoouuu. . .*

And if you do manage to get Tara Williams on the phone, you almost always get Simone, Selina, 2, and Sasha, 1, too. Try to have a conversation, and you'll hear the three girls playing in the background, laughing, running around, being kids.

"They are what keeps me going," says Williams, a 27-year-old Jamaican native who spent her teenage years in the Bronx. "Seeing them grow up helps me get through it all."

Williams has been through a lot with them. Simone was a year old when Williams entered medical school after graduating from Carnegie Mellon University with a chemistry degree; then the other two girls came along the way. Life was, she says, "a little insane."

Typical day for Williams in med school: wake up at 5:30 a.m., be at rounds an hour later, run around seeing patients, be home by 6 p.m., have dinner, play with the kids, put the kids to sleep, get her reading done. If she lucked out, she would be in bed by 1 a.m. Then she would wake up to do it all again.

But she got through it, mostly with the help of her husband, James Williams. And, it seems, an ability to keep what's truly important in focus. Through those hectic med school days, she says she cherished bedtime—not just hers, but her daughters'. Each night, she expertly lulled them to sleep by cooing *Jesus Loves Me* and other favorite songs in their ears. Expertly, that is, with Sasha and Selina—with Simone she's been less successful. The young girl knows the entire soundtrack to *The Lion King* and never gets tired of singing it with her mom.

Williams is spending even more time around kids these days. She is a resident in pediatrics at Beth Israel Hospital in Newark, New Jersey, and she knows her time raising her children will help her there.

"I understand what kids are going through and what the parents are thinking," says Williams, whose bedside manner is readily proven. She has a gentle way of making everyone around her feel at ease, even pause a bit to reflect on what they value. In May, in an invocation before a graduation lunch for seniors, Williams offered some parting thoughts to her classmates: She urged them to never stop celebrating the beauty of life; to never fail to be compassionate to those who suffer; and to never place material gain before their duty to the sick.

Her words were met with a resounding "Amen." *—MR and EL* ■

FOR MORE INFORMATION:
http://www.dean-med.pitt.edu/offices/admissions/main.html



Tara, Simone, and James Williams

WHY THEY COME

What attracts such a talented population to Pitt? There's no pat answer. The school increasingly is recognized as a clinical and research powerhouse. And the mean score of Pitt students taking the national boards has been above average for the past five years. Yet it's clear, how they will be *taught* is a primary concern among applicants. "Our curriculum," says Edward Curtiss, associate dean of medical school admissions, "is a major draw." From their first day, Pitt students' time is divided between lectures and small groups where they focus on problem-based learning and apply new knowledge to simulated cases. Freshmen also are assigned to a local practice for weekly clinical exposure. In 1992, Pitt was one of the first schools to implement this revolutionary patient-centered/problem-solving-based approach to teaching. And the school continuously re-examines its curriculum so its students are prepared for whatever awaits tomorrow's physicians. *—RS*



ABOVE: Peter Safar in the Safar Center for Resuscitation Research, 1999
RIGHT: The streets of Vienna

TIME OF DEATH: POSTPONED

PETER SAFAR REFUSES TO GIVE IN TO THE ARBITRARY MISCHANCES OF NATURE | BY DAVID PETECHUK

Peter Safar wondered if his luck was running out.

After the Germans marched into the winding, storied streets of Vienna, it didn't take long for the Austrian teenager to understand his parents' vehement anti-Nazi sentiments. The Germans conscripted him into a labor camp and then the army, but the degradations Safar suffered and witnessed were mild compared to the fate of innumerable others.

Now it was four years later, the fall of 1942, and as the 18-year-old soldier stood before his captain, he was asked to make the decision of a lifetime.

"I assume you'll be applying for officer's school."

Safar knew that being sent to the front as an infantryman meant near-certain death. The Germans were taking a beating in Stalingrad. They needed cannon fodder. Safar looked hard into the captain's blue eyes. They were alone, and the captain was, like him, a young Austrian recruited into the German army—probably reluctantly. Safar sensed he could trust him.

"I'll never become an officer for this regime."

No response. Safar stood stock still.

"Besides, how can I be an officer when I don't have my major Aryan certificate?" Safar's maternal grandfather was Jewish.

"That doesn't matter anymore. You must know that if you *don't* apply you will be outfitted immediately for the front. Without rank."



Safar understood completely. But fortune was on his side. His commander—consciously Safar believes—gave him and other infantrymen an opportunity to disappear during a three-day Christmas furlough. With the help of his physician parents and other passive resisters throughout Vienna, Safar not only evaded the front for the next two years but also attended medical school. With a stamina that amazes colleagues and friends, Safar, who now holds the title Distinguished Service Professor, has kept a marathon pace ever since. It's no exaggeration to say that his contributions to emergency and critical care medicine have saved the lives of millions. Forty-seven years after that tense conversation with his captain, Austria awarded Safar the greatest recognition it bestows on scientists: the Austrian Cross of Honor, for Science and Art, First Class.

"My privileged survival of World War II motivated me into a life of workaholism," says the 75-year-old Safar, who still maintains a nearly 80-hours-a-week schedule.

After all, snatching people from the clutches of death isn't easy.

PHOTOGRAPHY | MATT BULVONY



A Safar milestone—the first physician staffed intensive care unit in the United States, Baltimore City Hospital, 1958

The short list of Safar's accomplishments: initiating and developing three academic anesthesiology departments, the first intensive care unit in the United States, and a resuscitation research center; conceptualizing and lobbying for the creation of our modern emergency medical system; developing key techniques used in contemporary first aid and resuscitation; launching the first modern disaster resuscitation research studies; and authoring several textbooks and more than 1,200 published articles, papers, and abstracts.

With a rich Viennese accent and impeccable manners, Safar exudes cultured old-world charm. Self-assured, he smiles easily and often; his eyes evoke boyish mischievousness and enthusiasm. Yet there's a sense of urgency about him, a sharp edge that cuts to the chase.

"One of the reasons I chose medicine was something a friend of my father told me: 'Peter, medicine is the only profession in which you can avoid being forced to become a servant of the devil.'"

This "uncle's" advice alluded to the regime that had taken over Austria in 1938, but it seems Safar has taken it to heart at another level, waging a war against death itself. The once reluctant soldier has fought this enemy the only way he knows how. . . without relenting. In the process, he has been more than willing to buck the system, pursuing daring experiments and projects with fierce intensity. For example, in the late 1950s, as chief of anesthesiology at Baltimore City Hospital, Safar and some trusting human volunteers set out to prove his contentious theories about cardiopulmonary resuscitation.

"It was a dangerous situation if you weren't paying attention," understates volunteer Felix Steichen, who later became a professor of surgery at Pitt and is now at New York Medical College. "Given too much curare [to paralyze muscles], you could wake up with brain damage. But we all had tremendous confidence in Peter. Still, I wouldn't have done it if I hadn't been excited by the project."

Sedated and temporarily paralyzed to mimic the non-breathing victim, Steichen and the others were put as close to death as ethically feasible. Then Safar went to work. Tilting the head back and thrusting the jaw forward, he opened the subject's air passage and proceeded to show how one human could breathe life into another. These experiments demonstrated how the upper airway obstructs in coma, how the obstruction can be relieved, and how mouth-to-mouth resuscitation was more effective than the then-standard chest pressure/arm lift method of ventilation. Shortly afterward, Safar and colleagues incorporated the work of others on external cardiac compression and formed the foundation of CPR and basic life support as we know it today.

He was just getting started. When Safar joined Pitt's School of Medicine in 1961, he established the Department of Anesthesiology and the first multidisciplinary postgraduate training program in critical care medicine, attracting faculty like Ake Grenvik who would go on to lead the program. As the department grew, Safar spawned the first programs of their kind in resuscitation, emergency medical services, respiratory therapy, and intensive care. In his "spare time," Safar helped develop modern first aid and the first American Heart Association CPR standards, manuals, and instruction courses.

Safar uses words like "superb" and "dedicated" when he talks about his peers and "co-leaders" over the years. For many of these historic endeavors, he notes, he turned implementation over to trusted colleagues.

It was Safar's 60th birthday and a grand affair—black tie, dinner, dancing. Safar was on the dance floor when a young woman approached him with a seductive bump and grind more appropriate for a burlesque stage. As others looked away, turned beat red, or grinned nervously, Safar remained calm—even as the woman began peeling off her dress. Once she was down to her bra and panties, he stepped in and offered his arm, asking if he could have this dance.

The stripper, "was some wag's idea of a joke," says Edison Montgomery, who has held numerous administrative posts at Pitt. Safar handled it all with a signature grace, Montgomery reports: "I've never seen him flustered or outwardly angry. He's forceful yet always extremely gentle.

"Although I admire his brilliance, as an administrator I wouldn't want too many people like him. He would go to a meeting, listen to the objections about a proposed project, and then quietly depart and do what he wanted. And usually, what he did was perfectly wonderful." Like the Hill District venture.

First some background: Safar came to the United States in 1949 to perform a surgical fellowship at Yale. He left surgery for anesthesiology training at the University of Pennsylvania. Simply put, he believed that surgery would not advance without better life support systems. Beginning in the '50s in Baltimore, and throughout his career, Safar emphasized the need to train lay persons in first aid and other life-saving techniques, since the man on the street is often the first on the scene in life-threatening emergencies. He also believed that a cadre of specially trained nonphysicians was essential to building the extensive out-of-hospital emergency care system he knew could save the many who were dying before they could reach the ER. Tired of waiting for the "establishment" to come around, Safar set out to do it himself.

"When I first started at Pitt, I went to see my doctor and told him I was working for Dr. Safar," says Fran Mistrick, Safar's secretary for 19 years. "He said, 'Oh, he's the guy who wanted an ambulance in every driveway.'"

Not really. What Safar wanted was an emergency medical system that actually saved lives

He proceeded to show how one human could breathe life into another.

instead of the nearly nationwide taxi-like service provided mostly by fire departments and police.

"You had a better chance of surviving a gunshot wound in Vietnam than you did a heart attack out on the streets," says Mitchell Brown, who joined Safar in his efforts.

When the African-American community came to the medical center for advice on buying an ambulance to service the Hill District, Safar pounced. He would help provide one of Pittsburgh's poorest neighborhoods with the best emergency service in the city, staffed by trained laypersons from within the community.

The result was the Freedom House Enterprises Ambulance Service. Brown joined the ambulance service in 1969 and, as a former paramedic in the Air Force, was one of the few recruits with a medical background. "Peter saw an opportunity to take individuals untainted with preconceptions about emergency care, people who would do things his way," he says.

After 300 hours of instruction and nine months of physician-supervised field training, Freedom House paramedics, in ambulances equipped to Safar's design specifications, proceeded to realize Safar's dream. Ironically, the Freedom House service eventually disbanded due to lack of funding and "politics," an ignominious fate for those who helped establish national standards for the complex and extremely effective emergency medical system that we take for granted today.

LEFT: **Mouth-to-mouth ventilation on Felix Steichen, one of Safar's first volunteers for resuscitation research, 1957**
MIDDLE: **"Nine Ages of Man," in 1984 was donated to the school in honor of Safar by Peter Winter, his successor as chair of anesthesiology and critical care medicine**
BELOW: **Freedom House Enterprises Ambulance Service staff, 1975**







ARCHIVE PHOTOS COURTESY OF SAFAR

Like a spark plug, Safar fires off ideas and beliefs that would get even the most sluggish mind churning. Yet a memory of a young girl has the power to make him pause and reflect. He closes his eyes before recounting a tragedy that brought, if possible, an even greater commitment to his work.

He was out of town with his wife and partner, Eva, when he received the call. The Safars' daughter and eldest child, Elizabeth, was in trouble. Plagued throughout her young life with severe asthma, the 11-year-old had suffered a major attack. Rushing to the airport, Safar knew that time was of the essence.

But Elizabeth's heart stopped before he could get to her.

"I got back in time to get her heart started, yet her brain was lost," says Safar. "She was a brave girl and would have been a remarkable woman. Elizabeth has remained like an angel figure in our family."

After Elizabeth's death in 1966, Safar redirected his energies toward brain resuscitation. Over the next decade he would co-initiate the Society of Critical Care Medicine and, in 1979, retire as chairman of anesthesiology at Pitt to create the International Resuscitation Research Center (which today is known as the Safar Center for Resuscitation Research and is headed by Patrick Kochanek). Focusing initially on pharmacological cerebral resuscitation strategies, Safar worked tenaciously toward an effective method for rescuing people from prolonged cardiac arrest. He initiated the first animal outcome models and controlled randomized clinical trials of cardiopulmonary-cerebral resuscitation (CPCR). But the drugs proved to have limited value. Safar wasn't deterred.

As far back as the early '60s, Safar intuitively believed that hypothermia, more specifically, cooling of the brain after cardiac arrest, would reduce brain damage. Not uncharacteristically, his theory was iconoclastic, going against the standard practice of warming shock patients. Following up on hypothermia studies he had set aside for two decades, Safar and his research fellows revisited them in earnest the 1980s and '90s. Safar's hunch was correct: His team demonstrated in animal models that mild hypothermia—about 90 degrees Fahrenheit, a level of cooling that is "simple and safe," according to Safar—when applied after cardiac arrest or during the "golden hour" of shock, can significantly improve outcome.

Today, as usual, Safar has his naysayers. But he remains undeterred. He says the data support his theories about hypothermia and the technique will be a major advance in life support.

"CPCR has its limitations," he says. "Sometimes you cannot 'restart' a person rapidly because something needs to be fixed first."

His solution is to place trauma victims in a state of profound hypothermic suspended animation within the critical five minutes after heart arrest. He and Pitt's Samuel Tisherman, coprincipal investigator, have documented that this approach can lead to complete recovery of animals after one hour of death. The trick, Safar says, lies in shutting down destructive chemical reactions to prevent cell damage during clinical death. Safar's current studies include research on "preserving" the most vulnerable organs, such as the heart and brain by, for example, "flushing" them with a hypothermic-pharmacological agent. He admits, it sounds like science fiction; but the fantastic is within our reach, he assures.

Although Safar may have escaped the front lines of World War II, he has fought many battles . . . and on several fronts. A member of Physicians for Social Responsibility and the International Physicians for the Prevention of Nuclear War, he has actively campaigned for world peace.

But a monumental struggle still rages for Safar; it is against what he calls the "arbitrary mischances of nature." With his associate Nancy Caroline, Safar once wrote: "Medicine represents an imposition of human values on a random universe, an assertion that compassion, reason and decency constitute a higher ethic than chance."

Sure, death always wins out in the end. But if Safar has his way, it will have to wrestle with him first. ■

FOR MORE INFORMATION:
http://www.safar.pitt.edu



PHOTODISC

BEHIND THE SCENES

THE MAKING OF SCOPE AND SCALPEL

BY ANNE-MARIE GALLAGHER

It's 6:30 p.m. on a Wednesday night in April, and almost 30 medical students are gathered in a lecture room. Fourth-year student Eileen Everly stands in front of the group, fielding questions with swift authority and focusing the students' attention on the task at hand. Within a few months she will begin her residency in pediatrics at the University of Maryland, but at this moment, she has only one thing on her mind: getting everyone in the room to achieve a perfect F.

"That's too high," a voice complains. "I don't think I can do it."

"Okay," Everly says, tucking a strand of long black hair behind her ears. "Anyone who doesn't feel comfortable—let's try it together." Raising her voice to hold the note, Everly waits for the others to join her before segueing into "It's Time to Put on White Coats" to the tune of *The Muppet Show* theme song.

Needless to say, there are no white coats—or notes, or charts—in evidence tonight, as the class of 1999 rehearses for *Saving Ryan's Privates*—this year's Scope and Scalpel.

The show is more than an opportunity to ham it up: it helps provide students with a sense of closure at the end of their med-school years, and allows them to have—and poke—a little fun in the process. (*We'll mock third year rotations/And PBL as well/And if we make you angry/We're done, so go to . . .* you get the idea.)

More than 75 students are participating in this year's show; about 45 students will be on stage, and Everly guesses that another 30 to 40 students will be working behind the scenes, selling tickets, building sets, and otherwise lending a hand.

In her four years at Pitt, Everly has never missed a Scope and Scalpel performance. Yet it's one thing to be in the audience; it's another thing to be the show's director. At tonight's rehearsal, words are not being enunciated, and there's a constant struggle between the tenors and the sopranos. There is a skirmish over the pronunciation of the word "the," *does it rhyme with "duh" or "pee"*? The former wins out, but there are other problems. During warm up, they practice scales. Climbing them isn't much of a chore, but going back down the students hesitate and falter, as if peering down a steep staircase without a handrail. Notes are missed or forgotten. Confusion reigns.

"I only have a protractive memory," protests John Richard. He will be doing his residency at San Diego Naval Hospital in obstetrics/gynecology, but tonight his roles are cast member and stage manager. Everly considers Richard's complaint and switches gears. The group warms up by singing a few verses from easy songs they like. Energy is high through the first verse of a song from *The Sound of Music. Doe, a deer, a female deer*—small groups take turns singing each chorus line, though as the notes, and lines, get higher, the groups get smaller. Morale takes a sharp turn for the worse during the complicated play of notes along the way. The cast takes it again from the top: *Doe, a deer, a female deer. . .* but when they get to "So" there is a conspicuous silence.

"So?" Everly calls out, bare foot tapping the hardwood floor of the stage impatiently. "Where is So?"

"So went to the bathroom," a voice calls out helpfully.

A peevish moment passes while Everly considers her options. After a brief discussion with producer Aaron Bornstein, who will be spending his peds residency at Chicago Children's Memorial Hospital, she decides to move on to practice a song they have settled on for the show: the group's rendition of Prince's *1999.*

It's clear this is their favorite song of the night. Six students—including Everly—have solos, and heads bop rhythmically to the funky electronic beat emanating from a boom box on the stage. Everybody joins in at the chorus (*Two-thousand zero zero med school's over/Now we're outta time)* and the only iffy part is the "yeah yeah" that follows.

By and by, even the ad libs come together. The memory of the earlier frustrations fade away. It seems that show biz and med school have some things in common: both require diligence and teamwork.

The group takes a break and then begins practicing a new song, but something is amiss; they can't seem to get the key right. Everly demonstrates a few bars, cuts herself short, and addresses the group: "I want you to find each other. Let's try it again." Her clear voice rings out, hitting a note and holding it. Another voice meets it, and another, until the whole room resounds with voices, held fast in perfect harmony. ■

AWAKENINGS REVISITED

GRAND ROUNDS WITH OLIVER SACKS

BY MIKE ROSENWALD

The fact that hundreds—sometimes thousands—of people fill up a room when they hear he is going to be there continually surprises Oliver Sacks. It embarrasses him. So when Sacks, the noted neurologist and writer, delivered a Grand Rounds talk at Pitt last spring, he stepped to the podium with a bit of, say, trepidation. He seemed to trip over his own nervousness, looking down at his feet to make sure they were still holding him upright. And when he took one look at the almost 200 people in Scaife Hall's Lecture Room 5—many of whom were from Pittsburgh's own distinguished neuro- and psychiatric communities—scientists, physicians, and students taking up every seat, aisle, and floor space, he said, "Goodness."

Sacks is 66 years old. He is a fit man with gray hair, a thick, gray beard, and he wears tiny wire-rimmed glasses. As he talks, he plays with a rubberband stretched around his left hand; in his shirt pocket are three pens: green, red, and blue. His British accent is often marked by a stammer and lisp. His voice, however, is gentle and soothing. He is, after all, a storyteller, which in many ways contributes to his brilliance.

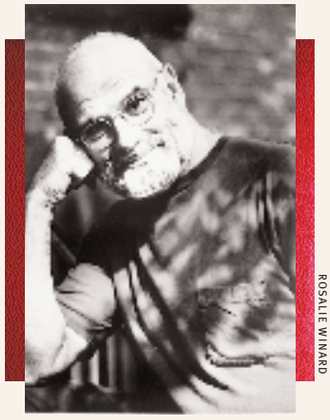
As his stories unfold, Sacks will captivate the crowd, but he is, it seems, more comfortable with the written word. He descends from a handful of physicians who do their work on the page as well as in the examining room—literary physicians such as Jonathan Miller, Lewis Thomas, and perhaps most relevantly, the Russian neurologist A. R. Luria, who was the first writer to bring the mysteries of the brain to the world.

Sacks once wrote, "A neurologist's life is not systematic, but it provides him with novel and unexpected situations, which can be windows, peepholes, into the intricacy of nature—an intricacy that one might not anticipate from the ordinary course of life."

For much of his life, Sacks has been obsessed with the peculiarity of the unexpected. His first book, in 1970, was about the curious nature of migraines. He has collected some of his essays in *An Anthropologist on Mars* and *The Man Who Mistook His Wife for a Hat.*

Perhaps his most famous and lasting work is *Awakenings*, a book lauded by W. H. Auden as a masterpiece of medical literature. It has inspired a Broadway play and the blockbuster movie starring Robert De Niro as a patient stricken with a seemingly incurable neurological disease and Robin Williams as the young Dr. Sacks, just out of medical school and desperate to find answers.

Sacks recounted the story during his talk, appropriately titled, "Awakenings Revisited." In 1966, he was sent to Beth Abraham, a chronic disease hospital (what would now be known as a "skilled nursing facility"), in the Bronx. He admits he was terribly clumsy in labs and often dropped, or misplaced, crucial slides. A supervisor was only half-joking when he told Sacks to "get out and see patients." When he did, Sacks was stunned by a collection of strange figures in odd postures. "They did not appear to even be alive," he said. These patients suffered from encephalitis lethargica, known as "sleeping sickness" for the catatonic state that consumes its victims. Many had been suffering since World War I and had sat in a trance for up to 40 years.


ROSALIE WINARD

Sacks

"This was not," Sacks noted, "a good place for an upcoming doctor to begin."

Soon after arriving, Sacks, and the entire medical community, learned that a new drug, L-dopa, looked like a promising treatment for Parkinson's sufferers. Sacks thought there might be a relationship between the two diseases and set out to treat his patients with the drug. The results were astonishing. People who once laid motionless now were able to walk, to play the piano, to dance. "You needed pictures to believe it," he said, then offered some.

Sacks had recorded on film the awakened patients and showed the remarkable original footage during his talk: Leonard, played by De Niro in the film, once immobile, now playing catch with a younger, robust Sacks; men and women dancing together; patients performing simple tasks like combing their own hair.

"It was as if someone had unpopped a cork," he said. The patients had come alive as people with hopes and dreams. As he does in his books, Sacks recounted his patients' histories as stories for the Scaife Hall crowd, illustrating the case history as a unique form of literature—the illness, its observed data, imbedded in the story.

But what seemed like a promising treatment turned disastrous over the ensuing months. Many patients became uncontrollable and most slipped back into the catatonic state. The disease remains a mystery today.

As the footage grew darker—as his patients began to slip away—Sacks's voice became low, barely carrying itself across the lecture hall, and he often paused to stare at a blank screen before speaking again.

After one thoughtful pause he offered this:

"As a physician, you cannot treat your friends and family. But your patients can become your family and friends. You can be overwhelmingly important in *their* stories." ■



CONNIE MERRIMAN

DOWN BUT NOT OUT

HUNDREDS VOLUNTEER WITH THE HOMELESS

BY JENNIFER BOWMAN

Ope Adeoye, a first-year student, and patient Mark Jameson (not his real name) sit behind a partition, out of the way of the medical students, residents, and volunteers who are rushing by one another, checking files, and giving eye tests in the middle of the afternoon traffic at the Birmingham Free Clinic on Pittsburgh's South Side. During the week, these rooms are used as a drop-in center for the homeless, a place to get a warm cup of coffee or make a phone call about a job lead. The entrance, at the top of a fire escape, is a laundry room that today serves as a waiting room for patients. A couple of nervous-looking teenagers and a woman holding a baby wait in chairs beside the washer on this cool spring Saturday.

Adeoye starts out with questions that are easy for Jameson to answer: Name? Social Security number? Date of birth? Like 80 percent of the patients who come here, Jameson no longer has a place to call home and lacks access to regular health maintenance. A tall and underweight 32-year-old, he has come in today with a complaint of chest pain; he also needs to have some stitches removed from a cut over his right eye.

This is Adeoye's first time here. His newness at the clinic shows when he has to look up codes as he fills in Jameson's medical interview form, but he appears relaxed and comfortable talking with his patient.

"Are you currently employed?"

"No." Jameson's tone is matter of fact.

"What is your source of income?"

"None, right now."

"What do you think is causing your chest pain?"

"I just got off a cold. Maybe that. Or food." Jameson answers Adeoye in a low voice, often covering a cough with his hand. "It's probably from getting out there—high—then coming down," he says, nodding.

Adeoye gets the details. Jameson started using crack nine years ago and has tried to quit before; once he was even clean for 13 months. He had a job then, and a truck and a girlfriend. When he went back to crack, his girlfriend threw him out, and he went to live with his mother. Jameson quickly became depressed and lost his job, thinking, as he puts it, "Ain't no need to work if it's just to support my habit." After that Jameson used his truck to scavenge for scrap metal or anything he could sell to bring in $100 a day for his habit. Then he "messed up" the truck and lost that too. Then he got his income tax return of $820. Within two days he had spent it all on crack. That was when his sister smacked him with a frying pan, causing the cut over his right eye. He left his mother's place then and has since been living with friends.

As Jameson talks, Adeoye is learning firsthand how to interact with a population that many in the medical profession may not adequately understand. And as Adeoye says, "Here you learn that it's more than just giving someone a pill if his leg hurts and sending him home. Part of being an expert is sitting down to talk to patients to see what is really wrong."

Thomas O'Toole, formerly of Pitt's med school, founded the Program for Health Care to Underserved Populations six years ago. The program lets students and residents work at seven clinics for underserved populations in the Pittsburgh area. Spending some time in the clinics is required. Around 70 percent of students volunteer additional hours (working alongside about 30 community physicians). On average, 400-plus health professional students give 10,000 hours of service and treat 1,500 patients in any six-month span. The program is at maximum capacity. There are so many students who want to volunteer that sometimes they have to wait months before a slot becomes available.

Adeoye listens, really listens, leaning slightly forward, his eyes fixed on Jameson. "I just want to kick this crack thing," Jameson tells him. "I liked my old job—it was fun, fulfilling." He pauses and leans back in his metal folding chair. "I want to go back to that."

"What would it take?" Adeoye asks him.

"Counseling," Jameson sighs. He rubs his hands together, "Probably 30 to 90 days of being sober. I'm on my way to recovery. I've been clean now four days." It sounds like just staying sober takes all his energy.

Adeoye encourages him: "You can definitely do it again."

When Adeoye finishes interviewing Jameson, they step behind a clothesline-strung shower curtain with one of the residents for an exam. Adeoye mostly just observes, but he does check Jameson's liver for any enlargement that might have been caused by alcohol abuse. He doesn't notice any. They determine Jameson's chest pain is a case of heartburn, remove the stitches, give him an antibacterial cream for the eye cut, and refer him to a rehab program.

After Jameson is gone, Adeoye says he is grateful that people like Jameson allow him—a student—to work with them.

"I know people in situations like Mark's, and they are not all that different from me.

"It doesn't take much before they lose their homes and families too." ■

People and programs that keep the school healthy and vibrant



ILLUSTRATION: BECKY SMITH

THE CONTRIBUTION OF A LIFETIME

A NEW PROFESSORSHIP IN MOLECULAR GENETICS

BY REBECCA SKLOOT

John Vries, a serious-looking, hard-thinking man, softens when you mention the photograph that sits on his desk. "I've got seven grandkids," he says, smiling. "That's the shrimpiest one. He's the chairman of the board." "The chairman," in a lawnchair wearing oversized sunglasses, looks over Vries's office, the walls of which are lined with many more academic achievements than the boy has years behind him. "That," Vries says motioning toward the plaques, "is my past life."

In fact, much of Vries's "past life" involved caring for children. And it's clear when you talk to him, he wants his work to make a difference so toddlers like his grandson will have a better chance of making it through childhood to become healthy adults. This is why the medical school has a new endowed chair, the John K. Vries Professor of Molecular Genetics.

Now senior vice president for Medical Archival Systems (MARS), Vries was a neurosurgeon for 28 years, chief of neurosurgery at Children's Hospital, and he developed the Epilepsy Center at UPMC Health System. During this time, he worked with computers "in the background." Among the dabbler's projects: developing the program that later became MARS, a medical information management system. MARS uses parallel processing to organize medical records and make them available for widespread use through an Internet database. MARS isn't picky about language or formatting—it can take a medical record written in, say, Turkish, and organize it into a concise database record accessible in a variety of languages. The metaphor MARS folks like to use is a blender: Stick in a mishmash of information, turn it on, and out comes a smooth, user-friendly product. It's as easy as making a cold smoothie on a summer day.

In the late '80s Vries and the University decided to market MARS. Vries always planned to fund a professorship, even if it meant waiting to do it through his will; but thanks to the success of MARS, he, and the world of biomedical research, didn't have to wait that long. He is donating his MARS profits to fund a chair in molecular genetics.

"There are two things that are changing our lives radically," says Vries. "One is telecommunications, and the other is going to be an understanding of [disease at a genetic level]." When Vries, a man who spent close to three decades performing neurosurgery, talks about the professorship, he smiles and says, "I think that's my most far-reaching medical contribution." ■

FOR MORE INFORMATION:
www.mars-systems.com

A COUNTRY DOCTOR'S HOPE

TO BOLSTER EDUCATION AND RESEARCH

BY JENNIFER BOWMAN

When he sat for his class picture in 1909, Edward Pardoe held his chin high and pressed his lips together in a tight smile. Twenty-three years old with a broad chest and tightly cropped dark hair, Pardoe had spent the last several years working as a night watchman in a nearby coal mine to get himself through the Western Pennsylvania Medical College (now the School of Medicine at Pitt). Finally he was graduating, second in his class, and planned to practice medicine in Johnstown. Pardoe wanted to "return to the hills," which meant leaving behind the cable cars and automobiles used by city doctors to visit patients horse-and-buggy style. He would go on to become known as the "hardest working doctor in the county." Pardoe's idea of a vacation was to tour Canada with his family and then, suddenly, leave because a patient needed him.

Last year, 89 years after Pardoe was awarded his diploma, his daughter, Dorothy Kaufmann, returned it to the medical school. It is in perfect condition and was signed by all the faculty of 1909. In addition, Kaufmann and her husband, Ralph, established a $250,000 endowment for a scholarship in Pardoe's name. Their generosity is providing several thousand dollars in support to a student each year.

The Pardoe scholarship is the largest endowed scholarship offered to a student at the medical school. The school wishes it had many more such prizes to give out. On average, indebted Pitt med students must pay back $103,989 after graduation; the highest debt among 1999 graduates was $215,000. Medical and research leaders fear such debts are dissuading students from pursuing careers in primary care or research—two areas close to Pardoe's heart.



He may have preferred the simple country life, yet Pardoe was a strident enthusiast for clinical advances. While serving in France in World War I, he learned the latest techniques in orthopaedics; on his return to Western Pennsylvania, he applied these to victims of coal mine and steel mill accidents. And Kaufmann says that the availability of the first antibiotics put her father in seventh heaven. She remembers him excitedly shouting, "We can finally do something!"

And now, decades later, a scholarship at Pardoe's alma mater will help others carry on the work he took on with such passion. ■

MATCH RESULTS | CLASS OF 1999

ANESTHESIOLOGY

Elser, Christopher S.
Pennsylvania State-Geisinger, PA

Griggs, Richard C.
Duke University Medical Center, NC

Schmalenberger, Kevin P.
UPMC Health System, PA

Woodward, Kenneth A.
Mayo Graduate School of Medicine, MN

DERMATOLOGY

Johnson, Kim
UPMC Health System, PA

EMERGENCY MEDICINE

Amagasu, Misha W.
Christiana Care Health System, DE

Blyth, Brian
University of Rochester-Strong Memorial Hospital, NY

Esenwine, Allison J.
Ohio State University Medical Center, OH

Krieg, Susan L.
Hennepin County Medical Center, MN

Lin, Alexander C.
Phoenix Baptist Hospital, AZ

Liszka, Heather A.
Highland Hospital-Rochester, NY

Marston, Heather J.
McGaw Medical Center-Northwestern University, IL

Miller, Katie J.
Christiana Care Health System, DE

Van Zwieten, Krista A.
Barnes-Jewish Hospital, MO

Walker, Heather L.
UPMC Health System, PA

FAMILY PRACTICE

Ashton, Michael R.
Thomas Jefferson University, PA

Blyth, Taura
University of Rochester-Highland, NY

Campopiano, Melinda
UPMC Shadyside, PA

Clinedinst, Candace
UPMC St. Margaret, PA

Foley, Donald E.
University of South Florida College of Medicine-Tampa, FL

Hamilton, Kathryn D.
Hunterdon Medical Center, NJ

Johnson, Wesley D.
Maine Medical Center, ME

McIntosh, Laura J.
UPMC Shadyside, PA

Miller, Roberta N.
Allegheny University Hospital Family Practice, PA

Pitzer, Jo Ellen
Grossmont Hospital-Sharp, CA

Roberts, Erin
Naval Hospital-Pensacola, FL

Rosener, Stephanie E.
Allina Family Residency Program, MN

Rubin, Seth R.
UPMC Health System, PA

Scheri, Tad D.
UPMC St. Margaret, PA

Turosinski, Richard J.
Maine Medical Center, ME

FAMILY PRACTICE PRELIMINARY

Park, Andrew
UPMC Shadyside, PA

INTERNAL MEDICINE

Adibi, Baback
Thomas Jefferson University, PA

Aleong, Ryan G.
Barnes-Jewish Hospital, MO

Alexander, Amarin
University of Florida Health Science Center, FL

Bael, Timothy E.
New York Presbyterian Hospital-Columbia Presbyterian, NY

Chou, William C.
Yale-New Haven Hospital, CT

Cunnane, Megan S.
UPMC Health System, PA

Granger, Bradford D.
Medical College of Virginia, VA

Hampel, Howard
Baylor College of Medicine, TX

Jancarik, John P.
UPMC Health System, PA

Kasamon, Yvette L.
Brigham & Women's Hospital, MA

Kawasaki, Lumie
Tulane University School of Medicine, LA

Khurana, Ajay K.
UPMC Health System, PA

Kim, Jaime
McGaw Medical Center-Northwestern University, IL

Maisel, Christopher M.
Ohio State University Medical Center, OH

Mc Alpin, Andrew M.
University of Rochester-Strong Memorial Hospital, NY

Mc Fadden, Brett
Kessler Medical Center Air Force Base, MS

Mellinger, Traci A.
Thomas Jefferson University, PA

Mital, Sangeeta
UPMC Health System, PA

Mohamed, Asif A.
Thomas Jefferson University, PA

Ommert, Dennis P.
University of Illinois College of Medicine-Chicago, IL

Pennock, Jennifer
Georgetown University Hospital, DC

Peterson, Ross C.
University Hospital of Cleveland, OH

Podrasky, Ernest J.
UPMC Health System, PA

Rhee, John C.
UPMC Health System, PA

Scalapino, Kenneth J.
University of California San Francisco, CA

Setty, Prathima P.
Rush-Presbyterian-St. Lukes Medical Center, IL

Snee, Brent
University of Colorado, CO

Thananart, Sandra
Albert Einstein/Montefiore Medical Center, NY

Weyers, Cheryl M.
Emory University School of Medicine, GA

INTERNAL MEDICINE PEDIATRICS

Fitzgerald, Patrick
UPMC Health System, PA

Samuel, Dhinesh J.
UPMC Health System, PA

Stevens, Jay D.
UPMC Health System, PA

Szwast, Anita L.
Baylor College of Medicine, TX

INTERNAL MEDICINE PRELIMINARY

Blattau, Gwyneth
University of Maryland Medical Center, MD

Gottfried, Joseph
Duke University Medical Center, NC

Ilyas, Waqas
Barnes-Jewish Hospital, MO

INTERNAL MEDICINE PRIMARY

Grudberg, Sarah C.
Brigham & Women's Hospital, MA

Rucosky, Ilsa A.
UPMC Health System, PA

Szymkowiak, Vidya
UPMC Health System, PA

MAXILLOFACIAL SURGERY

Rosenthal, Marc
UPMC Health System, PA

Smith, Julie
UPMC Health System, PA

NEUROLOGICAL SURGERY

Harris, Anthony
UPMC Health System, PA

NEUROLOGY

Cole, Cecily
UPMC Health System, PA

Di Bernardo, Alicia
Harvard/Massachusetts General Hospital/Brigham & Women's Hospital, MA

OBSTETRICS GYNECOLOGY

Good, Laura
Medical College of Virginia, VA

Hamilton-Boyles, Sarah
Ohio State University Medical Center, OH

Hershberger, Jonathan M.
McGaw Medical Center-Northwestern University, IL

Kuye, Olabisi O.
University of Hawaii Integrated Ob/Gyn, HI

Milliken, Amy R.
University of California San Diego Medical Center, CA

Read, Alyson
David Grant Medical Center, CA

Richard, John
Naval Medical Center-San Diego, CA

OPHTHALMOLOGY

Timothy, Nigel
West Virginia University, WV

ORTHOPAEDIC SURGERY

Edwards, John Z.
Summa Health/Neoucom, OH

Manning, Christopher M.
UPMC Health System, PA

Melamed, Hooman
Louisiana State University School of Medicine-New Orleans, LA

OTOLARYNGOLOGY

Cardamone-Rayner, Mark
University of Minnesota Medical School, MN

PATHOLOGY

Gagajewski, Angelique
UPMC Health System, PA

Krisky, David M.
UPMC Health System, PA



Nearly 90 percent of the Class of '99 are residents at one of their top five hospitals of choice.

PEDIATRICS

Ambrose, Rachelle L.
Maine Medical Center, ME

Bornstein, Aaron D.
Children's Memorial Hospital, IL

Chaleff, Stanley
St. Christopher's Hospital, PA

Davis, Sean R.
University of Washington Affiliated Hospitals, WA

Demorest, Rebecca A.
Children's Hospital-Philadelphia, PA

Everly, Eileen M.
University of Maryland Medical Center, MD

Feingold, Brian D.
University of Massachusetts, MA

Fernando, Nimali
University of Texas Medical School, TX

Ham, Jee-Young N.
Children's Memorial Hospital, IL

Hassouri, Paria
Cleveland Clinic, OH

Hoffman, Amber M.
UPMC Health System, PA

Loop, Bridget T.
Children's Memorial Hospital, IL

Marquis, Amy
David Grant Medical Center, CA

Natarajan, Shobha S.
University of Vermont/Fletcher Allen, VT

Nowalk, Andrew J.
UPMC Health System, PA

Patel, Roopal A.
Children's Memorial Hospital, IL

Saslaw, Minna M.
Yale-New Haven Hospital, CT

Shaikh, Naomi N.
Thomas Jefferson University/Dupont Children's, PA

Stocks, Karyn L.
Johns Hopkins Hospital, MD

Voigt, Laura K.
Inova Fairfax Hospital, VA

Wernersbach, Denise L.
UPMC Health System, PA

Williams, Tara S.
Newark Beth Israel, NJ

Yang, Michele L.
UPMC Health System, PA

PLASTIC SURGERY

Weniger, Frederick G.
UPMC Health System, PA

PSYCHIATRY

Ah-Tye, Collette
University of California San Francisco, CA

Alter, Mark D.
Brown University Psychiatry Residency, RI

Forman, Alexandra C.
Yale-New Haven Hospital, CT

Marraccini, Rory L.
New York Presbyterian Hospital-New York Cornell, NY

Perez, Gina M.
UPMC Health System, PA

Rosen, Adam R.
UPMC Health System, PA

Shah, Margi C.
Brown University Psychiatry Residency, RI

Shulman, Scott D.
UPMC Health System, PA

Viens, Bonnie L.
Jackson Memorial Hospital, FL

Wilson, Dorothy V.
UPMC Health System, PA

RADIOLOGY DIAGNOSTIC

Bronfman, Jason N.
Barnes-Jewish Hospital, MO

Darden, Daryle
University of Texas Medical School-Houston, TX

Davis, Ryan
Cedars-Sinai Medical Center, CA

Deible, Christopher
UPMC Health System, PA

Jesinger, Robert A.
UPMC Health System, PA

Krishnan, Madhavan
University of Arizona Affiliated Hospitals, AZ

Mudigonda, Sanjay K.
Rhode Island Hospital/Brown University, RI

Stickle, Robert L.
UPMC Health System, PA

GENERAL SURGERY

Dadvand, Babak
Cleveland Clinic, OH

Kassis, Edmund S.
Johns Hopkins Hospital, MD

Koehler, Richard P.
University of Utah Affiliated Hospitals, UT

Rivera, Louis
Naval Medical Center-San Diego, CA

GENERAL SURGERY PRELIMINARY

Bennett, Nelson E.
Howard University Hospital, DC

TRANSITIONAL

Sanders, Devin D.
Riverside Methodist, OH

UROLOGY

Schatz, Stephen M.
Mayo Graduate School of Medicine, MN

NO FIRST YEAR RESIDENCY

Kim, Edward
Research

Tran, Quoc
Personal



ILLUSTRATION: BECKY SMITH

CLASS NOTES

'20s

WILLIAM B. MC LAUGHLIN, MD '27, is approaching 97 years of age and, as he says, is "still hangin' in there" as the sole survivor of the class of '27. After working as a physician at Western State Penitentiary, and later Rockview Farm Prison, he went on to complete several residencies before practicing orthopaedic surgery during the Depression. In 1979, McLaughlin retired to his home in Virginia where he continues to study, and works as a mail carrier during the summers.

'30s

ALBERT G. CORRADO, MD '38, currently serves on the Board of Regents of Gonzaga University in Spokane, Washington, and has been in private practice in internal medicine and allergy since 1946. He has served as president of the American College of Allergy and Immunology, and received an honorary degree of Doctor of Laws from Gonzaga University.

ROBERT GALBRAITH HEATH*, MD '38, of St. Petersburg, Florida, held numerous appointments at Tulane University from '49 until his retirement. His positions included emeritus professor and chair of neurology and psychiatry, and clinical professor of neurosurgery. Heath has been the recipient of multiple awards, including a named chair and endowed named lectureship. During his career, Heath trained more than 400 physicians who entered academic medicine. Beyond his teaching, Heath is known for his research in biological psychiatry and neurology. He has contributed more than 400 articles, and written books on schizophrenia, epilepsy, and the mind/brain relationship.



The Owl, 1939

HUMBERT LEWIS RIVA, MD '39, currently retired and living in Short Hills, New Jersey, gave us a synopsis of his distinguished career: He has served as director of gynecologic oncology and gynecologic surgery, and director emeritus of obstetrics and gynecology at the St. Michael's Medical Center of Seton Hall University Graduate School of Medicine in Newark, New Jersey; as chief of obstetrics and gynecology at Walter Reed General Hospital; as a consultant to the White House, the Diplomatic Corps, and the Surgeon General; and as president of the New York Gynecological Society.



The Owl, 1951

'50s

ROBERT B. STUART, MD '55, diplomate to the American Board of Family Practice, was named an honoree for Doctor of the Year by Saint Vincent Health Center in 1998. This follows a career in which he served as president of Erie County Family Practice, delegate to the Pennsylvania Medical Society, and FAA Medical Director for Western Pennsylvania. He is currently practicing in Erie, Pennsylvania, acting as medical director of the Sarah Reed Retirement Center, and "not giving up practice yet."

HERBERT E. CROFT, MD '56, medical director of oncology at Akron General Medical Center, and former president of the Summit County Medical Society, is practicing in a single specialty group in Akron, Ohio.

CYRIL H. WECHT, MD '56, was nominated Democratic candidate for County Executive in Allegheny County. He received his JD from the University of Pittsburgh School of Law in 1962, and went on to become the current coroner of Allegheny County. He is a fellow of the American Academy of Forensic Sciences (he served as their president from '71 to '72); director and president of the Pittsburgh Institute of Legal Medicine; fellow of the American College of Legal Medicine (he served as their president from '69 to '72); and clinical professor of pathology at Pitt's medical and dental schools.

JOSEPH A. MARASCO JR., MD '57, was recently elected president of the International Society of Radiology for a two-year term during the 20th International Congress of Radiology in New Delhi, India. Marasco recently retired from his practice with the Almar Radiology Group in Pittsburgh, and moved to Amelia Island, Florida.

STEVEN C. BEERING, MD '58, now professor and president of Purdue University in West Lafayette, Indiana, is the first medical doctor to serve as president of a major university. Prior to his position as university president, Beering was dean of the Indiana University School of Medicine. He was awarded Pitt's Distinguished Alumni Fellows Award in 1996, and an honorary doctor of science from Pitt in 1998.

PHILIP KAHLER HENCH, MD '58, now living in La Jolla, California, is the director of Emeritus Staff and Alumni Affairs for Scripp's Clinic after serving as senior consultant for their Rheumatology Division. He has authored numerous publications, and made extensive research contributions to the field of rheumatology. Hench, who began at Scripp's when there were only 16 faculty members, is retired from practice but still active with the clinic, whose faculty has grown to include more than 350 members. Hench spent the first half of 1999 organizing the 75th anniversary of Scripp's.

'60s

BARRY TENENOUSER, MD '61, was recently honored for 30 years of membership in the American Academy of Family Physicians. Tenenouser is a practicing family physician on staff at UPMC Presbyterian, UPMC Montefiore, UPMC Braddock, and UPMC Shadyside, and is a member of numerous professional organizations.

* As *Pitt Med* went to press, we were saddened to hear of Dr. Heath's death (September 21, 1999)

ALBERT S. BRAVERMAN, MD '62, recently published an article titled "The Public Stake in Physician Authority" in *The Pharos of Alpha Omega Alpha*, the journal of the Alpha Omega Alpha Medical Honor Society. He dedicated the article to the memory of professor Jack D. Myers (1913-1998). Braverman is a mentor of the Division of Hematology and Oncology at the Health Sciences Center of the State University of New York.

BERT O'MALLEY, MD '63, is a distinguished service professor and chairman of cell biology at Baylor College of Medicine in Houston, Texas. O'Malley was the first to demonstrate how progesterone binds to target cells in the uterus, and how steroid hormones regulate genes in cells. He has been the recipient of multiple awards, including Pitt's Hench Award in 1981, and has published extensively in journals such as *Science, Nature, Cell,* and others. Prior to his position at Baylor College, O'Malley was Lucius Birch Chair and director of the Reproductive Biology Center at Vanderbilt University. He also served as head of the National Institutes of Health molecular biology section.

FRED F. CIAROCHI, MD '69, who is running his own endocrine practice, has served as chief of staff at Dallas Methodist Hospital, chairman of the hospital's Corporate Medical Board, medical director of its Diabetes Center, chief of endocrinology for the hospital, and president of its medical staff. He is a fellow of the American College of Physicians and the American College of Endocrinology.

'70s

AARON M. LEVINE, MD '71, has recently been reelected for his third term as president of the Houston PM&R Society, and is completing an MBA from Regis University, which is in Denver, Colorado.



***The Hippocratean*, 1987**

CHARLES BRENNER, MD '74, was recently appointed medical director of Dartmouth Hitchcock Clinic in Concord, New Hampshire. This follows positions as chair of orthopaedics and chairman of Friendly Hills Medical Group in La Habra, California, and completion of an ACPE Certificate in Medical Management from Carnegie Mellon University.

IRA LESSER, MD '74, is residency training director in the Department of Psychiatry at the Harbor University of California, Los Angeles (UCLA) Medical Center as well as vice chair for academic affairs and professor of psychiatry in the UCLA School of Medicine.

HAROLD K. MARDER, MD '75, was recently appointed senior vice president of Global Medical Affairs and medical director of Wyeth-Ayerst Global Pharmaceuticals. Previously, he worked as senior vice president of clinical research and development after completing a pediatric residency and a fellowship in pediatric nephrology.

STEPHEN ARONOFF, MD '76, has assumed the position of chairman of the department of pediatrics at Temple University and chief medical officer of Temple University Children's Medical Center in Philadelphia, Pennsylvania.

MARTIN G. HELLMAN, MD '76, has won several teaching awards, most recently from Mt. Sinai residents. He served as chairman of the Ohio ACEP Emergency Medicine Review Course, the largest in the United States, and is practicing at Mt. Sinai in Cleveland, Ohio, and lecturing at ACEP Scientific Assemblies.

DONALD E. EVANS, MD '77, received the Pennsylvania Academy of Ophthalmology's Humanitarian Service Award. His volunteer work includes treating patients in need of ophthalmic care in underdeveloped countries and in the Pittsburgh area, who otherwise could not afford treatment. Evans holds a faculty appointment of clinical assistant professor of ophthalmology at the University of Pittsburgh School of Medicine.

GREGORY C. JONES, MD '79, became board certified in emergency medicine in 1994 and is currently medical director of County Emergency Medical Services for Montgomery County, Kentucky.

BARBARA E. WILHELM, MD '79, resigned as president of the Highlands Hospital Medical Staff in Uniontown, Pennsylvania, after a career in emergency medicine.

'90s

EUGENE M. MOWAD, MD '90, after completing his residency at Children's Hospital of Pittsburgh, moved to Poland, Ohio, to join a diagnostic referral practice at Tod Children's Hospital and is now the residency program director there.

Pitt Med is eager to publish news of its fellow and residency alumni as well! See attached form.

REUNIONS



Junior class, 1909

AMONG THE CLASS OF '38

no one can remember why, but they never had a class photo. **JOSEPH NOVAK, MD '38**, of Sewickley, says there were other things on his mind: "We were so happy to graduate. Back in those days, we were worried we wouldn't survive the grind. War was in the air. We all served."

But with the help of the school's Office of Alumni and Friends, a composite of 58 class member photos, scanned from Pitt's 1938 *Owl* yearbook, now hangs in its rightful place among the images of other med school classes guarding the halls of Scaife. The class photo was unveiled May 21 at the school. **ALBERT CORRADO, MD '38**, traveled the farthest for the unveiling; the still practicing allergist flew in from Richland, Washington.

Novak and the Office of Alumni and Friends are now planning a "mini-millennium" reunion.

THE CLASS OF '44

reminisced at the Lake View Country Club in Morgantown, West Virginia, on October 8.

THE CLASS OF '49

celebrated its 50th in style last May 13, 14, and 15. Highlights of the Pittsburgh reunion included a dance on the *Majestic* riverboat, tours of the city and the school, and a luncheon hosted by the school's dean, Arthur S. Levine. Twenty-four alumni and 20 other guests attended. Reportedly, many Dr. Hooker stories were told; **GEORGE C. WRIGHT, MD '49**, says the anatomy professor "walked on water," as far as they all were concerned.

THE CLASS OF '59

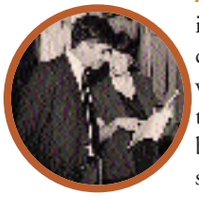
got together in Abington, Virginia, on September 24, 25, and 26 for their 40th.



THEY OUGHTA BE IN PICTURES. . .

Doctors flocked to the Pittsburgh Athletic Association from around the country last May, but they didn't come to work out. They came to compare memories at **Scope and Scalpel**'s first reunion on the 45th anniversary of its inception. "I was Superman," said **RICHARD KASDAN (MD '72)**, a prominent neurologist in Pittsburgh, who flew across the stage on ropes in *PMS Superstar* 27 years ago. **KAREN MC SHANE (MD '82)**, an Ob/Gyn in Cooperstown, New York, played what she calls "Olivia Newton-John parts" in *That's Incurable*. She hopped around in scrubs singing *Now For the Physical*. How could she forget. "I almost flunked Pediatric Cardio because I was so into that play," she said, joking. **LOIS POUNDS OLIVER (MD '65)**, who, as she says, "deaned at Duke" after being a teddy bear in *Coldfinger*, remembered **ALAN TAPPER (MD '65)**, now an Ob/Gyn in Baltimore. "Tapper was an artist," he couldn't stand the idea of putting on a play with bad sets. Somehow, he got sets from the Civic Light Opera, and *Coldfinger* became the first S&S to use professional sets. "The sad thing about those days," said Oliver, "is that we never had any recordings." But others did. **SUE AND JIM HUTCHISON (MD '62)** came armed with cassette tapes of *Borborygmi*, which they had made from the original seven-inch reels. The Hutchisons laughed with **MIRIAM (MD '62) AND BRUCE HARTNER (MD '62)**, recalling male classmates, whom Miriam Hartner had made up as women, pumping up blood pressure cuffs in their bras, grinding their hips, and singing in one show-stopping number. At the time, **JIM KUSHNER (MD '62)** lived with Jim Hutchison above a funeral home. And, as Sue Hutchison said, the location was a bit odd, "but they always had fresh flowers." Kushner, clearly suited for his musician role in *Borborygmi*, turned old garbage cans upside down as drums for home practice. "They were asked to move," Sue Hutchison said, feigning surprise.





TOP: The Hutchisons and Lois Pounds Oliver (MD '65) at the reunion
LEFT: The Joanne and Tim Averch (MD '89) family
RIGHT: Joan and Alan Mallinger (MD '73)

All this reminiscing proved a suitable warm-up for the weekend's events, including dinner and dancing with the Jack Purcell Orchestra, this year's Scope and Scalpel (*Saving Ryan's Privates*), golfing, and a tour of Pittsburgh. The event marked the largest gathering of medical alumni in Pitt's history; 100 alumni and guests attended. Early on in the schedule of events, huddled around a board displaying programs for every S&S production since 1955, alumni from several generations admired their colleagues' ingenuity with titles: *Welcome Back Cutter*, *Scar Trek*, *The Sound of Mucous*, *Smegma House*. . . "Some of the titles just call to you," said **CECILIA CARPENTER (MD '91)**, her head tilted to the side as though examining an exhibit at the Guggenheim. *–RS*

IN MEMORIAM

NORMAN F. COHEN (MD '45), APRIL 9, 1999

MICHAEL E. CONNELLY (MD '39), FEBRUARY 22, 1999

PAUL C. GAFFNEY (MD '42), MAY 14, 1999

JAMES E. HERTZOG (MD '57), JANUARY 19, 1999

THEODORE R. KOENIG (MD '29), JANUARY 21, 1999

JOHN ANTHONY MORTON II (MD '50), MAY 4, 1999

GEORGE W. OLAH JR. (MD '35), MAY 21, 1999

HARRY P. PALKOVITZ (MD '64), APRIL 11, 1999

JOHN F. RUSH (MD '55), JANUARY 3, 1999

IRWIN A. SOLOW (MD '41), MARCH 15, 1999

PAUL B. STEELE (MD '47), JANUARY 14, 1999

WILLIAM D. STEWART (MD '44), MARCH 4, 1999

BENJAMIN SUPER (MD '49), APRIL 16, 1999

PAUL GAFFNEY, MD '42

MAY 12, 1917—MAY 14, 1999



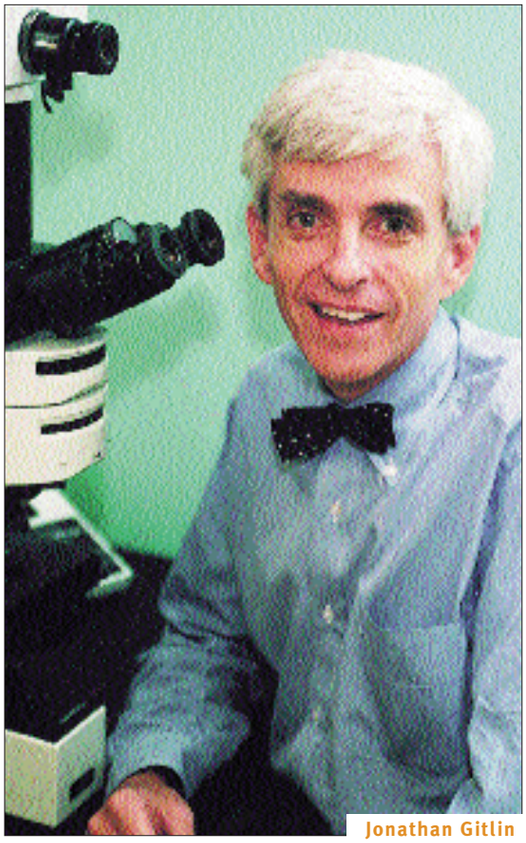
Paul Gaffney

While walking through Children's Hospital one day, Paul Gaffney stopped. An infant, a boy, was crying in the hall with a crowd failing to console him. Though the boy wasn't his patient, Gaffney knew the right question to ask: Does this baby have a blanket at home. . . one that's his blanket? Sure enough, the answer was yes. So the parents fetched the blanket from home. As soon as it arrived, the child stopped crying.

Gaffney had a special way with patients. A sixth sense. For more than 20 years, Gaffney was considered *the* hematology and pediatric consultant in Pittsburgh and the tristate area. He was the medical director at Children's; and at the School of Medicine, he served as acting chairman of pediatrics, associate dean of admissions, professor of pediatrics, and executive director of the Medical Alumni Association. In 1980, he received the Alumni Association's prestigious Hench Award.

Gaffney may be remembered most for his roles as mentor and teacher. In his honor, the medical school established the Paul C. Gaffney Chair in hematology and oncology research. And, in addition to awarding him the Golden Apple Award on three occasions, his students and colleagues flooded the University with contributions to fund a visiting professorship in Gaffney's name when he retired—something he did several times, yet still kept working. J. Carlton Gartner recalls: "Medicine was not just his career; in many ways, it was also his hobby." Gaffney happily spent his free time at "work"; he loved the thought processes, the developments, the changes. And he loved the people.

A memorial for Paul Gaffney will be held on October 24th in Heinz Chapel at 2 p.m. *–RS*



Jonathan Gitlin

ALUM JONATHAN GITLIN ENHANCES OUR METAL HEALTH

BY ALPAY ULKU

Jonathan Gitlin (MD '78) was puzzled.

It was 1994, he was into a 10-day stay in Tokyo to lecture about Wilson's disease, a rare genetic disorder, and to study patients when a woman from an outlying town was referred to him for a consultation. As a professor of pediatrics and pathology at Washington University's School of Medicine, Gitlin had seen quite a few Wilson's patients in his day, and he recognized the neurological symptoms. Her hands trembled. Her gait was jerky and abnormal—signs of the beginnings of damage that could eventually kill her.

Gitlin and his team of researchers at Washington University had been among the first to identify and clone the Wilson's gene. As one of the foremost experts on Wilson's disease, Gitlin understood the havoc a mutation in its associated gene can cause: Wilson's patients exhibit a tell-tale deficiency of ceruloplasmin, a blood protein held together by several molecules of copper in its core, whose job is to detoxify the blood. Ceruloplasmin oxidizes iron, and picks up copper that has been transported from the body tissues into the blood to prevent toxic buildup. There's a catch: Ceruloplasmin needs copper to survive. The Wilson's gene causes a defect in the protein that carries copper from the tissues to the blood—without this transport system, copper cascades out of control, building up in the liver and eventually the nerves; and ceruloplasmin degrades in the blood.

When Jonathan Gitlin tested his patient, he found that she had extremely low levels of ceruloplasmin in her blood. But her copper levels were normal. So it could not be Wilson's disease. Something else was wreaking havoc on her ceruloplasmin.

Gitlin had uncovered a new genetic disease, a rare form of Parkinson's. He named it "aceruloplasminemia," or "lack of ceruloplasmin." In aceruloplasminemia, the gene that is responsible for making ceruloplasmin does not work properly. Gitlin realized that in the case of his Tokyo patient, a lack of ceruloplasmin was allowing not copper, but iron, to build up in the basal ganglia of her brain. Gitlin had made yet another advance in understanding our "metal" health.

The practical applications of Gitlin's discoveries are far reaching. Not only does his research benefit those who suffer from these debilitating diseases, but it enables us to learn what metals such as copper and iron actually do in our bodies, and how much of them we need to stay healthy.

"These cases give us insights into more common problems," says Gitlin. He adds that learning how our bodies metabolize metals could have a profound impact on our diet and our home and office environments.

Just as too much metal is damaging to the body, not enough metal can pose a serious health risk. Gitlin says that metal deficiencies can lead to fetal and early childhood developmental problems.

"They contribute to development hazards such as learning disabilities and other problems," he says.

And helping children is one of the most important rewards for Gitlin in his research. Working at Children's Hospital in Pittsburgh as a med student convinced Gitlin to combine pediatrics and biochemistry. He speaks glowingly of the way that faculty members such as Thomas K. Oliver Jr., then chairman of the Department of Pediatrics, and J. Carlton Gartner, at Children's pediatric diagnostic referral service, influenced his choice.

"At the bedside, I can help one person at a time and in the lab, there's a chance of helping a lot of people."

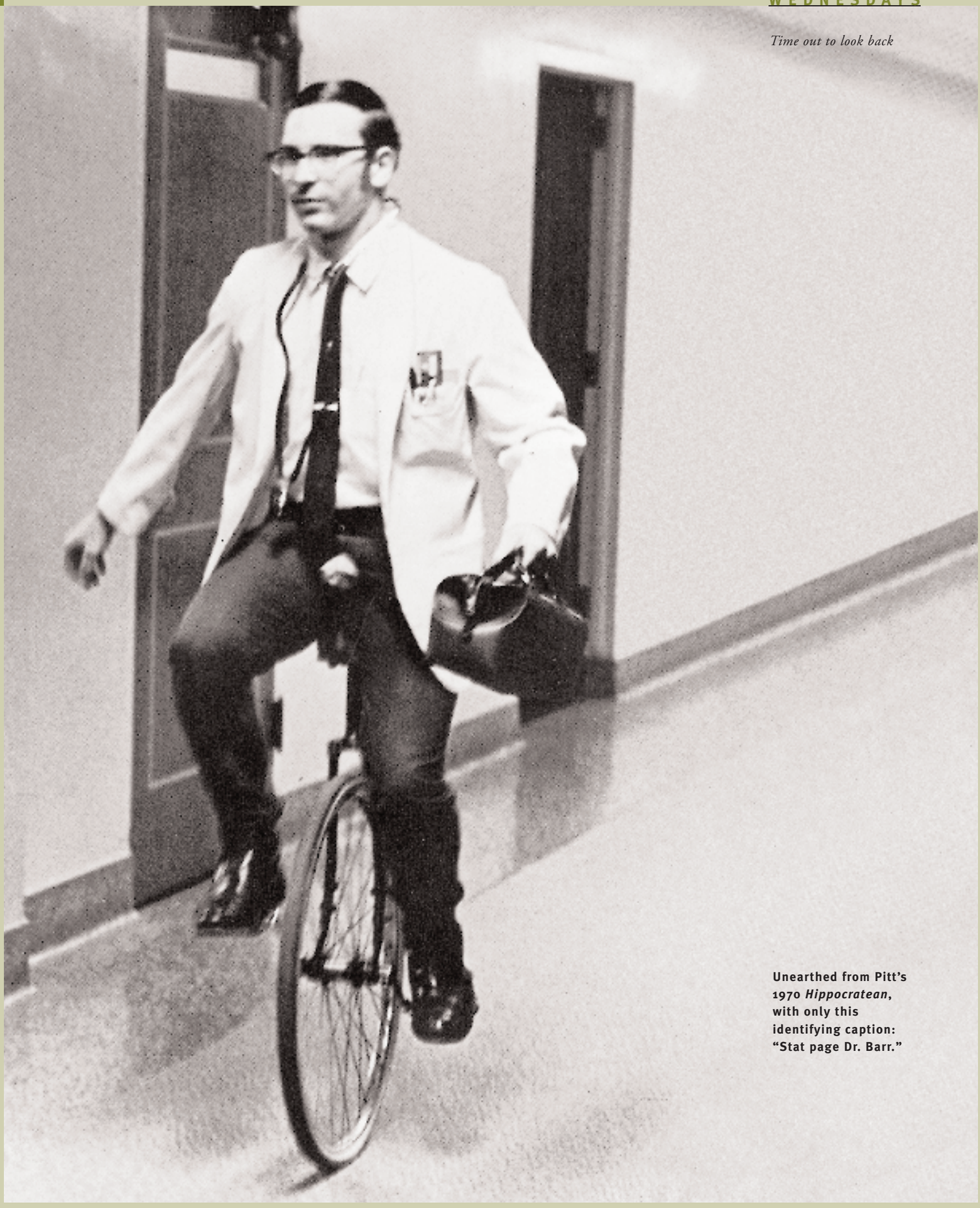
The young Gitlin displayed great promise as a freshman at Pitt's School of Medicine by winning the William McEllroy Award in biochemistry. By the time he graduated, he had won three more academic awards from the school. In the years since, his studies of how the body metabolizes metals have lead to breakthrough after breakthrough. By closely studying the tiny network of factories within the human body, where proteins ferry metals around the cells and where the limits of tolerance are measured in microns, Gitlin and his team have shed light on how diseases such as Wilson's, amyotrophic lateral sclerosis, and Parkinson's emerge and what they may have in common.

"In Pittsburgh," he says, "I fell in love with helping and interacting with people. Now I work as both a pediatrician and researcher—which means at the bedside, I can help one person at a time and in the lab, there's a chance of helping a lot of people."

In 1998, Jonathan Gitlin was awarded the prestigious Mead Johnson Award for Pediatric Research. He retains a busy clinical practice.

Treating people is a privilege, he says, especially when those people are children. ■

Time out to look back



Unearthed from Pitt's 1970 *Hippocratean*, with only this identifying caption: "Stat page Dr. Barr."