Yale Medicine

Spring 2001

"I am stunned to learn here that
a patient-doctor interaction is assumed
to happen in 15 minutes.
That would have to be a kind of haiku."

— Anna Deavere Smith

Doctor Patient Relationship

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Yale Medicine
Alumni Bulletin of the
Yale University School of Medicine
Spring 2001
Volume 35, No. 2

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Printing
W.E. Andrews of Connecticut Inc.

Yale Medicine is distributed to alumni, faculty, students and friends of the School of Medicine, as well as leaders in Yale University alumni activities.

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Keep up the good work

To the Editor:
Yale Medicine has certainly gone upscale. It is quite a magazine—and also I suspect a great marketing tool. Keep up the good work.

Dwight F. Miller, M.D. '56, HS '58
Waterbury, Conn.

Visit *Yale Medicine* on the Web

The content of *Yale Medicine* is available on the Web in html and pdf formats. Visit us at info.med.yale.edu/ymm to view the current issue as well as a searchable archive dating to 1998. Alumni notes will appear on the Web starting with this issue. Additional online content includes video excerpts from Anna Deavere Smith's performance of *Rounding It Out* in Harkness Auditorium (See page 20).

No compliments for alternative care

To the Editor:
I date way back from the class of 1942. In my class were members Michael Puzak and James Bunce, noted on the *In Memoriam* pages of the *Yale Medicine* that recently arrived in my mailbox.

In the same issue, I read of the growing popularity of unregulated alternative or complementary treatments ("Use of alternative medicine widespread among mentally ill," *Et cetera*, Fall 2000 | Winter 2001). I would prefer to call them unscientific or unproven.

My particular interest in retirement has been the exposure of the alternative care known as chiropractic. There are some 70,000 practicing chiropractors, legally called doctors, with 4,000 new graduates every year, compared to 15,000 medical graduates. In a survey of medical college deans, 27 termed the subluxation and adjustment theory to be false. I witnessed a student perform an adjustment of the neck and back at one chiropractic college, and was appalled. I have written a book to challenge this treatment titled *Chiropractic: The Greatest Hoax of the Century?* Yet the practice flourishes. Things were not so, way back in my student days of '42.

Perhaps the time is appropriate for Yale and other colleges of science to speak out on this subject.

Ludmil A. Chotkowski, M.D. '42
Kensington, Conn.

JOHN CURTIS

Snow falling on Cedar Street
A wet snow clings to the branches of a cedar tree outside Sterling Hall of Medicine in late February.

"I had to fight, I had to advocate for myself to get doctors to listen to me." *Page 22*

"The whole idea of longitudinal care struck me as being an awfully important one. I wanted to have a relationship with people." *Page 31*

"In outlying country hospitals, the [surgeon's] pay might be a home-cooked meal followed by toasts of vodka brought to the hospital by the family to celebrate a successful operation." *Page 38*

Building relationships in the classroom and the clinic

When we chose the lineup of feature stories for this issue of *Yale Medicine*, we didn't make a conscious decision to focus on the doctor-patient relationship. True, performer and playwright Anna Deavere Smith had made this topic the focus of her one-woman show, *Rounding It Out*, for which she interviewed several dozen patients, physicians and staff (See Cathy Shufro's story, "A Dramatic Turn," page 20). Good communication—between doctor and patient, mentor and medical student—is also an idea running through John Curtis' portrait of the Wednesday Evening Clinic ("Learning for the Long Run," page 28). But the issue's theme was completed when fourth-year medical student Sharon Chekijian filed her letter from Armenia ("Adrenaline and the Ordinary, in Varying Proportions," page 34), describing the state of health care in her family's ancestral homeland. Her observations, gathered over the course of a decade and a half-dozen visits to Yerevan, reveal a different rhythm for medicine in this ex-Soviet state, where doctor and patient may toast the success of the operation together and where the surgeon's fee may be paid in livestock or potatoes.

Is the doctor-patient relationship alive and well where you practice medicine? What do medical students and young physicians learn from the profession about listening and communicating well? Drop us a line at ymm@yale.edu or the address below and tell us what you think.

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How to reach us

Yale Medicine welcomes news and commentary. Please send letters to the editor and news items to *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via electronic mail to ymm@yale.edu, and include a daytime telephone number. Submissions may be edited for length, style and content.

CHRISTIAN SCHWETZ/ASSOCIATED PRESS

The cry for less-expensive AIDS drugs was heard in the streets of Pretoria, right, and in New Haven after Doctors Without Borders asked that d4T be made available in South Africa at low prices. Yale and Bristol-Myers Squibb, the drug's licensee, reached an agreement for price and patent relief in late March.

After an uproar, price of AIDS drug falls in Africa

A drug discovered in a Yale laboratory made headlines this spring in the ongoing debate about the provision of AIDS medications in the Third World. The physicians' group Doctors Without Borders called on the University, which holds the patent for d4T, and Bristol-Myers Squibb (BMS), which has a license to market it, to allow cheaper or generic versions to be sold in Africa. At a cost of between $10,000 and $15,000 a year, antiretroviral therapy is out of the reach of most of the 25 million people in sub-Saharan Africa who have AIDS and the 3.8 million who are infected with HIV.

BMS said in mid-March, after discussions with the University, that it would make its two AIDS drugs, d4T and ddI, available throughout Africa for $1 per day and allow generic versions to be sold as well.

The issue surfaced when an Indian pharmaceutical company, Cipla, made an offer to provide triple-therapy AIDS cocktails at $350 per year per patient in developing countries. That package included d4T at 5 cents a tablet. Doctors Without Borders, however, was unwilling to distribute the generic drug because of concerns over infringement of patent rights in South Africa. The humanitarian group pressed both the University and BMS for a solution, and Yale students later joined in calls for price relief. The discussions reached senior levels of the University and BMS, which modified the license agreement in order to make the drug more affordable and widely available. Although BMS was free to set the price of the drug, the company also sought permission from the University to offer patent relief in Africa. In recent years the drug, known generically as stavudine and marketed as Zerit, has brought Yale about $40 million a year in royalty income.

Joining the voices clamoring for low-cost drugs was William Prusoff, PH.D., emeritus professor of pharmacology, who with his collaborator, the late Tai-Shun Lin, PH.D., discovered the drug's value as an antiviral in 1986. "We weren't doing this to make money. We were interested in developing a compound that would be a benefit to society," Prusoff said.

JOHN CURTIS (2)

"Topping off" the Congress Avenue Building

"It's one thing as a parent to watch your own children grow," Dean David Kessler told the crowd gathered outside the Congress Avenue Building on March 21, "but I must say, as dean, it is quite another to watch this baby grow." The dean thanked city and community leaders and iron workers, who gathered with faculty members, students, alumni and project staff as the workers lifted the highest piece of structural steel in the 450,000-square-foot building's massive frame into place. An American flag and an evergreen tree were welded to the 1,000-pound beam for good luck, and iron workers and others signed the beam, right, before it shot skyward at the end of a crane. All told, 7,000 pieces of steel weighing 3,500 tons went into the framing, which was completed during the course of several exceptionally snowy months. "It seemed like the winter didn't want us to finish this job," said Otto Del Medico, the superintendent of Iron Workers Local 424. "We fought the weather every day." When completed in March 2003, the building will house disease-oriented research programs, greatly expanded teaching space, a magnetic resonance center and an animal care facility. Kessler's remarks from the "topping off" ceremony and updates on the project may be accessed at http://info.med.yale.edu/cab.

No time to lose

A high-profile panel criticizes national efforts to fight AIDS/HIV.

Last year, a committee of 16 scientists and academics began evaluating the nation's efforts to prevent the spread of AIDS and HIV. What it found was unsettling: a lack of coordination among federal agencies, funding of interventions that showed no evidence of success, reliance on political rather than scientific criteria for funding and, perhaps most startling, no clear goal for prevention.

"Despite the fact that we know so much about how to prevent HIV," said Michael H. Merson, M.D., dean of public health and one of two Yale faculty members on the panel, "we can't get the job done."

The Committee on HIV Prevention Strategies in the United States concluded that the nation's public health system needs to set the obvious yet previously unstated goal of averting as many new HIV infections as possible with the resources available. Under current funding, the committee estimated that a reallocation of resources could reduce new infections by 30 percent. And interventions currently denied federal funding, such as needle exchange programs and comprehensive sex education, could prevent even more infections. "That is probably the most important thing to realize," said the other Yale faculty member on the committee, Edward H. Kaplan, PH.D., a professor of both management sciences and public health. "You can get better results not only by increasing the budget, but also by changing the allocation."

The committee was established by the Institute of Medicine at the request of the Centers for Disease Control and Prevention, which wanted to have a prevention framework in place before the 2000 presidential election, Merson said.

One of the national effort's main failures, the report said, is in the allocation of HIV prevention resources. Money for prevention follows reports of AIDS cases, but because HIV incubates for 10 years, this approach yields old data. "It rewards people for counting cases of AIDS instead of preventing HIV infections," Kaplan said.

The report proposed a six-pronged prevention strategy. Allocation of resources should target not reported AIDS cases, but estimates of new HIV infections through anonymous testing of "sentinel groups," such as drug users in treatment. Evaluations of existing programs should determine whether interventions work. HIV prevention counseling should reinforce prevention messages among those already infected. Research and interventions should strengthen local capacity to implement effective programs. Federal agencies should continue to invest in HIV prevention. Finally, the committee recommended overcoming social barriers to HIV prevention, such as opposition to syringe exchanges, comprehensive sex education and condom availability in schools, and facilitation of prevention efforts in prisons.

"This is the greatest public health crisis the world has faced since the bubonic plague pandemic of the Middle Ages," Merson said, adding that years from now people will ask a simple question: "How did a country that had all the knowledge it needed about the virus and the resources required to prevent its spread allow such a tragedy to occur, killing so many people?"

MICHAEL MARSLAND

JOHN CURTIS

"Despite the fact that we know so much about how to prevent HIV infection, we can't get the job done," said public health Dean Michael Merson, top, one of two Yale faculty members on a committee that examined the nation's AIDS prevention strategy. A reallocation of existing resources, the panel found, could reduce the number of new infections by 30 percent. "You can get better results not only by increasing the budget, but by changing the allocation," said Edward Kaplan, above, the other faculty member on the committee.

FIRST AFRICAN-AMERICAN GRADUATE HONORED **The first African-American to graduate from the School of Medicine has been honored with a new scholarship, which once fully endowed will help recruit and support outstanding students from underrepresented groups entering public health. After his graduation in 1857, Cortlandt Van Rensselaer Creed, M.D., became a prominent New Haven physician and a Civil War surgeon. He was consulted in the shooting of President Garfield in 1881, and his forensic work in the investigation of a New Haven woman's murder played a part in Virginia A. McConnell's novel about Victorian New Haven, *Arsenic under the Elms*. The Creed/Patton/Steele Scholarship Campaign was initiated with gifts by alumnus Robert E. Steele, M.P.H. '71, Ph.D. '75, and also honors Creed historian Curtis L. Patton, Ph.D., professor of epidemiology (microbiology) and public health. To date, $64,000 of the $100,000 fund goal has been raised.**

WHAT'S IN A NAME? **Physicians at medical schools around the country usually provide their services through umbrella faculty practice organizations that streamline administration, financial services, compliance programs and practice standards. Yale is no exception. But in recent years the Yale Faculty Practice, which represents the medical school's 650 full-time clinical practitioners, has evolved into a more complex organization in order to accommodate the changing landscape of academic medicine. Reflecting this, the practice announced in March that it is changing its name to the Yale Medical Group. According to Director David J. Leffell, M.D., HS '86, the school's senior associate dean for clinical activity, "the words 'faculty practice' suggested to some people that care was delivered by interns and residents who were practicing to become physicians. The new name conveys a clear message about our academic medical group and the clinical care we provide."**

Pioneer in tobacco research receives first Winslow Medal

NANCY FERRERI

Sir Richard Doll, "the epidemiologist's epidemiologist."

Last fall when the World Health Organization began negotiating a new global treaty aimed at curbing tobacco use, particularly among young people, Sir Richard Doll, M.D., D.SCI., looked on with a great deal of satisfaction.

In 1950, Doll published the first convincing evidence that smoking was the cause of lung cancer. This was during an era when a physician might try to calm a patient's nerves by offering a cigarette. Doll, a smoker at the time, had speculated that rising lung cancer rates might have to do with the increase in the number of cars on the road. Through painstaking epidemiological work, however, he and his colleague Sir Austin Bradford Hill found and documented the link to tobacco.

This and Doll's lifelong contributions to epidemiology and public health—including the understanding of peptic ulcer disease, the health effects of oral contraceptives and the role ionizing radiation plays in causing leukemia—prompted the Yale University School of Public Health to make Doll the first recipient of the C-E.A. Winslow Medal in mid-October.

The medal is given in honor of Charles-Edward Amory Winslow, who established Yale's Department of Public Health, as it was known when it was founded in 1915, and is regarded by many in the United States as the founder of the modern discipline of public health. During his tenure at Yale, Winslow expanded the definition of public health from the narrow confines of public hygiene to include the prevention and control of heart disease, cancer, stroke, mental illness and diseases associated with poverty. According to Dean Michael H. Merson, M.D., many important changes occurred during Winslow's tenure. Bacteriology evolved into microbiology to include parasitology and virology, and public health experts began to recognize the social aspects of sickness.

Merson said Doll was selected as the first recipient of the medal because he is the "foremost epidemiologist of the second half of the 20th century." Doll's papers, which are "classics because of the rigor in their study design, the elegance of their analysis, and the clarity of their reporting," established his reputation as the "epidemiologist's epidemiologist," Merson said.

During the course of his career, Doll refrained from speaking out against tobacco companies because, as he said in an interview, "my job was to do the research and make evidence. ... The active research worker has to disassociate himself from the steps that are taken as a result of his research." But now that he is no longer actively researching the tobacco issue, he is happy to give his opinion on the continued efforts of those in the tobacco industry who market their products to youth.

"It's like selling heroin," he said. "One happens to be legal and the other isn't, but they are both equally morally evil. I don't object to the manufacture of it. We're not going to stop that overnight. What I object to is its promotion, encouraging people to use it."

Doll, who received his medical degree in 1937 and his doctor of science in 1958 from the University of London, considers his work on tobacco to be his greatest professional accomplishment. Formerly the director of the United Kingdom Medical Research Council's Statistical Unit, Doll was appointed the Regius Professor of Medicine at the University of Oxford in 1969. At Oxford he also directed the Cancer Epidemiology and Clinical Trials Unit, and has continued to work with the unit since his retirement as a professor in 1983.

In 1950, Doll published the first convincing evidence that smoking was the cause of lung cancer. This was during an era when a physician might try to calm a patient's nerves by offering a cigarette.

Managing complex data about the brain

In recent years, the state of knowledge about the human brain—whether at the level of molecules, cells, or entire signaling pathways—has increased so much that it has given rise to a whole new field of study. The science of neuroinformatics looks for ways to sort and store these floods of data that will keep them widely accessible, open to interaction with other data and amenable to continual revisions and updates. A big step forward took place in October, when the NIH-supported Human Brain Project awarded a $4.6 million grant to the School of Medicine for the establishment of a multipurpose, neuronal database on the World Wide Web.

The four-year effort of developing the site, known as SenseLab (senselab.med.yale.edu), is headed by Gordon M. Shepherd, M.D., D.PHIL., professor of neurobiology, along with colleagues Perry L. Miller, M.D., PH.D., professor of anesthesiology and director of the Yale Center for Medical Informatics, and Michael Hines, PH.D., research scientist in the departments of Neurology and Computer Science. "The purpose of the site is to support research on the integrative actions of neurons and circuits, in the same way that the Human Genome Project has so effectively supported research on genes and proteins," said Shepherd.

Within this Web site, users can work with data from each of SenseLab's five databases interactively. The databases focus on neuronal models (including models that can be manipulated onscreen), membrane properties of neurons, neurotransmitter receptors and ion channels, olfactory genes and their proteins, and odor molecules. In addition, users may search the databases by neuron or category of neuron, as well as by neurotransmitter, receptor or electrical current. Efforts are now under way to enhance the site with links to brain atlases on the Web and to other databases, such as archives of brain images and of the anatomy of different types of neurons. The Yale scientists are also developing more effective ways to add data from electronically published journal articles into the SenseLab databases by means of automatic search tools. In Shepherd's view, "It's an exciting time to be in on the creation of a new field that will be crucial to future research in neuroscience."

"The purpose of the site is to support research on the integrative actions of neurons and circuits, in the same way that the Human Genome Project has so effectively supported research on genes and proteins."

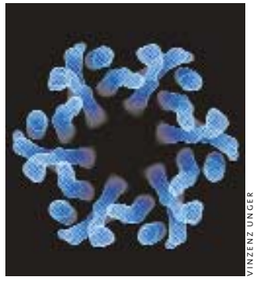
— SenseLab Director Gordon Shepherd

et cetera . . .

PARENTAL PROSPECTS **A national survey of 3,000 adults, one-third of them parents of young children, found a surprising lack of understanding about basic principles of child development. According to the survey, many parents spank their children although they know it doesn't work and expect a 15-month-old to share, even though that doesn't happen until children are at least two. "Parents seem to think development is some sort of race. It's a dance, not a race," says Kyle D. Pruett, M.D., a clinical professor at the Child Study Center and past president of Zero to Three, the child development advocacy and expertise organization that conducted the survey. One finding he found particularly disturbing was "the lack of understanding adults have about the enormously active absorption abilities of the very young within the first months of life, both of the good and the bad in their surrounding environment."**

CAFFEINE STUDY QUELLS TEMPEST IN A COFFEEPOT **The caffeine in over-the-counter pain relievers won't get you hooked, according to a review of the literature by an international committee of scientists chaired by Alvan R. Feinstein, M.D., HS '54, Sterling Professor of Medicine and Epidemiology. Fears percolating in Europe that caffeine in analgesics such as aspirin and acetaminophen might lead to dependency had spurred groups in Germany, Austria and Switzerland to seek protective regulations. Federal drug authorities in the three countries, along with the pharmaceutical industry, assembled the committee, which reported its findings in the November issue of *Clinical Pharmacology and Therapeutics*.**

JOHN CURTIS



VINZENZ UNGER

Yale scientists can now visualize the previously unviewable with upgraded imaging facilities in the Sterling Hall of Medicine. At an open house in January, Frederick Sigworth explained the use of a new electron cryomicroscope, which can produce images such as the one below of gap junction membrane channels. These channels connect adjacent cells and allow the exchange of ions and signaling molecules. Using electron crystallography, one of four principal approaches supported by the new electron cryomicroscopy facility, Vinzenz Unger calculated this image, the first to show the arrangement of membrane-spanning alpha helices on one side of the channel.

New facility brings cell imaging down to the molecule

Until March of this year, whenever Frederick J. Sigworth, PH.D., needed electron cryomicroscopy to view the membrane proteins he studies, he sent a graduate student on the train to New York with a thermos that maintained samples in liquid nitrogen at minus 200 degrees Celsius. Now Sigworth, a professor of cellular and molecular physiology, need go no further than the lower level of Sterling Hall of Medicine. There, in newly renovated space, is a cluster of core resources that allows scientists to apply the latest microimaging techniques to their work.

The Center for Cell and Molecular Imaging and the Core Computing Facility for Bioinformatics and Image Analysis offer electron microscopy, electron cryomicroscopy, confocal microscopy and core computing facilities for data analysis and interpretation. "These technologies are too complicated and too expensive for any one faculty member or laboratory to manage on their own," said Carolyn W. Slayman, PH.D., deputy dean for academic and scientific affairs. "Core facilities offer access to specialists and to equipment costing anything from hundreds of thousands to millions of dollars."

The upgraded facilities are the result of three years of planning that began in 1998, when Dean David A. Kessler, M.D., convened a committee to review the medical school's plans for structural biology. The committee came to the realization that, "more and more, state-of-the-art medicine is dependent on knowing the structure of these molecules," said Sigworth, one of its members. The school has since recruited faculty members with expertise in the new imaging technologies, upgraded existing hardware and purchased new equipment, such as additional electron microscopes, confocal microscopes, electron cryomicroscopes and a two-photon microscope. The new microscopes provide a variety of imaging possibilities for a broad array of specimens at a range of different resolutions.

An open house in late January officially inaugurated the new facilities. Vinzenz M. Unger, PH.D., assistant professor of molecular biophysics and biochemistry, coordinates the electron cryomicroscopy laboratory and provides training for new users. Marc Pypaert, PH.D., associate research scientist in cell biology, provides training and use of electron microscopes. Michael H. Nathanson, M.D., PH.D., associate professor of medicine, is in charge of confocal microscopy. The bioinformatics facility, managed by Anne Marie Quinn, M.P.H. '00, is a place where scientists and students can take data for analysis and interpretation or search for genomics data on the Internet. The next phase of the facility is an expanded X-ray crystallography laboratory at the medical school.

To those who gave their bodies to medicine, a gesture of gratitude

As they begin to study medicine, students who aspire to be physicians or physician associates meet their first "patients" in the anatomy lab. "These patients had a wish," said Lawrence Rizzolo, PH.D., professor of anatomy, "that a hard-working, dedicated student would take their remains and use them to advantage." The students know little about these patients at first—no more than their age, sex and race. Over the course of six months, however, the students become intimately familiar with them as they chart the geography of the human body. They learn from the calluses on their hands, the scars from prior surgeries, tattoos on their skin and the signs of disease and repair they may find inside.

On Feb. 28, students and faculty held a Service of Gratitude in the Historical Library to thank the donors for their gift to science. During most of the 15 years students have organized the service, it was styled, in the words of anatomy professor William Stewart, PH.D., on a Quaker meeting. People gathered and offered their thoughts on their first patients. About five years ago students decided to present a more formal program, Stewart said. The 75-minute ceremony this winter included songs and poems as well as remarks by students. Medical student Kavita Mariwalla tried to imagine her patient's personal life in two poems she wrote. "When I examine your heart as a structure," she said, "I will remember that you kept secrets in it."

The service, Rizzolo said, allows students to express the frustrations, angst and other emotions that come with the experience of exploring a cadaver. "It is really their first experience with a patient, even though the patient is dead," he said. "It raises a lot of thoughts about their own mortality and their lives as clinicians."

Each year, when the anatomy class ends, the bodies are cremated. About every five years, when ashes have accumulated, they are interred in a common grave at Evergreen Cemetery in New Haven. This year, medical students plan to inscribe headstones for each of the five common graves that hold the remains of the bodies.

JOHN CURTIS

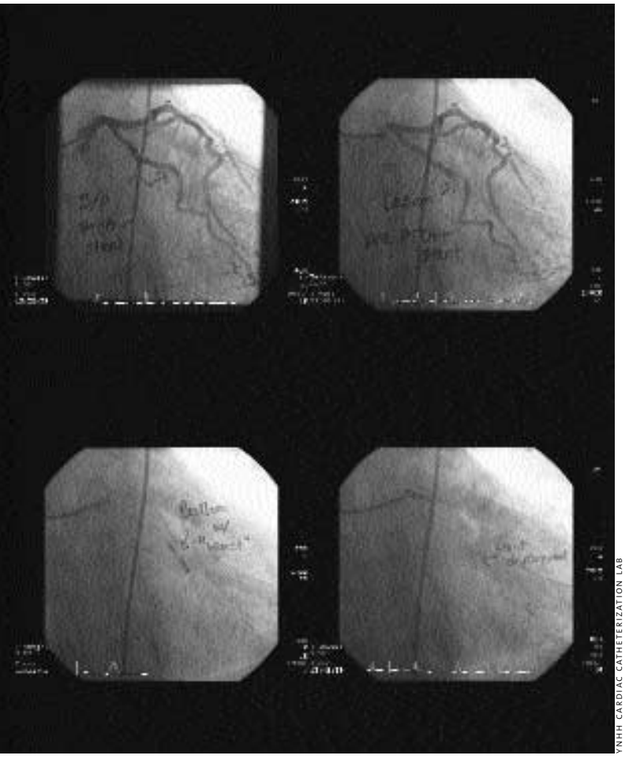
Ilene Wong, a first-year medical student, and Meredith Blodget, a student in the Physician Associate Program, listened as their anatomy classmates paid homage in February to the donors who made possible their first insights into the workings of the human body. "From the start," Wong read from her essay, *Remembering Tony*, "our teacher impressed upon us that anatomy is about ways of seeing. Thank you, Tony, for allowing me to see yourself, and myself reflected."

They learn from the calluses on their hands, the scars from prior surgeries, tattoos on their skin and the signs of disease and repair they may find inside.

et cetera . . .

15 YEARS LATER, A SURPRISE FROM CHERNOBYL During the 1995–1996 academic year, Jack van Hoff, M.D., HS '84, associate professor of pediatric oncology, took a sabbatical leave from the School of Medicine to coordinate pediatric data for a cancer registry project in Belarus, the former Soviet republic. That was where the heaviest fallout occurred outside of the immediate area surrounding the Chernobyl power station following the meltdown of one of its nuclear reactors 15 years ago this spring. Along with Clinical Professor of Medicine Nicholas Dainiak, M.D., van Hoff has since worked with the International Consortium for Research on the Health Effects of Radiation to study childhood leukemia in the region. The results have been surprising. "While the social effects on people within the area have been very significant," says van Hoff, "the physical impact of radiation exposure has been small. There has been a remarkable increase in rates of thyroid cancer for individuals exposed as children. However, there has been no detectable effect on the rates of other cancers to date."

RACE NOT A FACTOR Race did not affect the quality of psychiatric care or clinical outcomes in a study of white and African-American patients who were homeless and mentally ill. The study, reported in the October issue of *Psychiatric Services*, also showed that the race of case managers made no difference, said author Robert A. Rosenheck, M.D., HS '77, professor of psychiatry and public health. The findings depart from those of other studies showing that nonwhites may have less access to medical care or poorer outcomes than white patients. "It is difficult to generalize from these findings to other areas of health care," Rosenheck said. "The kinds of people who work with the homeless are generally those who have a special commitment to fairness and social justice, so these results don't necessarily translate elsewhere."



YNHH CARDIAC CATHETERIZATION LAB

Most patients believe that angioplasty can prevent heart attacks and prolong their lives, but physicians need to do a better job of informing them of the risks and benefits, according to a Yale study.

It can relieve chest pain, but there is no definite evidence to date that elective angioplasty will lower the risk of a future heart attack.

Patients underestimate risks, overestimate benefits of elective angioplasty

When it comes to electing to undergo angioplasty, many patients believe that the procedure to open up clogged blood vessels can prevent heart attacks and prolong their lives without any significant danger. According to Yale investigators, this is a misperception and patients need a better understanding of the potential risks and benefits from their health care providers well before they undergo the procedure.

Angioplasty is an invasive procedure in which a balloon is inflated inside a blood vessel, most often a coronary artery, to flatten any plaque that blocks flow through the vessel. A metal device called a stent is often inserted to help keep the artery open. It can relieve chest pain, but there is no definite evidence to date that it will lower the risk of a future heart attack. Moreover, angioplasty itself poses risks of inducing a heart attack or stroke, as well as hemorrhage and infection. Eric Holmboe, M.D., assistant professor of medicine, and his colleagues interviewed 52 patients, ages 39 to 87, on the eve of the procedure about their views of the potential benefits and risks. Three-quarters believed the procedure would prevent a future heart attack, and almost as many thought it would prolong their lives. When asked about risks, less than half could recall a single risk associated with angioplasty. Results of the study appeared in the *Journal of Internal Medicine* in October.

"Our findings show that patients do not have the information they need in a format they can use to make the best decision about angioplasty for themselves," says Holmboe. "In my opinion, patients need to have a discussion about the benefits and risks a good week before any elective procedure in order to think about the risks and benefits." To achieve this goal, Holmboe plans to create a multifaceted approach to help inform patients and answer their questions and to set up a program to train young physicians to provide risk explanations patients can understand.

Study knocks popular cough and cold medication ingredient off the market

A study by Yale investigators of phenylpropanolamine, or PPA, one of the most frequently used ingredients in many cough and cold medications, found that it leads to increased risk of hemorrhagic stroke in women. Men may also be at a lesser risk. The findings provoked the Food and Drug Administration (FDA) in October to advise ending the marketing and distribution of PPA, prompting manufacturers to withdraw many of the most popular over-the-counter (OTC) products using PPA, such as Alka-Seltzer Plus, Dimetapp Elixir and Robitussin.

The study took place at four research centers and was coordinated by the Yale investigators under a grant from two manufacturers of PPA. The results made front-page headlines worldwide because of the popularity of the products affected. Walter N. Kernan, M.D., associate professor of medicine, one of four co-investigators at Yale, says of the OTC products, "They're essentially gone."

The paper detailing the five-year, $5 million study did not appear in the *New England Journal of Medicine* until Dec. 14, but the results were released earlier on the journal's Web site because of their importance to public health. "I think the FDA decision was cautious but very appropriate," says Kernan. "There are alternative OTC medications for relief of cough and cold symptoms."

The study was undertaken because of case reports associating PPA with hemorrhagic stroke—bleeding between the cerebral lobes or around the edges of the brain—an uncommon form of stroke, especially in the 18- to 49-year-old age group that was the focus of the study. The study did not look at ischemic stroke, by far the most common form of stroke.

The investigators examined 702 people who had suffered a hemorrhagic stroke and compared them to twice that number of control subjects who had not had a stroke. That database is the largest of its kind. The investigators are now using it to study other risk factors for stroke. "We expect to find new and more precise information about other risk factors for hemorrhagic stroke, including other drug products," says Kernan. "These additional analyses may have important public health implications as well."

Third of doctors don't practice what they preach

Public health experts decry health care conditions that result in 20 percent of the American population not getting routine examinations, preventive inoculations and screenings. They often cite barriers to entry into the health care system, such as lower economic status, language difficulties and lack of education. A study of physicians directed by a Yale investigator came up with the surprising result that doctors seem even less likely than the rest of the population to have a regular source of care (RSOC) such as a primary physician.

The study was done while Assistant Professor of Medicine Cary P. Gross, M.D., was a fellow at The Johns Hopkins School of Medicine. Of 915 physicians who graduated from Hopkins between 1948 and 1964, some 35 percent had no RSOC during a seven-year survey period. While doctors may have other sources of care, those without an RSOC were much less likely to get cancer screening or an influenza vaccine.

Gross speculates that doctors don't go to doctors because of what he terms a "fallacious" belief in their capacity for self-care combined with the time demands of their medical careers. As is true of those who do not seek preventive care, he found that these physicians often also exhibit a "fatalistic" attitude, attributing health outcomes to chance. Gross says of the findings, which appeared in November in the *Archives of Internal Medicine*, "You have to wonder why we're not heeding our own advice." He does not know whether Yale graduates are more or less likely than other physicians to go to the doctor.

et cetera . . .

ENDOSCOPIC SURGERY IS EASIER TO SWALLOW People with a common swallowing disorder can now be treated at Yale using a procedure that is markedly less invasive than the conventional surgery through the neck. The surgery is used to treat Zenker's diverticulum, which occurs when the lining of the mucous membrane protrudes through the muscular wall just below the voice box in the high esophagus. Food easily becomes trapped in the pouch, making it difficult to swallow. Using an endoscopic procedure popularized at Duke called stapler-assisted diverticulostomy, the surgeons remove the pouch through the mouth and repair the lining with a stapler. The procedure is a breakthrough, according to Douglas A. Ross, M.D., associate professor of surgery and otolaryngology, who performs the surgery along with colleague Clarence T. Sasaki, M.D. '66, HS '73, the Charles W. Ohse Professor of Surgery and chief of the otolaryngology section.

NEW TAKE ON TUBAL TRANSFERS The two standard procedures for in vitro fertilization involve transfer of the embryo to either the uterus or the fallopian tube. A national database published by the Centers for Disease Control and Prevention (CDC) has supported the long-held belief that tubal transfer has a higher pregnancy success rate although it is more invasive, expensive and prone to complications. An analysis directed by Steven F. Palter, M.D., assistant professor of obstetrics and gynecology, of all previously published studies found that uterine transfers have just as great a likelihood of success as tubal transfers. Palter suggested that fertility clinics, which are required to publish their success rates, select which patients to accept or direct toward certain therapies based on their likelihood of success. That, he believes, skewed the database. His findings, presented at the American Society of Reproductive Medicine meeting, contradict statistics published by the CDC and the Society for Assisted Reproductive Technology, he believes.

Shedding new light on depression

JOHN CURTIS

Psychiatrist Dan Oren and colleagues in Israel say their findings on the effects of light on free radicals in the bloodstream bolster the notion that the body has light receptors other than those in the eyes.

A Yale investigator and his Israeli colleagues have shown for the first time that the body has light receptors other than those in the eye's visual system. That finding may help explain why using artificial light as therapy helps people with seasonal affective disorder (SAD), a form of depression believed to result from light deprivation, occurring most commonly during winter. It could also help lead to the development of light therapies for other forms of depression, according to the paper's senior author, Associate Professor of Psychiatry Dan A. Oren, M.D.

For the study, which appeared in the March 1 issue of the journal *Biological Psychiatry*, light from a type of light box commonly used to treat SAD was directed on skin cells grown in culture. Within 10 minutes, the light stimulated production of molecules containing so-called free radicals, which are gases that can deliver energy through the bloodstream. This may help explain why light can help treat SAD, which affects as many as 20 million Americans, and provides, said Oren, "a new pathway toward understanding how the brain works."

Oren is also principal investigator for a study using light to treat pregnant women suffering from depression. Oren and C. Neill Epperson, M.D., assistant professor of psychiatry and of obstetrics and gynecology, are testing women to see whether light therapy will allow them to avoid antidepressant medications, because of concerns about the drugs' potential side effects and/or toxic effects on the fetus. According to Oren, an open-treatment trial had "very encouraging" results. Yale and two other research centers are now pursuing a pilot study in hopes of undertaking a larger-scale investigation.

A molecular clue for detecting bladder cancer

KATIE HENDERSON

The protein produced by a gene called *survivin* may be a marker for bladder cancer, according to Dario Altieri, who discovered the gene. The protein appears in the urine of those with chronic or recurring bladder cancer but not in healthy individuals or those with other forms of cancer.

Discovered three years ago, a gene called *survivin* holds promise as a diagnostic marker for bladder cancer, according to a study published by Professor of Pathology Dario C. Altieri, M.D., of the Yale Cancer Center, and several colleagues in the Jan. 16 issue of *JAMA: The Journal of the American Medical Association*. The sixth most common cancer in the United States, bladder cancer has a 5-year survival rate of 93 percent if it is discovered and treated early.

The current means of diagnosis, cystoscopy and biopsy, are accurate but also expensive and painful. What the Yale study found may lead to a noninvasive approach, examining cells that the body abundantly sloughs off every day into the urine. In an analysis of urine samples from 16 healthy volunteers and 60 volunteers with various types of cancer, the protein product of the *survivin* gene appeared in the samples from patients with new or recurring bladder cancer—but not in those from the healthy volunteers or volunteers with prostate, renal, cervical or vaginal cancer.

"The potential outlook for a test like this would be to improve the follow-up measures" for patients after treatment, says Altieri. Since bladder cancer all too often does recur, he adds, "We hope to see this urine-cell analysis develop into an alternative, safe, noninvasive and reliable approach at the first line of diagnosis."

The lead author of the study was Shannon Smith, M.D., a urology fellow who died in March after a five-year struggle with brain cancer. "Her spirit was strong and inspiring and her commitment to this experimental work, even in the midst of the progressing disease, was admirable," Altieri said.

Radiation multiplies *Salmonella*'s anti-tumor properties

Traditional radiation therapy, when combined with a genetically modified form of the deadly bacterium *Salmonella*, could help some cancer patients, Yale scientists have found.

Writing in the *European Journal of Cancer*, the scientists say they have developed a nontoxic strain of the dangerous "wild type" of *Salmonella* and used it in conjunction with X-rays to fight tumors in mice. The study, done in collaboration with Vion Pharmaceuticals, showed a remarkable gain in the ability to halt, although not completely eliminate, tumor growth.

Initial results from a Phase I clinical trial indicated that the bacterium can safely be used in humans. Yale scientists John M. Pawelek, PH.D., K. Brooks Low, PH.D., and David G. Bermudes, PH.D., who is also director of biology at Vion, have received a patent for the cancer vector.

Pawelek, a senior research scientist in the Department of Dermatology, said the team was surprised at the effectiveness of the two therapies together. While either radiation or *Salmonella* alone prevented cancer growth for as much as three weeks, the combination stopped the tumors for more than twice as long.

While treating cancer patients with forms of bacteria has been done for at least 100 years, the reasons for its occasional success have eluded scientists. New ways of altering *Salmonella* and combining it with radiation are the novel aspects of the current work. "You can go into great detail about why X-rays and *Salmonella* are so effective together, but that is really speculation at this point," Pawelek said. "We have discovered a novel therapy, and one of the things we are doing now is trying to understand how it works."

With chest pain, need for treatment can be a matter of perspective

Chest pain is not the same for everyone. It keeps some patients from enjoying daily activities. For others, despite identical diagnoses, the pain does little to reduce their quality of life. According to a Yale study, physicians will provide patients with better care by considering that difference before recommending invasive procedures, such as angioplasty, to improve blood flow to the heart to reduce the pain.

"There can be an important discordance between a patient's objective capacity and the patient's quality of life," says Harlan M. Krumholz, M.D., associate professor of medicine and of epidemiology and public health. "For an Olympic swimmer, a minor injury could be devastating, but for someone who is mostly sedentary it might be barely noticed."

He directed the study, which was undertaken by Jennifer A. Mattera, M.P.H. '95, director of the Center for Outcomes Research at Yale-New Haven Hospital, for her master's thesis, along with other researchers at Yale. The investigators compared the results from patients' diagnostic tests—exercise electrocardiogram treadmill testing and myocardial perfusion imaging—with the patients' views of their physical functioning and general health gathered from a questionnaire. The researchers found that the test results correlated with the patients' perceptions of their quality of life most of the time, but that in many cases patients' perceptions of their health and physical functioning differed markedly from what the test results showed.

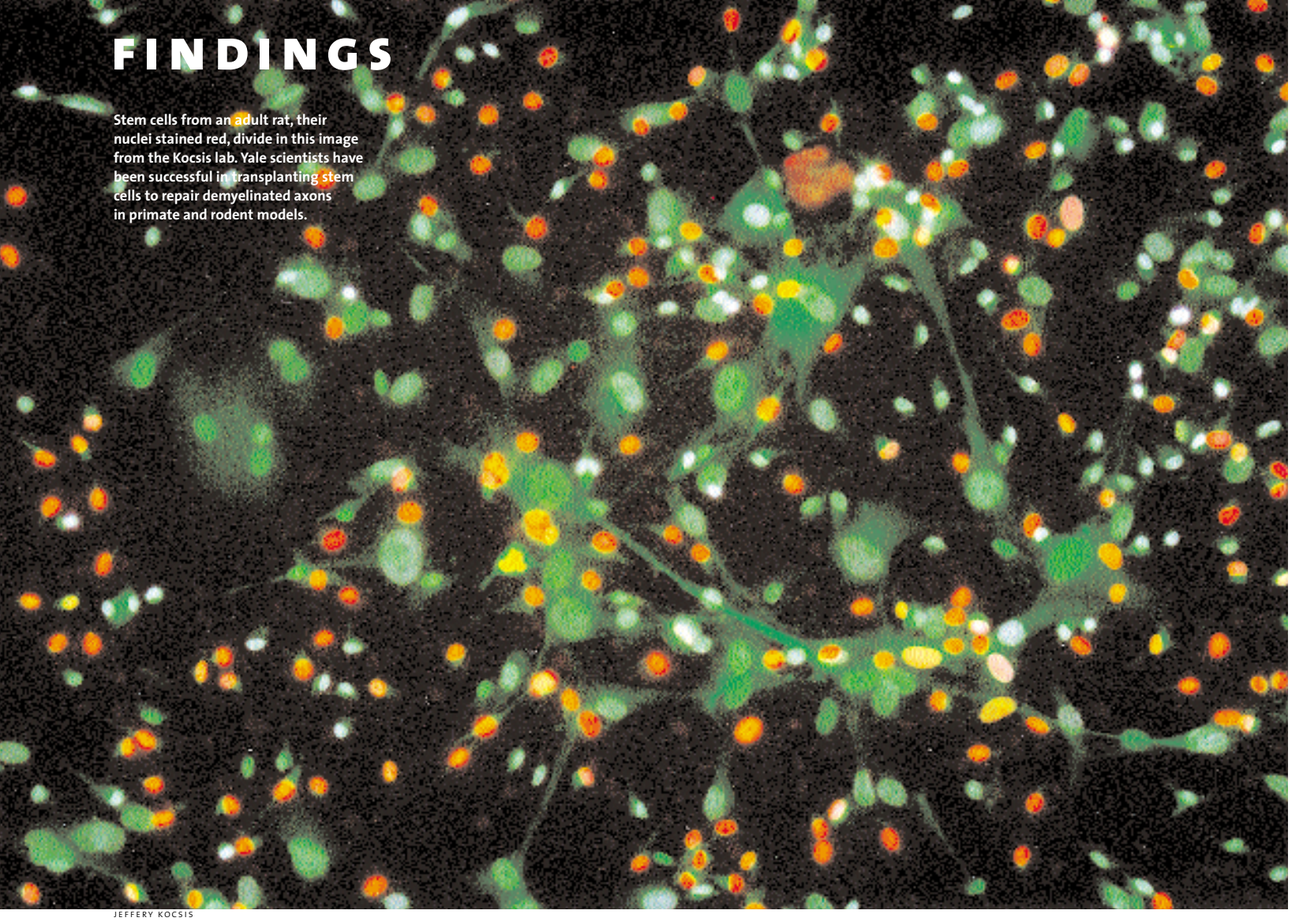
"It highlights the importance of talking to the patient," says Krumholz. "We can have all these sophisticated tests, but the ultimate measure of quality of life and functioning should be understood from the patient's own perspective. There needs to be a connection between their goals of therapy and our goals of therapy. If our therapy is intended to help them live better, then we should be sure that we are treating the patient and not just their test results."

et cetera . . .

SHORTER STAYS, BUT WHAT ABOUT OUTCOMES? **Managed care has reduced the time older patients with pneumonia spend in the hospital and has led to a corresponding drop in the costs and hospital death rates associated with the illness. But according to a study by researchers at Yale and other institutions, more patients are dying in the month after they leave the hospital, and many of the discharged hospital patients are being sent to nursing homes rather than home. Thomas P. Meehan, M.D., M.P.H., assistant clinical professor of medicine, was senior author of the study, which appeared in the *Archives of Internal Medicine* in December. The researchers found that the rate of mortality within 30 days after discharge increased from 6.9 percent to 9.3 percent during the six-year study of pneumonia patients 65 and older who were discharged from Connecticut hospitals. During that period, fall 1991 to fall 1997, the length of stay dropped from a mean of 11–12 days to 7–8 days. Said Meehan, "We can't continue to decrease the length of stay and not have an eye as to the consequences."**

HIGHER RISKS FOR YOUNGER WOMEN **Women under the age of 60 face a higher risk of dying during the two years following a heart attack than do men in the same age group, according to a study by a Yale researcher and collaborators. These sex-based differences in mortality rates were independent of the severity of the heart attack and other health problems, and were found only in the under-60 group of patients, the authors wrote in the Feb. 6 issue of *Annals of Internal Medicine*. The women's survival rate might have been affected more than the men's by "behavioral, psychosocial, and social factors such as continuing to smoke, social isolation, emotional stress and depression," said Harlan Krumholz, M.D., a co-author of the article and associate professor of internal medicine. "The next challenge is to understand why these differences exist."**

FINDINGS



Stem cells from an adult rat, their nuclei stained red, divide in this image from the Kocsis lab. Yale scientists have been successful in transplanting stem cells to repair demyelinated axons in primate and rodent models.

JEFFERY KOCSIS

Stem cell transplant shows promise for spinal cord repair

For the first time, Yale scientists have transplanted stem cells from an adult primate brain to repair the insulating sheath surrounding spinal cord axons in the same animal. These results, reported at the annual meeting of the Society for Neuroscience in November, raise hopes that patients' own stem cells might one day be used to help them recover from spinal cord injuries or multiple sclerosis.

For the experiment, which was directed by Jeffery D. Kocsis, PH.D., professor of neurology and neurobiology, a small quantity of cells was removed from the subventrical zone in the frontal lobe. The neural precursor, or stem, cells were then cloned and expanded in the laboratory before being transplanted into a region of the spinal cord from which myelin, the protective coating around the nerve fibers that increases impulse conduction speed, had been removed. The stem cells formed new myelin to cover the nerve cells.

The use of a subject's own stem cells could circumvent the ethical and practical issues surrounding the use of fetal tissue, from which stem cells can readily be derived, and the problems associated with immune suppression that arise when transplanting foreign tissue. In the January issue of *Experimental Neurology* the investigators further reported that similar cells derived from the adult human brain can repair axons in a rodent model of demyelination and improve impulse conduction.

"The concept is not ready for application in patients, but the fact that it can be achieved in a primate and that the stem cells can be developed from adult human brain is significant. There's a lot of excitement here about the potential of putting cells to work to repair the injured nervous system," said Kocsis. But, he warned, "There are so many cell types and so many safety issues. This is the very first step in a long process for developing new clinical treatments."

Antidepressants shown to promote new cell growth in the hippocampus

FRANK POOLE

Ronald Duman led a team that found evidence of new cell growth in the hippocampus among patients taking long courses of antidepressant medications.

Continued use of antidepressants leads to new cell growth in an area of the brain known to suffer cell death and atrophy as a result of depression and stress, a study by Yale researchers shows.

Chronic administration of antidepressants increases the number of neurons in the adult hippocampus, which could help explain how antidepressants produce their therapeutic response, according to Ronald S. Duman, PH.D., professor of psychiatry and pharmacology. Duman was senior author of the study, published Dec. 15 in *The Journal of Neuroscience*.

The hippocampus is the part of the limbic brain that is involved in learning, memory, mood and emotion. It is one of only a few regions of the adult brain where production of neurons occurs in animals, including humans. Previous studies have demonstrated that stressful experiences, both physical and psychological, lead to neuronal loss in the hippocampus and that antidepressants can block this cell loss.

Duman's laboratory has been studying the mechanism of action of antidepressants in rodents for over 15 years. The researchers have focused on cellular actions of antidepressants, looking at the role of the intracellular signal transduction pathways that control neuronal function. They have identified several actions of antidepressants that indicate that they influence the survival or the number of neurons in the hippocampus.

This study was intended to look at whether antidepressants increased the birth of neurons in the hippocampus. The researchers tested several different classes of antidepressant drugs, as well as electroconvulsive seizure therapy (ECS) and an antipsychotic medication.

ECS is clinically the most effective treatment for cases of depression that are resistant to available drug treatments. As expected, repeated administration of ECS increased the number of neurons in the hippocampus of the brain by 50 percent. The chemical antidepressants tested increased the number of neurons in the same area by 20 percent to 40 percent. The antidepressants that were administered included a monoamine oxidase inhibitor (tranylcypromine), a serotonin-selective reuptake inhibitor (fluoxetine) and a norepinephrine-selective reuptake inhibitor (reboxetine).

Acute administration of the antidepressants (one to five days) did not lead to any significant cell change. Results were seen after 14 to 28 days of administration, which is consistent with treatment regimens for the therapeutic response to antidepressants. These studies suggest that increased neurogenesis in the hippocampus could counter the effects of stress on hippocampal atrophy and contribute to the actions of antidepressant treatments.

et cetera . . .

A SCHOLARLY ARCHIVE, IN BITS AND BYTES As more journals move to electronic format and more scholars access information using these online databases, serious questions have arisen about how to preserve knowledge that in some cases may exist only in digital form. To address the dilemmas of digital preservation, the Yale University Library and Elsevier Science are collaborating to create the infrastructure for a model archive for the 1,100 journals published electronically by Elsevier, the world's largest scientific, technical and medical information provider. Their goal is to have the model infrastructure developed within two years. They have already begun studying how people use digital collections and are investigating formats for encoding content in digital form; one challenge is predicting which formats are likely to remain stable over time. The planners hope that the archive will serve as a model for other publishers.

BREASTFEEDING REDUCES CANCER RISK Breastfeeding for two or more years reduces a woman's risk of developing breast cancer by 50 percent, according to a study conducted in China by a Yale researcher. Tongzhang Zheng, Sc.D., associate professor of epidemiology and public health, said he conducted the study in China because, unlike in Western nations, long-term breastfeeding is part of the Chinese culture. Zheng's group found a 50 percent reduction in breast cancer risk among women who had breastfed for more than 24 months per child, compared to women who breastfed for less than 12 months. Studies in Western countries showing that breastfeeding does not play a significant role in reducing breast cancer risk might be explained by the fact that many women in the West breastfeed for weeks or months rather than years. The study was published in the Dec. 15 issue of *American Journal of Epidemiology*.

Probing the genetic basis of emphysema

In separate studies, Yale researchers have demonstrated that the genes that code for interleuken-13 (IL-13) and gamma-interferon cause pulmonary emphysema.

Using transgenic mice that were genetically engineered to express these genes in the adult mouse lung, Jack A. Elias, M.D., section chief of pulmonary and critical care medicine, and a team of researchers including Zhou Zhu, M.D., PH.D.; Tao Zheng, M.D.; Chun Guen Lee, M.D.; Bing Ma, M.S.; and Qingsheng Chen, M.D., have demonstrated that these genes, which are known to cause inflammation, also cause pulmonary emphysema similar to the kind seen in patients with chronic obstructive pulmonary disease (COPD). COPD affects 16 million people in the United States alone and is the fourth leading cause of death worldwide.

The first study, published in the November issue of *The Journal of Clinical Investigation*, highlighted the potential importance of IL-13 in the development of emphysema and in the exaggerated mucus production seen in these disorders. Since IL-13 is also thought to contribute to asthma, this study also demonstrated that common mechanisms might underlie the development of both of these lung disorders.

The second study, published in the December issue of *The Journal of Experimental Medicine*, shed light on the potential role of gamma-interferon in the development of COPD. Elias notes that the symptoms in the two transgenic systems used in the studies can vary from one person to another.

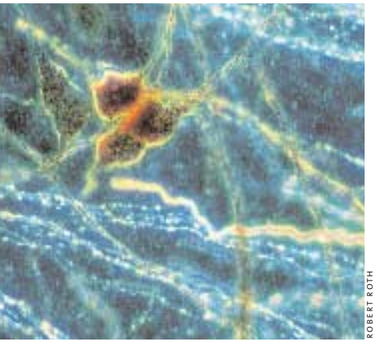
"We saw different types of inflammation, differences in mucus production and different rates of emphysema development in the two different transgenic systems," said Elias. "These differences recapitulate, in many ways, the individual-to-individual differences seen in groups of patients with COPD and may explain why only some patients have exaggerated mucus production while others have rapidly progressive or slowly progressive disease."

Elias adds, "The results also provide a mechanistic explanation for the observation that asthmatics who smoke cigarettes have the most rapid rates of loss of lung function."

In the normal lung, there is a fine balance between proteins that degrade lung tissue, called proteases, and proteins that inhibit protease function, called antiproteases. Researchers have assumed that emphysema develops when the activity of the proteases overwhelms the controlling capacity of the antiproteases.

"Pulmonary inflammation is a characteristic feature of lungs from patients with COPD. However, the way that inflammation causes emphysema has not been defined until now," said Elias. "Our studies demonstrate that IL-13 and gamma-interferon, gene products that regulate inflammation, can also trigger emphysema." The studies also demonstrated that IL-13 and gamma-interferon caused impressive increases in two classes of proteases called matrix metalloproteinases and cathepsins. They also caused selective decreases in antiproteases.

Estrogen deprivation associated with loss of dopamine cells



ROBERT ROTH

Magnified 400 times, this cluster of dopamine cells was photographed using light microscopy in the substantia nigra region of the midbrain, where the loss of dopamine neurons is associated with Parkinson's disease and dementia.

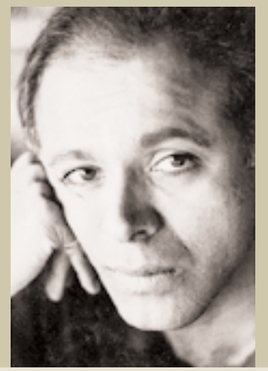
Estrogen deprivation leads to the death of dopamine cells in the brain, a finding by Yale scientists that could help explain why Parkinson's disease is more likely to develop in men than in premenopausal women and why it increases in women after menopause.

"Without estrogen, more than 30 percent of all the dopamine neurons disappeared in a major area of the brain that produces the neurotransmitter dopamine," said D. Eugene Redmond Jr., M.D., professor of psychiatry and neurosurgery and director of the Neural Transplantation and Regeneration Program.

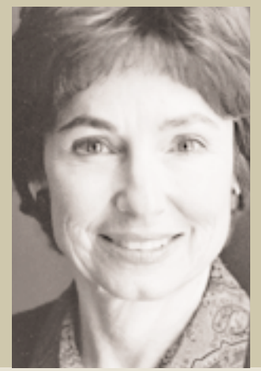
The discovery was made after a team led by Redmond removed the ovaries of female monkeys, thereby depleting their bodies of estrogen and other gonadal hormones. Within 10 days, key neurons in the brain that protect against Parkinson's disappeared. After 30 days the cells appeared to be permanently lost. The scientists were able to regenerate the cells by administering estrogen within 10 days.

Redmond said monkeys were used in the study because they have menstrual cycles and many other close similarities to humans. The researchers were interested in sexual differences in dopamine neurons in the substantia nigra area of the midbrain, whose destruction is associated with Parkinson's disease and dementia.

The study was published in the December issue of *The Journal of Neuroscience*. The principal investigator was Csaba Leranth, M.D., PH.D., professor of obstetrics and gynecology and of neurobiology.



Verghese



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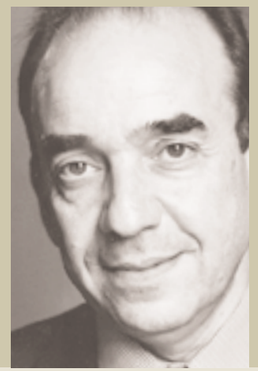
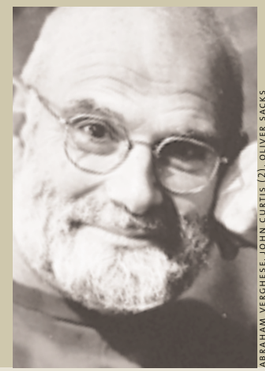


McKay



Sacks

ABRAHAM VERGHESE, JOHN CURTIS (2), OLIVER SACKS

A lesson while dying

The dying young men of Johnson City, Tenn., taught **Abraham Verghese**, M.D., something about the meaning of life. A professor of medicine at Texas Tech University in El Paso and a contributor to *The New Yorker*, Verghese is the author of the award-winning *My Own Country*, his account of treating men who returned from large cities to their Tennessee homes after contracting HIV. Speaking at medical grand rounds in November, Verghese said that as his patients faced death, they told him that wealth, power and appearance mattered little. "Instead, they found that meaning consistently resided in the successful relationships that they had negotiated over a lifetime, particularly with parents."

—Cathy Shufro

Clinical research "riddled with conflicts"

Protection of human subjects and the integrity of clinical trials are in jeopardy from the new economics of drug development, according to **Marcia Angell**, M.D., a lecturer on medical ethics at Harvard Medical School and a former editor of the *New England Journal of Medicine*. While editor of the journal, she issued an apology to readers for 19 instances in which the journal had published reviews of treatments even though the review authors had informed the editors of financial connections to drug companies. The editors admitted failing to apply journal policy, which prohibits review authors from having a financial interest in a company that makes a product discussed in the article.

As more scientists and institutions have financial stakes in research, she told faculty and students at a meeting of the Medical School Council in February, the drug approval system has become "riddled with financial conflicts of interest." She suggests making drug company funding, clinical testing and ethical oversight independent of each other. "The result would be a system of checks and balances in which the influence of industry funding would be minimized," she said.

—John Curtis

The ethics of stem cell research

In 1838, before publishing his theory that tissue is made up of tiny particles he called cells, German physiologist Theodor Schwann sought permission outside the realm of science. "He asked the religious authorities whether it was OK," said **Ronald D.G. McKay**, PH.D., chief of the laboratory of molecular biology at the National Institute of Neurological Disorders and Stroke, where he studies stem cell differentiation. "The current controversy over stem cells," said McKay at a meeting of the Medical School Council last fall, "is nothing new." Embryonic stem cells offer the promise of cures for such diseases as Alzheimer's and Parkinson's, but they must be extracted from embryos that are destroyed in the process. "For certain people," said McKay, "if you take cells out of an early embryo you commit an act of ethical impropriety. We have people who might benefit from these cells, and that is another moral issue. There is no way of moving forward without making ethical decisions."

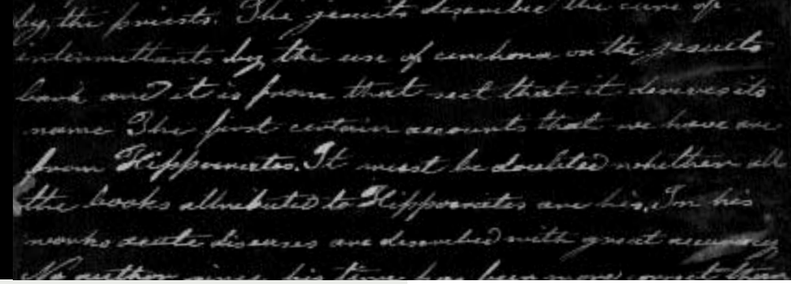
—John Curtis

The healing power of music

Twenty-five years ago, **Oliver Sacks**, M.D., tore off his left quadriceps while mountaineering in Norway and was saved by reindeer hunters. Following the accident, "the clumsy limb didn't seem to be mine. It was as if I had no internal sense of pacing," he said last fall during "Neurotherapeutic Effects of Music," a symposium at the School of Medicine that explored the effectiveness of music in treating neurological disorders. Music, he said, helped him recover his "kinetic melody" and walk again. "Suddenly ... Mendelssohn started playing in my mind and in some unconscious way I found myself walking to it." Sacks, a neurologist and the author of *Awakenings* and other books, was experiencing the connection between music and healing that he had observed among patients with Parkinson's disease. Although they could not initiate speech or walk, some were able to sing or dance when music was played. One patient stayed absolutely still with a finger on her eyeglass for most of the day, but came alive playing Chopin on the piano. Said Sacks: "I saw music as a mysterious, liberating power with these people who were otherwise virtually inaccessible."

—Rachel Engers

LEFT The first M.D. granted by an American university was an honorary degree from Yale College to Daniel Turner (1667-1741), a popular and controversial London practitioner. Turner answered a general call for gentlemen to donate books to Yale College and, with his gift of 25 titles, requested that he be awarded an honorary M.D. Yale agreed and presented it to him in 1723. Shown here is Turner's *The Art of Surgery*, the first edition of which was part of his gift to Yale.



The first 200 years

An exhibit prepared for Yale's Tercentennial explores the landscape of New Haven medicine from 1701-1901.

Today, medical students attending Yale have access to close to 1,000 full-time faculty members, modern labs and classrooms and a library containing more than 400,000 volumes and journals. It wasn't always that way. In the early days, according to a description from a medical apprentice at the time, the curriculum was made up of "books on the shelf, the skeleton in the closet, the pestle and the pill-slab in the back room, roaming the forests and fields for roots and herbs, and following astride … the horse which was honored with the saddlebags."

How the medical school got started was the subject of *Medicine at Yale, 1701-1901*, the first in a series of exhibits at the Cushing/Whitney Medical Library in celebration of the University's Tercentennial this year. Based in part on a forthcoming history of the school by its 14th dean, Gerard N. Burrow, M.D., the exhibit touches on early events in medicine at Yale, including the awarding of the first M.D. degree by an American university in 1723 (albeit an honorary one) and the contributions to medicine of such notable Yale College graduates as lexicographer Noah Webster—whose book *A Brief History of Epidemic Disease* was hailed by William Osler as "the most important medical work written in this country by a layman"—and Eli Smith, a founding editor of the nation's first medical journal.

The history of the medical school itself begins with the opening of the Medical Institution of Yale College in 1813 on Grove Street, more than a hundred years after the founding of Yale College, and its robust early years that were due largely to the reputations of two of its four founding professors, Benjamin Silliman and Nathan Smith. "They were two absolutely outstanding individuals," says historian Burrow, "and at the time, there was no other medical school in Connecticut or even close by." The school flourished throughout the first half of the century.

Around the 1850s, however, it became harder to attract students. More schools had opened, increasing the competition. It was also a dark period for mainstream medicine, as the number of unorthodox practitioners multiplied. "There were a lot of charlatans" trying to pass for doctors, Burrow says. "Medicine didn't seem to be going anywhere." To distinguish itself from the competition—and distance itself from the quacks—the medical school raised its standards. But enrollment suffered, as did the school's finances. Rather than retreat, the faculty members, all of whom were part-time, diverted their Yale salaries to the school and took IOUs. "That is what is remarkable about the medical school, that people who were not getting a great amount of money donated their time and effort," says Historical Librarian Toby A. Appel, PH.D., M.L.S., who curated the exhibit. "It was like a mission for them. They really wanted it to be good."

The first 200 years of medicine at Yale, especially the 19th century, can be summed up as "a strong start and a weak finish," says Burrow, adding that numerous efforts to raise standards almost cost the school its existence at the start of the 20th century. But the best years were yet to come.

—Pem McNerney

Next: 1901 to 1951,
a period of tremendous growth
for the medical school.

ABOVE The medical school flourished in its early years especially due to the reputations of Nathan Smith, right, professor of the theory and practice of physic and surgery, and Benjamin Silliman, left, professor of chemistry. Background: Lecture notes taken by a student of Smith during the 1819-20 academic year.

OPPOSITE PAGE Harry Burr Ferris, M.D. (1865-1940), third from left, an 1887 graduate of Yale College and 1890 alumnus of the medical school, joined the faculty as an instructor in anatomy in 1891. He served as professor of anatomy from 1895 to 1933. It was customary at the turn of the century for medical students to pose with the body they were dissecting. This photograph was taken in March 1899 by William Blackwood, the janitor.

BELOW The Medical Institution of Yale College, chartered in 1810, opened in 1813 in this building on Grove Street, left, as a joint project of Yale and the Connecticut Medical Society. This relationship to the state society was unusual among medical colleges and proved beneficial to the college in its early years. The school moved to 150 York Street, right, in 1860.

The exhibit *Medicine at Yale, 1701-1901* may be viewed online. See http://info.med.yale.edu/library/exhibits/yalemed1/.

A dramatic turn

The doctor-patient relationship takes center stage in performer Anna Deavere Smith's interpretation of medicine at Yale.

patient

I didn't trust anyone. Doctors wasn't *listening*. I had to fight. I had to advocate for myself to get doctors to listen to me. I had to learn to say, "What's the side effects of this?" Learn to say, "No, I'm not takin' that, give it to someone else, let someone else try it first." ... I am very conscious and very responsible for other people's health when it comes to my virus. And I says [to the doctor], "Look, before you examine me put some gloves on. I have the virus." She went out of the room and she never came back. She never came back.

doctor

When you're listening to a patient tell you things that you have to integrate into a whole body of knowledge you have, it's hard to listen well, because your mind is trying to filter out what they're saying. And consider alternate diagnoses and so forth. So you're really not listening; you're trying to solve the puzzle ... and so it just sort of goes by you that they said something very, very important. You didn't hear it.

The playwright and actress Anna Deavere Smith stands in the well of Fitkin Amphitheater musing about how patients and doctors manage to communicate under pressure when she slips on a white coat and transforms herself into Yale physician Asghar Rastegar, M.D.

Story by Cathy Shufro

Photographs by Michael Marsland

To view video clips from Anna Deavere Smith's performance of *Rounding it Out*, please visit our Web site, info.med.yale.edu/ymm.

"I have looked at every single patient as being a phenomenal new experience," says Smith, using Rastegar's words and his Farsi accent. "Excited to walk in that room. Oh yeah, oh yeah, no question about it. Phenomenally excited. Every time, every time, every time."

Moments later, Smith portrays another doctor, Forrester A. Lee Jr., M.D. '79, HS '83, a cardiologist and the school's assistant dean for multicultural affairs, who calmly and deliberately describes how medical training itself can block vital avenues of communication. "When you're listening to a patient tell you things that you have to integrate into a whole body of knowledge you have, it's hard to listen well, because your mind is trying to filter out what they're saying. And consider alternate diagnoses and so forth. So you're really not listening; you're trying to solve the puzzle ... and so it just sort of goes by you that they said something very, very important. You didn't hear it."

Sitting down in a chair, Smith becomes a patient, speaking with a trace of a Southern accent. She is Frankie Harris, a woman with HIV who has been treated at Yale.

"I didn't trust anyone. Doctors wasn't *listening*. I had to fight, I had to advocate for myself to get doctors to listen to me. I had to learn to say, 'What's the side effects of this?' Learn to say 'No, I'm not takin' that, give it to someone else, let someone else try it first.' ... I am very conscious and very responsible for other people's health when it comes to my virus. And I says [to the doctor] 'Look, before you examine me put some gloves on. I have the virus.' She went out of the room and she never came back. She never came back."

The physicians who crowded into Fitkin for medical grand rounds in mid-November had not come to hear a colleague discussing a disease but rather to watch an outsider make a case for the potential richness of doctor-patient communication. Playwright and actress Anna Deavere Smith used the words of physicians and patients from the Yale community to create *Rounding It Out*, a 90-minute examination of how doctors and patients view one another.

The recipient of a MacArthur Foundation fellowship for creating a new genre of documentary theater, Smith has appeared in film and on television in *The American President*, *The West Wing* and *The Practice* but is best known for her solo stage performances depicting communities in turmoil. In *Fires in the Mirror: Crown Heights, Brooklyn and Other Identities*, Smith portrays two dozen real people, from city bureaucrats to housewives, to explore the 1991 clash between black and Jewish residents of Crown Heights. In *Twilight: Los Angeles, 1992*, she examines the riots sparked by the Rodney King verdict.

A less obvious crisis brought Smith to the medical school: the erosion of intimacy between patient and physician. In 1997 Ralph I. Horwitz, M.D., chair of the Department of Internal Medicine, and Rastegar, the subject of the opening scene and the department's associate chair for medical education, had been discussing how to train novice doctors to listen better. When they heard Smith speak on campus on Martin Luther King Day in 1998, "it struck us that she is probably the best listener we had ever seen," Rastegar recalls. And so Smith came to Yale last summer and fall to interview 21 physicians, nurses, and patients and their families to create what she calls "a first draft," weaving together excerpts from the interviews with her own commentary and songs sung by Lynette Dupre and Suzzy Roche. In Fitkin and again the next day in Harkness Auditorium, Smith performed for packed houses that included the five physicians and six patients whose words she spoke from the stage. Noting that "the intimacy of transactions is dissolving" in our socie-

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Cathy Shufro is a contributing editor of *Yale Medicine* and a tutor in the Bass Writing Program at Yale.
Michael Marsland is the University photographer.

Listening with open ears

Fundamental to listening well, says playwright Anna Deavere Smith, is "to understand that what you're hearing from a person is not something you've ever heard before." For a doctor, that means listening to each new patient "every time, every time like it's the first time, because it's the first time for the patient," says Smith. The diagnosis may be familiar, even routine, but the illness is unique to the patient.

"The doctor's job is not only to have the answers. Sometimes as patients we want doctors to hear the spectacular thing we just said as if they had never heard it before, because they haven't. That would be one of the hardest things for a doctor to understand," says Smith. A professor at New York University, Smith has made a career of listening to people under pressure and using their words and ways of speaking to create documentary theater. Her Obie-winning piece *Fires in the Mirror: Crown Heights, Brooklyn and Other Identities* grew out of in-depth interviews with 50 people, of whom she portrayed 26. Smith developed her presentation at Yale by interviewing 21 people and incorporating excerpts from 11 of the interviews.

"The people I interviewed in Crown Heights, on the heels of a race riot, were really quite like the patients I heard here. They had a certain urgency. They really wanted to be heard and felt they had not been. I have a particular interest in worlds that are upside down. When a person is ill, that's their life upside down," she says.

Smith distinguishes between empathizing with a person and identifying with that person. "It is the most precious moment to realize that the person sitting in front of me is *not me*. To listen or to have empathy means being able to remain present as a witness to something that is happening that is unusual to me" as the listener, she says. A physician ... or anyone ... who connects deeply with others does not remain unaffected, however. "None of us who are doing our work well really can say that we just observe what is happening around us and just move on. The older we get, the more experienced we get having it affect us, using it as a resource in helping us connect with others more and more. People can see whether you have experienced suffering, experienced joy. The more they can see that in you, the more they can share their lives with you, the more they can open up and feel they are giving their lives into good hands."

Faced with another person's pain, we can rise to the occasion and "absorb it as part of a larger understanding of who we all are and the predicament we are all in: that life is transient, and it is a gift."

doctor

You're most available to the most demanding people. ... In my practice the most demanding people are highly educated white women with Internet access and actually have more minor problems than some of the other people I see. ... And I spend more time with them than I might actually with a much sicker person. But I hope that ... in a way I'm sort of helping them all equally, that what those people need is time to talk about their problems and figure their way through the maze of options. And what other people need is the treatment that will work best for their cancer, and they can accept it with a lot less discussion."

I'm a dangerous patient because I'm the one that always gets dismissed with, "Oh, she'll be okay. I don't need to make that extra effort." I'm scared of dying. I need them. I need them a lot more than they think. They can ask me about depression and they don't. The thing is they think I'm an easy patient.

patient

For a long time medicine took the view that if you perfected yourself as a physician, you would have a full and complete life. That everything else would fall into place. That the perfect doctor would be the perfect person. And there's nothing more arrogant. And nothing less true. ... You're hearing this from a person that spends far too little time at home with my family.

doctor

As much faith as you have in this place, every time they give you chemotherapy. ... I had a friend there with me to make sure the bag of chemotherapy with that stuff in there that they were about to pump into me was exactly what I was supposed to get. No more. No less.

patient

ty, she told the audience: "I am stunned to learn here that a patient-doctor interaction is assumed to happen in 15 minutes. That would have to be a kind of haiku. Are the doctors prepared for that? The patients?"

In her portrayal of Horwitz, Smith brings to life the physician's conflict between work and personal life. "For a long time medicine took the view that if you perfected yourself as a physician, you would have a full and complete life. That everything else would fall into place. That the perfect doctor would be the perfect person. And there's nothing more arrogant. And nothing less true. ... You're hearing this from a person that spends far too little time at home with my family."

Smith's journey through the medical school and hospital took her again to Lee, as he described the excruciating wait for a heart. "All the kinds of encouraging and supporting things the patient wants to hear from me largely center around 'When am I going to be transplanted?' And it's the one question I cannot answer. ... Most of my patients will tell you I am very quiet, I don't have many words." He describes telling an African-American patient that he needed a new heart. "And he looked at me and said, 'They don't transplant black people,' and I looked at him and I said, 'You're kidding, do you really believe that?' And he did. So it was a very, very joyous day in my life to walk into his room and say: 'We have a heart for you today. Believe it.' "

Smith portrayed Associate Dean Ruth Katz, M.P.H., J.D., recalling her treatment for cancer. "As much faith as you have in this place, every time they give you chemotherapy ... I had a friend there with me to make sure the bag of chemotherapy with that stuff in there that they were about to pump into me was exactly what I was supposed to get. No more. No less." In a moment of comic relief, Katz recalls the day an oncology fellow reported that Katz's chart had been lost and that he had to take a new history from the very beginning. He came to the question of her occupation and learned that Katz was associate dean of the medical school. "Now he looks up and he said, 'At *this* medical school?' And I said, 'At the Yale School of Medicine.' He found my files within a half an hour."

The last patient portrayed on the stage was Karina Danvers, a woman with HIV: "People think that just because you have a terminal illness, or chronic or whatever they want to call it, all of a sudden every day is just precious and wonderful. I still beep my horn when somebody's at the red light for too long." She pauses. "I wish sometimes people would feel sorry for me. Ya know? Because it's really tough living this ... I am a young woman ... dying."

The presentation was "an affirming reminder of how valuable and privileged our connections with patients are," said Stephen J. Huot, M.D., PH.D., HS '87, associate professor of medicine. "It was wonderful to see humanity as part of medical grand rounds." First-year medical student Michael Shapiro said watching Smith portray Yale doctors made him ask himself again how well he listens. "Anna Deavere Smith in essence was holding a mirror up to the audience and saying, 'Look at you, look at what you're doing.' "

Shapiro's classmate, Jenny Yiee, said that by inviting Smith to campus, the medical school administration had validated Yiee's belief that doctor-patient communication is vital. Some students, Yiee said, believe that understanding science is more valuable than understanding patients. They regard the required first-year course known as "The Doctor-Patient Encounter" as a "blah-blah-blah class," saying, "Let's go study biochem now."

Musician Roche, formerly of The Roches, said she felt elated after performing a script about medicine for an audience of physicians.

Tick tock tick tock. Which was going to come first, his death or a donor organ? [The wait] is absolutely the most diffcult part of the job, absolutely the most diffcult part. If I had to face every patient on the waiting list and talk to them about their waiting I could not do this. The stresses that are put on the physicians and nurses and other caregivers are absolutely phenomenal. ... Patients want the answer today or want the solution today. ... But I have no control over when an organ is going to be available.

doctor

"It's what theater could really be. Instead of big stars and *People* magazine, it could be relevant to people's lives in their own community."

For third-year resident Christopher Ruser, M.D., *Rounding It Out* served as an antidote to the effects of residency. "I think residency has a tendency to depersonalize patients because of pressures, time limitations, fatigue. Watching Smith reminds us why we chose this career. ... We are privileged to be able to sit in a room and hear everything, to find out what their illness means to them as a complete person." Seeing the senior physicians depicted by Smith gave him hope that as he becomes more adept at reaching diagnoses, he will increasingly find ways to use the patient interview to become acquainted with the whole person. Because of the performance, Ruser said, "I would go in and really try to understand the person who was in that bed, and not just what I had to do for the patient in the next 24 hours."

Smith said in an interview that she'd come to understand that "the diagnostic procedure with a patient could by necessity—particularly for a younger doctor—require that they not see the whole person." She hoped her work would help doctors "reflect on how, over time, to allow the whole person and the person who's being inspected [by the physician] to both live."

Establishing that kind of connection with a patient is essential to good care, according to Rastegar. "People recognize quickly if you see them as a whole human being or are just treating them as a disease. Despite all the wonderful therapeutic modalities we have developed, there are many diseases we cannot cure. So our role is helping them adjust to the illness and go on with their life. You need to know the whole person to do that. It's in a marriage between scientific understanding and understanding of the human being in his or her totality that we can provide the best care."

Smith's presentation and her discussions with students and house staff were part of what Horwitz describes as "a larger effort to refocus attention on the medical profession's civic responsibility." Her visit was funded by a bequest from Daniel James, a patient and friend of Horwitz who died in 1998. Horwitz hopes to find money to bring Smith back to campus periodically, to continue the discussion begun last fall.

Smith has not decided whether she will develop *Rounding It Out* into a full-fledged theatrical production. That depends in part on finding a grant to support the project. She describes the work as, "at best, an offering. I wanted it to be a provocation and a cause for conversation." Rastegar said Smith's visit has, indeed, made "a different kind of dialogue totally acceptable, a discussion of the patient's narrative and their view of their illness."

The experience of having her story told in a public forum was fulfilling for patient Frankie Harris, whose painful account of being pimped by her mother made some people in the audience cry. "There was a time I felt that I was always alone, and there was a time that I felt that I deserved all that happened to me. It was healing to let go of the blame and let go of the shame."

patient

It's tough. It's like playin' God to say who is gonna live and who's gonna die. So I was lucky. I passed all their tests. So then comes the waiting and that's the hardest part. You get there and you're wondering. They tell you, "You're on the list now." You're waiting for this heart to come. Gender, race, nothing makes a difference.

patient

People think that just because you have a terminal illness, or chronic or whatever they want to call it, all of a sudden every day is just precious and wonderful. I still beep my horn when somebody's at the red light for too long. I wish sometimes people would feel sorry for me. Ya know? Because it's really tough living this. ... I am a young woman ... dying.

Learning
for the long run

Story and photographs by John Curtis

For a quarter-century the Wednesday Evening Clinic has offered steady care to patients and an unequaled lesson in medicine to Yale students.

At the Wednesday Evening Clinic, medical students provide the first line of care, taking histories and examining patients before presenting their cases to the attending physicians in the clinic. Here, Sarah Nikiforow goes over the details of a case and her proposed treatment plan with Morris Dillard, right, one of the clinic's founders and, until five years ago, its director.

In the conference room that serves as meeting place, dining room, lounge, office and consulting room for the Wednesday Evening Clinic, director Kathleen White and student director Fran Balamuth discuss one of the evening's cases.

"Don't stop exercising," Sarah Nikiforow tells her patient, Mary Jacob, who's in for a checkup. Nikiforow, who monitors Jacob's cerebral palsy, tests her patient's arm strength.

Kathleen White, M.D., likes to tell the story of the clinic patient who worried that her doctor was not there to care for her. Although surrounded by people in white coats with stethoscopes dangling from their necks, none of them was the person who knew and understood her medical history and with whom she had established a bond. They were doctors, but they were not her doctor. Her doctor was a medical student, working under the supervision of attending physicians. And the patient had been receiving her primary care at the Wednesday Evening Clinic.

Since the mid-1970s, the clinic has provided care to the New Haven community while giving students a chance to practice "longitudinal," or long-term, medicine and learn how to connect with their patients. "This is the only place in med school," said Fran Balamuth, the clinic's student director, "where you get to see the same patient again and again."

This is no small thing. Typically medical students spend no more than four weeks on each of their clinical clerkships. That time is often spent watching residents work, with an occasional chance to practice hands-on medical care under supervision. Some schools offer longitudinal preceptorships in the first two years of medical school, and some student-run clinics provide opportunities to assist in emergency care or serve as patient advocates. The University of Connecticut places first-year medical students with practicing clinicians, a match that continues through the third year of medical school, White said. But in general, at Yale and around the country, medical students have few opportunities to follow patients over time.

At the Wednesday Evening Clinic, the students are the first to see patients, the first to take histories and the first to conduct physical examinations. "The whole idea of longitudinal care struck me as being an awfully important one," said John E. Whitcomb, M.D. '77, one of the clinic's earliest student participants, who now practices emergency medicine in Milwaukee. "I wanted to have a relationship with people."

Added Lynn E. Sullivan, M.D. '96, HS '00, who spent 18 months in the clinic when she took time off from medical school to have her second child, "It isn't the fleeting kind of experience you have on your clerkships. My patients would ask for me by name and only want to see me." Sullivan, now an assistant clinical professor of medicine, is also one of the clinic's attendings.

A year ago the clinic's student practitioners honored the man they credit not only with founding the clinic a quarter-century ago, but with keeping it going and making it a warm and welcoming place to learn medicine. They held the first lecture in recognition of G. Morris Dillard, PH.D., M.D., who served as the clinic's director until five years ago. Howard K. Koh, M.D. '77, M.P.H., now Commissioner of Public Health for the Commonwealth of Massachusetts, was the first speaker at the Morris Dillard Honorary Lecture, in January 2000. "On rare occasions, one has the incredible fortune to gain a mentor who changes your life," Koh said of Dillard. "Dr. Dillard believed in us and in our full potential. He encouraged us to become doctors in our own way. When he adopted you as a student, he would stand by you forever."

Dillard has counseled students, nurtured them and bucked up their flagging spirits. Each Thanksgiving he cooks one of his legendary gourmet dinners for the clinic. "He has made it a very warm, friendly and cohesive group of people," said White, who succeeded Dillard as the clinic's medical director five years ago. "He is the heart and soul of the clinic," said Wendy Garrett, who is in her seventh year of the M.D./PH.D. Program and until recently served as the clinic's student director.

The clinic started in the mid-1970s, when students asked the medical school administration for a longitudinal primary-care experience. The administration declined, but invited students to organize their own program. "They gave the students the responsibility for forming the clinic, running the clinic and obtaining the appropriate support from the faculty," recalled Dillard. Students found space

This is the only place in med school where you get to see the same patient again and again.

— Fran Balamuth, student director of the Wednesday Evening Clinic

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John Curtis is the associate editor of *Yale Medicine*.

FAR LEFT **In one of the examination rooms, Nir Modiano interviews a new patient.**

MIDDLE **Every Wednesday, after dinner and before the clinic opens, the students break up into small groups led by an attending for a case review. Dillard meets with students Leo Kim, Wendy Garrett and Dita Gratzinger.**

LEFT **With space scarce, Jackie William uses the counter at a nurses' station to fill out a patient's chart.**

The whole idea of longitudinal care struck me as being an awfully important one. I wanted to have a relationship with people.

— John Whitcomb, one of the clinic's earliest student participants, now an emergency physician in Milwaukee.

in the Primary Care Center, which was closed evenings, and enlisted the support of physicians, nurses and support staff willing to volunteer their time. "At first it was very difficult to get patients," said Dillard. "But we were the only clinic open at night in the hospital. We were the first clinic to have an on-call physician. We could be contacted 24 hours a day, seven days a week, every day of the year."

Then, as now, patient population came largely through the Primary Care Center, the emergency department and self-referrals. Although it had the virtue of being open at night, the clinic also acquired a stigma it has since overcome. "The students endured the discrimination of being a student clinic, despite the presence of attendings," said Dillard, who, along with clinic director White, leads a rotating cadre of faculty and community physicians who supervise the students.

A white-haired, bespectacled doctor who listens quietly as students present cases, Dillard seems, the students say, to know everything about everything. And he also appears to know things without being told. "I was having a bad night," recalled Nir Modiano, a fifth-year student in the M.D./PH.D. Program. It was half an hour past closing time and patients were still waiting to be seen. "Without knowing what was going on he came up to me, put both his hands on my shoulders and stood there for a few seconds. I don't think he said a word. Then he turned around and walked away, and I felt better."

The clinic's caregivers get to know each other over dinner every Wednesday. They take turns providing the evening meal, often a stack of pizzas on the conference room table. As they eat, students and faculty discuss clinic business, such as a plan to obtain free samples for their patients from pharmaceutical companies. They may review an unusual case—one night it was a patient from the Sudan with a calcified worm under her skin. Often the group breaks up into two or three smaller sessions for case reviews with an attending. By 6 p.m. the students are ready for the two to four patients each of them will see.

"We do a thorough history," said Modiano. "We do a physical exam and formulate our own thoughts, then present the patient to the attending." The student returns to the examination room with the attending, who may obtain more history or conduct another physical exam. "The student may have already come up with a plan of treatment," said White, "and the attending will verify specific exam findings and confirm the plan or alter or add to it."

Some nights, when attendings are in short supply, the students wait their turn for a consult. Some students huddle with attendings in a corner or the doorway as others squeeze into the conference room to look for patient charts or grab a slice of pizza. Their cases run the gamut—a 76-year-old woman with a lung obstruction, a patient with diabetes, a woman suffering from osteoporosis, a patient with chest pain, a refugee from Sierra Leone with post-traumatic stress disorder.

One evening Sarah Nikiforow's patient was Mary Jacob, a 35-year-old with cerebral palsy. With five years at the clinic (she's in her eighth year of the M.D./PH.D. Program), Nikiforow is the clinic veteran. Jacob, who has arthritis and occasional muscle spasms, has been her patient for years. "Don't stop exercising," Nikiforow told her, after a physical exam. "That's what's keeping you in such good shape."

Ongoing relationships with patients are but one of the benefits of the clinic for students. Another is the chance to work with a network of physicians they will see repeatedly over the course of a year or longer. During their time at the clinic the students observe a variety of styles, including Dillard's. "He steps back and does nothing at times and the students take over and make a decision," said clinic director White. "He has made it a very academically challenging place." Such longitudinal clinics, White said, provide an obvious benefit to medical students. "You watch them start as clumsy ducklings and then blossom into competent and caring clinicians."

The clinic blends elements of the real world and an idealized vision of medicine. With their limited case loads and no need to make a living from clinical practice, students have the luxury of time denied many physicians. They are on call and often accompany their patients to other medical appointments or the hospital. "It's a great opportunity for the patients," said Shelly Harrigan, R.N., who's worked at the clinic for three years. "The students do excellent follow-up."

"Patients who have medical students helping to take care of them are some of the best-cared-for patients," said Sullivan. "The students are just aching to see patients and start being doctors. This is a way in which they can do it in a very organized, safe and nurturing environment."

Dorothy Mosley, a patient at the clinic since 1981, has never thought twice about being seen by medical students. "I had all good ones," she said. "I knew if I had a problem I could call someone. They are helping me through my crisis right now. When my husband passed away in May, Dr. Dillard was right there for me. Wendy Garrett was right there for me."

The students themselves, White said, have asked for some changes in the program. They want more constructive criticism from the attendings and more detailed instruction in giving a physical examination. "The nature of the clinic is that we attempt to give feedback at the time, as difficult as it is," White said, adding that Herbert S. Chase Jr., M.D., deputy dean for education, is planning an evaluation of the clinic's value as a teaching tool.

A year in the clinic replaces a month-long primary-care clerkship, making it very attractive to students in the M.D./PH.D. Program, who have filled most of the 14 student staff positions for the past three years. The clinic lets them advance their clinical skills while they work on their research projects and it provides a welcome break from days in the lab. Students in the clinic are trying to broaden their outreach and recruit more students outside the M.D./PH.D. Program.

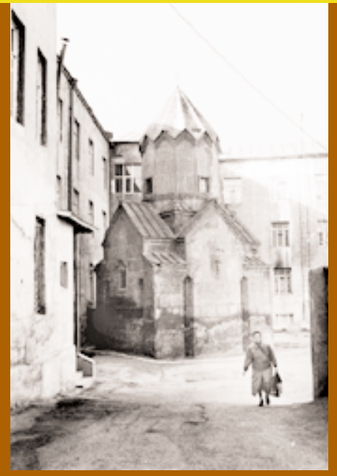
By 9 p.m. the students are seeing their last patients of the evening. Long after patients have left, the students will stay on, writing up their notes from the evening's cases. Few leave before 10 p.m. and some stay until midnight, filling out charts. "There is no doubt in my mind that the care our patients receive is surpassed by no other clinic," said Dillard. "The original clinic was designed by students to meet one time a week throughout the entire year, to be responsible for patients every day throughout the year. In return, the students receive an educational experience equal to the clinical responsibility."

Students in the Wednesday Evening Clinic are assembling a registry of the clinic's alumni. Alumni are encouraged to send their address, phone number, e-mail address and a brief note describing their current activities to kathleen.white@yale.edu.

Story and photographs
by Sharon Anoush Chekijian

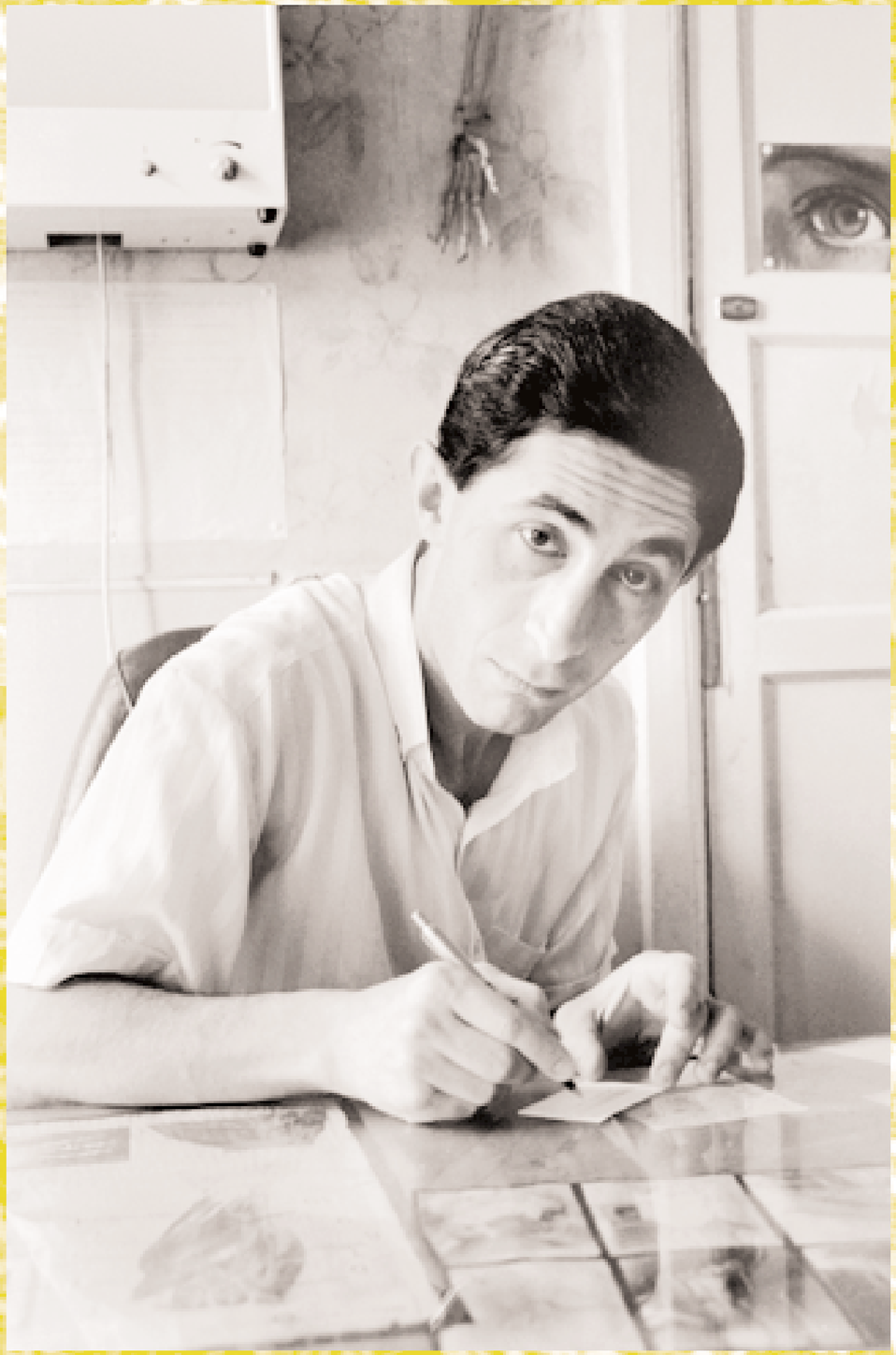
“Adrenaline and the ordinary, in varying proportions”

A student’s exposure to medicine in this former Soviet republic reveals a different rhythm in the OR and a vastly different take on relations between doctor and patient.



ABOVE A woman walks past the 13th-century Katoghike, right, the oldest surviving church in Yerevan, Armenia’s capital. Armenia is bordered by Georgia, Azerbaijan, Iran and Turkey. The author, second from right, poses with medical staff during her second trip to Armenia in 1995.

OPPOSITE An anesthesiologist in Gyumri, Armenia’s second-largest city, looks up from his work.



It is not unheard of to receive a ton of potatoes, or even a cow, from a patient unable to pay in cash. ... In outlying country hospitals, the pay might be a home-cooked meal followed by toasts of vodka brought to the hospital by the family to celebrate a successful operation.

ABOVE Surgeon Gevork Yaghjyan in front of the military hospital in Stepanakert, the capital of Nagorno-Karabakh. During the worst of the fighting there in the early 1990s, Yaghjyan made dozens of trips to the region by helicopter to perform reconstructive surgery.

OPPOSITE, CLOCKWISE FROM TOP LEFT A young girl stands in a doorway in the village of Karindagh; an older woman tends to her vines; a quarryman uses wooden poles to break up a boulder; a mother in Armenia's earthquake region holds her newborn infant.

On the surgical service at First Hospital in Yerevan, the Republic of Armenia's only teaching hospital, rounds begin each morning at 9:15. This might seem late to a doctor from New Haven, where residents and students "pre-round" at 4:30 a.m. in preparation for the daily ritual two hours later. But here in Yerevan the surgeons virtually live at the hospital and there is little need to catch up each morning.

Rounds are conducted in Russian, the lingua franca of professional and intellectual life in this former Soviet state, and consist mostly of a seated discussion in a smoky room. There is no operative schedule as such, no operating-room start time. The operating room is reserved on a first-come, first-served basis by alerting the nurse in charge that there will be a patient arriving shortly, after which begins the process of negotiating for staff to assist in the surgery. Emergencies are numerous and take priority, but the hospital has no emergency room. Patients are evaluated in the driveway, the hall or the doctors' offices depending on the severity of their illness.

On this hot, dry morning, Gevork Yaghjyan, M.D., PH.D., and I are back in his office by 10:15, the time when patients and doctors begin to file in for the day's consultations. The door opens without a knock: *"Gevork Vigenovitch, ais deh a?"*

"Is Gevork Vigenovitch here?"

An assistant professor, Gevork is the youngest faculty member at Yerevan State Medical University, and at the age of 31 he has already earned his patronym, a sign of respect. Gevork is one of eight microsurgeons in Armenia, a country of 3.3 million inhabitants bordered by Azerbaijan, Georgia, Iran and Turkey.

Every day is different: no clinic days, no operative days, just a combination of adrenaline and the ordinary in varying proportions. There is no call every third or fourth night. There is call whenever you are lucky to be on the schedule. And if you are one of the only specialists in the country, call is every day. Doctors here ask for extra duty. It is their only true source of income, not counting the official pay of about $20 a month. How many of us would enter a profession with numbers like that?

In addition to what they earn from the hospital, the surgeons receive fees from their grateful patients. What they are paid depends on the means of the patient's family. It is not unheard of to receive a ton of potatoes, or even a cow,

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Sharon Chekijian graduated from the School of Medicine in May and will begin a residency in surgery this summer at the Hospital of the University of Pennsylvania.

It was difficult for me to imagine American surgeons sitting down to a meal with the patient's family. They laughed when the doctors told them that I was not used to such close relations between patient and doctor.

from a patient unable to pay in cash. It falls to Gevork as surgeon to make sure that the anesthesiologist, nurses and others who assisted receive fair compensation—a matter that can become quite complicated when the currency is livestock. Remuneration comes in other forms, too. In outlying country hospitals, the pay might be a home-cooked meal followed by toasts of vodka brought to the hospital by the family to celebrate a successful operation. It was difficult for me to imagine American surgeons sitting down to a meal with the patient's family. They laughed when the doctors told them that I was not used to such close relations between patient and doctor.

The personal touch in Armenian medicine is apparent in other ways as well. Apartment buildings usually have a doctor living there. So that even when doctors are home, for all intents and purposes they are on call. Any emergency is their responsibility—not a legal or an administrative responsibility but an ethical and human one that everyone takes for granted.

Once a medical student named Artur was traveling in the mountains of Nagorno-Karabakh, six hours away from Yerevan. Nagorno-Karabakh is an historically Armenian land and a focus of Armenian art and culture. Under the Soviets, Stalin redrew maps of the region and included Nagorno-Karabakh in the Soviet Republic of Azerbaijan. Fighting broke out there in 1988, shortly after the region asked to be annexed to the Soviet Republic of Armenia, and the conflict intensified in 1991 when Nagorno-Karabakh asked to become an independent state, as had Armenia and Azerbaijan. A cease-fire has been in effect since 1994, with Nagorno-Karabakh now functioning as an independent republic.

Artur was among a group of medical students traveling to the region when soldiers stopped their bus at a checkpoint. The worried students stepped out onto the road to be searched. Artur recognized the scarred hand of one of the soldiers from a photo he had seen in a lecture in Yerevan. "Was Gevork your surgeon?" Artur asked, thinking quickly. The soldier said, "No, Gevork was not my surgeon." He paused and looked at Artur, sizing him up, then wrapped his huge arms around the student in a bear hug. "Gevork," he declared, "is my brother." With that, Artur and his fellow travelers were sent on their way.

Our scrupulous avoidance of treating one's own family or friend is unthinkable in a country where all business is conducted on the basis of personal contacts and many patients and doctors become friends for life. Gevork is well known in Nagorno-Karabakh. During the peak of the fighting in the early 1990s, he made dozens of trips by helicopter to perform reconstructive surgery. The first time Gevork invited me to the hospital in Yerevan, it was to help him change the bandages of a soldier from Nagorno-Karabakh who had been flown to the capital after a land-mine explosion.

Each day in First Hospital brings new surgical challenges. One day, a girl from a region near ex-Soviet Georgia was brought in. Local doctors had treated her after a bad car accident, but her leg became so infected that the skin had to be removed from the knee to the ankle. We treated her with antibiotics and then skin was grafted from both hips to cover the defect. There was the patient with a gunshot wound to the buttocks that had severed the sciatic nerve. Another gunshot victim arrived with the third and fourth metacarpal bones of the hand fractured beyond recognition. There was a young girl with a facial nerve severed by a small injury who looked fine until she smiled and her face took on a twisted shape. For the longest time I forgot about what we commonly think a plastic surgeon does. In the middle of the relative chaos of First Hospital, there are the rare few who seek cosmetic surgery, breast augmentation, rhinoplasty or facelifts. These seem frivolous in a place where every induction of anesthesia and every operation bear an unbelievable risk compared to those done in the vastly more controlled settings of the operating rooms back home.

Gevork knows that world as well. Early last year, he came to Yale to study the physiology of surgical flaps with J. Grant Thomson, M.D., an associate professor in the section of plastic and

TOP PHOTO Young brothers pose for a photograph in the kitchen of their home in Yerevan.

ABOVE Children in the village of Gogaran take a break from their play.

reconstructive surgery. Gevork, back in Armenia since last May, will return to Yale later this year as a Plastic Surgery Education Foundation fellow.

Yale's involvement in Armenia has been steady since the earthquake in 1988. Staff from the Erebuni Hospital have been training at Yale. One of Armenia's recent ministers of health, Gagik Stamboltsyan, trained at Yale before assuming his new position. Under the direction of then-Chief of Plastic Surgery Stephan Ariyan, M.D., the Yale Center for Plastic and Reconstructive Surgery was built at the Erebuni Hospital in Yerevan to accommodate the increased need for reconstructive surgery during the clashes in Nagorno-Karabakh. Several operating rooms were completed and Armenia was also chosen as one of four sites for the Yale/NASA telemedicine project that links doctors around the world in a network meant for teaching and consultation. More recently, Artoum Sedrakian, M.D., a young cardiac surgeon from Yerevan, came to New Haven as a Fulbright scholar to conduct clinical outcomes research with cardiologist Harlan M. Krumholz, M.D.

My father was born in Jerusalem to Armenian parents. My grandmother and grandfather came from the Armenian cities of Marash and Zeytoon, in what is today eastern Turkey, and fled as children in the wake of the massacres of Armenians in 1915. My grandmother was orphaned as a result of the massacres and was sent to an orphanage for Armenian children in Lebanon. She grew up in the orphanage and became one of their best students. There, she became a teacher. At a teachers' conference in Lebanon she met her future sister-in-law, who hastily arranged for her to marry my grandfather. My grandfather lived at that time in Allepo, Syria. They married in 1933.

Their first child, my aunt Hermine, was born in 1934. That same year, my grandfather went to Jerusalem in search of a better life for his growing family. Jerusalem boasted a large Armenian community until the late 1950s, and part of our family was already living and working there. My grandmother and aunt followed him in 1935. My grandfather made shoes and, in time, came to run his own factory, employing over 20 men. He lost everything during the Arab-Israeli War, when Jerusalem was partitioned and his family was sequestered in the Armenian Quarter of the Old City of Jerusalem. He could no longer travel throughout the Middle East as he had done, taking orders for his products. Many families began looking for sponsors in the United States. A grade-school friend of my grandfather, long settled in Boston's Armenian community, had seen his name and photograph in a church publication, and offered to sponsor his relocation to America. In October of 1957, my family set sail from Beirut on the SS Corinthia, bound for the United States. They arrived on Christmas Eve.

My father was 16 when the family arrived in Massachusetts. After high school, he went to Boston University, then served in the Army. At Fort Bragg in North Carolina, he met my mother, and they married and moved to Phoenix after he left the service so that he could attend graduate school. They returned to Boston in 1973, where he pursued his career in the hotel industry and where I grew up.

My curiosity about Armenia grew while I was in college. I wanted to explore a land I had heard described in mythic terms throughout my childhood. After my junior year in France in 1991, I applied to the University of Michigan Summer Language Institute in Yerevan and left the labyrinth-like streets of Paris for the unpaved mountain roads of a truly foreign country. When I arrived, many French, American and Armenian-born doctors were still providing earthquake relief. Almost four years later, determined to become a doctor, I attended the Armenian Medical Congress in Boston as part of a plan to visit Armenia in July 1995. I had graduated from Smith in 1992 and worked in the pubic health field in New York City for several years, on projects designed to improve prenatal care and boost immunization rates.

The Congress served as a crash course in the current status of health care. Armenians from all over the world had come to listen to then-Minister of Health Ara Babloyan, M.D., and see how they might help fortify the country's health care system. I phoned a friend, Alain Hovnanian, M.D., a physician in Paris, to tell him about my trip and to ask how I might be helpful to him while in Armenia. There was a notable pause and a sigh of relief. He had just received a letter from a woman named Assia, whom he had met in the village of Gogaran, where he had helped in the reconstruction of an 11th-century church. Assia was on chronic dialysis and, given the state of the hospitals and pharmacies, was unable to buy necessities such as fistulas, filters and tubing. Although kidney disease is a serious health problem in Armenia, as it is in the United States, organ transplantation has not yet been established as a widespread therapy. Alain asked if I would be able to transport supplies to Assia and communicate his concern. I did so, and four years after I had first met Alain in Paris, I found myself on a back road in the village of Gogaran looking for Assia's house, which I had been told lay somewhere past the beekeeper's house but before the potato fields.

It was during this trip in 1995 that I met Gevork. I asked him if I could observe in the operating room. There I witnessed my first operation, the setting of a woman's broken femur. To my surprise, I loved surgery. I watched as a cardiac surgeon from Oregon augmented the ventricle of a 12-year-old girl. Hrair Hovagumian, M.D., had come to Armenia for a month to instruct other surgeons and ended up taking an indefinite leave of absence from his university post. He remained in Armenia, where he is now performing three open-heart surgeries a day and was grinning widely when I last saw him.

Since arriving at Yale as a first-year medical student in 1997, I have had five more opportunities to return to Armenia. Each trip has been a chance to reformulate plans, to re-evaluate decisions and to reflect. These trips have been a break from the ordinary and a chance to understand how truly fortunate we are. For me, travel has served as both a buffer and a catalyst between periods of contemplation and intervening periods of hard work. I began my thesis, *Legal, Professional, Public and Policy Barriers to the Development of Organ Donation and Transplantation in the Republic of Armenia*, in 1998 in cooperation with the Armenian Ministry of Health.

My initial contact with the Department of Plastic and Reconstructive Surgery at the University Teaching Hospital in Yerevan in 1995 led to repeated visits over the last six years and an education in reconstructive surgery that has continued despite the distance. Gevork and his colleagues have shared their work with me long-distance, e-mailing images of their most interesting cases. I have spent long hours with Gevork and the other surgeons, traveling by road to the military hospital in Nagorno-Karabakh. We have visited every hospital in the Republic of Armenia, checking on the progress of flaps created earlier in the day.

The patients I have seen in Armenia have provided the most vivid reminders of why we practice medicine. One was a young boy whose forehead was burned so badly by an electric shock that there was no flesh to cover his skull. Another was a little boy holding his severed finger in a dirty dishtowel. There was a boy whose nose was all but removed by the bite of a dog, a young woman whose breast was reconstructed after a mastectomy, and a woman whose lips and nose were eaten away by a basal cell carcinoma, neglected for years due to lack of money.

Our scrupulous avoidance of treating one's own family or friend is unthinkable in a country where all business is conducted on the basis of personal contacts and many patients and doctors become friends for life.

An ambulance waits outside Erebuni Hospital in Yerevan.

Despite limited resources, Gevork has been able to form a small laboratory in Yerevan where he is investigating the factors that allow his patients to heal. All the reagents in the lab are painstakingly prepared from scratch by the students and residents. He purchases rats himself from a man who breeds them for medical research. In New Haven I don't think Gevork ever got used to ordering rats from a catalog or seeing animals treated better than most of his patients in Yerevan. The true mark of luxury to him was that a veterinarian would be called should a lab rat fall ill. Indeed, Gevork's experience at Yale has been a far cry from his life at home. He is constantly amazed by the organization of things, by the operative schedule, by the way an instrument magically appears when a surgeon calls for it, by the orderly progress of clinic and follow-up visits, by the labs and by our easy ability to sequence DNA, make radioactive tags for molecules and measure ischemia. He is amazed but I also think he feels the same way that I do, that we give up something in return. There is a bond with patients in Armenia, a sense of urgency and vitality that often seems to be missing here.

A knock on the door brings a new patient eagerly peering past the crowd of residents and patients that routinely fill Gevork's office and spill out into the hall. I hear the familiar *"Gevork Vigenovitch, ais deh a?"* and wonder what the day will bring.


Mellman


Schlessinger


Udelsman


Edelson


Leffell


Siegel

New chairs appointed in three departments; clinical leadership changes

Dean David A. Kessler, M.D., has announced the appointment of three new chairs to lead the departments of Cell Biology, Pharmacology and Surgery.

Ira Mellman, PH.D., became chair of the Department of Cell Biology in December. Mellman, who earned his doctoral degree in genetics from Yale in 1978, has been on the faculty since 1981. He is a member of the Ludwig Institute for Cancer Research, which provides research support to his laboratory and increasingly to Yale as a whole, and serves as editor-in-chief of *The Journal of Cell Biology* and on the editorial boards of *Cell* and *The Journal of Experimental Medicine*. He is also a professor of immunobiology and the founding director of Yale's interdepartmental graduate Program in the Biological and Biomedical Sciences (BBS).

Mellman's research focuses on how cells control the composition of their intracellular membranes. He is credited with the discovery and definition of cell organelles known as endosomes, which enable cells to take up macromolecules such as hormones, and with the identification of mechanisms enabling individual cells to generate and maintain the asymmetries required to produce complex multicellular structures such as organs and tissues. His laboratory group is now investigating the cellular basis of the immune response and has revealed the inner workings of dendritic cells, which are uniquely responsible for initiating virtually all known immune responses. Lynn Cooley, PH.D., associate professor of genetics and cell biology, will succeed Mellman as director of the BBS.

Joseph Schlessinger, PH.D., arrived at Yale on Feb. 1 as the new chair of the Department of Pharmacology. Schlessinger, who headed the pharmacology department at New York University School of Medicine and directed the Skirball Institute of Biomolecular Medicine, is one of a handful of scientists leading the signal transduction field. For the past 25 years he has been the single most visible figure in the area of signal transduction via receptor tyrosine kinases, molecules at the cell surface that tell cells when to grow or stop growing.

Schlessinger, who was elected a member of the National Academy of Sciences last year, is one of the most frequently referenced authors in biomedical science and a co-founder of SUGEN Inc., a biotech company in South San Francisco that was acquired in 1999 by Pharmacia and Upjohn. He serves on the boards of a dozen journals, including *The EMBO Journal*, *Cell*, and *Molecular Cell*. In conjunction with Schlessinger's arrival, the school will renovate portions of the B-wing of Sterling Hall of Medicine and build a 15,000-square-foot addition.

Robert Udelsman, M.D., M.S.B., M.B.A., will become chair of the Department of Surgery on June 1. Udelsman is currently the Richard Darnall Professor of Surgery at Johns Hopkins, where he is also director of endocrine and oncologic surgery.

Udelsman completed his medical training at George Washington University School of Medicine and Health Sciences and his surgical residency and chief residency at the Johns Hopkins Hospital. In addition, he has completed fellowships in surgical oncology at the National Cancer Institute, in endocrinology at the National Institute of Child Health and Human Development, and in gastrointestinal surgery at Johns Hopkins Hospital. His research and clinical interests focus heavily on endocrine surgery, particularly endocrine oncology. His clinical practice focuses on surgery of the thyroid, parathyroid, adrenal gland and endocrine pancreas. His clinical research focuses on outcome research, particularly on innovative techniques for minimizing the trauma of surgery. These are particularly relevant to laparoscopic adrenalectomy and outpatient minimally invasive parathyroidectomy.

Dean's office appointments

Several key administrative appointments were announced recently as well.

Richard L. Edelson, M.D. '70, professor and chair of the Department of Dermatology, was named deputy dean for clinical affairs. His responsibilities include activities related to research, training and services for the entire clinical enterprise. He will also serve as the chief clinical liaison between the dean's office and the clinical leadership of Yale-New Haven Hospital.

David J. Leffell, M.D., HS '86, professor of dermatology and director of the Yale Medical Group, was promoted to senior associate dean for clinical activities and strategic planning. Leffell will help to develop, initiate and carry out plans necessary for the ongoing growth and sustained health of the medical school's clinical programs.

Norman J. Siegel, M.D., professor of pediatrics and medicine and chair of the Yale Medical Group's finance committee, was named senior advisor for planning and priorities. Siegel will lead the school's ad hoc committee on long-term financial planning. He will also become the school's chief liaison to its affiliated hospitals in Connecticut, especially in regard to the implementation of the 1999 affiliation agreement between the medical school and the Yale New Haven Health System.

Searches are under way for new chairs for the departments of Obstetrics and Gynecology and of Pediatrics and for a section chief in medical oncology.

—Michael Fitzsousa

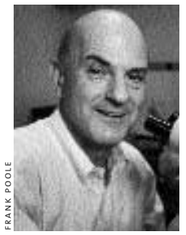
THIS PAGE FROM TOP: ROBERT LISAK; JERRY DOMIAN; T. ARLEDGE/HOPKINS MEDICAL NEWS; RICHARD EDELSON; GALE ZUCKER; ROBERT LISAK

Aghajanian, Hostetter elected to Institute of Medicine

George K. Aghajanian, M.D., professor of psychiatry and pharmacology, and Margaret K. Hostetter, M.D., professor of pediatrics, chief of the section of pediatric immunology and director of the Yale Child Health Research Center, were elected in October to the Institute of Medicine. Aghajanian was named a senior member and Hostetter a member.

Aghajanian is best known for his basic research on drugs and chemical neurotransmission in the brain. His recent work on serotonin and glutamate has influenced investigations into treatments for neuropsychiatric disorders.

Hostetter's research focuses on virulence factors in two important pathogens: *Streptococcus pneumoniae*, the leading cause of death from respiratory infections, and *Candida albicans*, the predominant cause of fatal fungal infections in patients with compromised immune function. Hostetter co-founded the first clinic specializing in the medical and developmental evaluation of internationally adopted children and has transplanted this model to Yale. She serves on the Council of the National Institute of Child Health and Human Development.


FRANK POOLE
Aghajanian


JERRY DOMIAN
Hostetter


MICHAEL MARSLAND

Thomas Steitz honored with Sterling Professorship

Thomas A. Steitz, PH.D., internationally known for his work in X-ray crystallography, has been honored with an appointment as Sterling Professor of Molecular Biophysics and Biochemistry.

Steitz's research interests include the molecular structure of proteins and nucleic acids, the structural basis of enzyme mechanisms, and protein-nucleic acid interactions. He and his research team recently made a landmark scientific stride in determining the atomic structure of the ribosome's large subunit (See *Findings*, Fall 2000 | Winter 2001, page 16).

Steitz joined the Yale faculty as an assistant professor in 1970 and currently serves as chair of the Department of Molecular Biophysics and Biochemistry. Steitz has been a Howard Hughes Medical Institute Investigator since 1986 and is a member of the National Academy of Sciences, the American Academy of Arts and Sciences, and the Connecticut Academy of Science and Engineering.


PATRICIA GOLDMAN-RAKIC

Patricia Goldman-Rakic named Eugene Higgins Professor of Neurobiology

Patricia S. Goldman-Rakic, PH.D., a world leader in the study of the brain's cellular mechanisms for memory and cognition, has been appointed the Eugene Higgins Professor of Neurobiology.

Goldman-Rakic has conducted much of her research on the prefrontal cortex, the brain area most concerned with reasoning and thought. She has studied such issues as the development and organization of this area's neural circuitry and its physiological and pharmacological properties in relation to its memory functions. Her work has shown how the modular structure of neural connections constrains these functions.

Before joining the Yale faculty in 1979, Goldman-Rakic was chief of the section of developmental neurobiology at the National Institute of Mental Health. She is a fellow or member of the National Academy of Sciences, the Institute of Medicine, the American Academy of Arts and Sciences, the American Association for the Advancement of Science and the Society for Neuroscience. She served as president of the latter organization in 1990.

Jennifer A. Doudna, PH.D., the Henry Ford II Professor of Molecular Biophysics and Biochemistry and an associate investigator at the Howard Hughes Medical Institute, has been chosen to receive the 2001 Eli Lilly Award in Biological Chemistry. This award, one of three to be presented by the American Chemical Society's Division of Biological Chemistry in August, recognizes an individual who has accomplished outstanding research in biochemistry that reflects unusual independence and originality. Doudna's work is aimed at determining the structural basis of RNA catalysis using X-ray crystallography and biochemistry.

Elaine E. Grant, M.P.H. '92, PA-C, assistant dean and director of the Physician Associate Program, began a one-year term in January as president of the National Commission on Certification of Physician Assistants (NCCPA). Grant is the NCCPA's first female president and the first Association of Physician Assistant Programs appointee to serve in that role. She is currently serving her fourth four-year term on the NCCPA's board.

Dean David A. Kessler, M.D., received the National Academy of Sciences (NAS) Public Welfare Medal in April at the NAS award ceremony in Washington. Kessler was recognized "for his courageous approach to public health issues, including insistence on the validity of drug labeling; protection of the impartiality of review boards; institution of mechanisms for fast-tracking drug approval, especially for orphan drugs and terminal malignancies; implementation of nutrient food labeling, and recognition that the addictive effects of tobacco require a more active intervention on the part of society and government. His legacy as commissioner of the Food and Drug Administration affects the lives of all Americans." The medal was established to recognize distinguished contributions in the application of science to the public welfare and has been presented since 1914.

K.J. Lee, M.D., associate clinical professor of surgery (otolaryngology) and managing partner of the Southern New England Ear, Nose, Throat and Facial Plastic Surgery Group in New Haven, is president-elect of the American Academy of Otolaryngology Head and Neck Surgeons and will assume the presidency in September. Lee is the author of *Essential Otolaryngology*.

William H. Prusoff, PH.D., professor emeritus and senior research scientist in pharmacology, has been honored by the creation of the William Prusoff Young Investigator Lecture Award. The award, supported by an endowment by the Bristol-Myers Squibb Company, will be given annually by the International Society for Antiviral Research. Its intent, the two organizations said in a statement, is to honor "one of the most talented and beloved members of the society and a loyal member since its inception. His contributions to the development of antivirals and their clinical use are legendary, and his dedication to mentoring young scientists makes this award in his name truly appropriate."

Robert A. Rosenheck, M.D., HS '77, professor of psychiatry and of epidemiology and public health, has received the Carl A. Taube Award for Distinguished Contributions to the Field of Mental Health Services Research from the Mental Health Section of the American Public Health Association. Rosenheck is a leading authority on homelessness and post-traumatic stress disorder among veterans. The award is named in memory of Taube, a former staff member of the National Institute of Mental Health, who played a major role in creating the field of mental health services and policy research.

M. Bruce Shields, M.D., professor and chair of ophthalmology and visual science, has been honored by the Duke University Eye Center with a professorship in his name. The endowed chair was made possible by a $1.2 million bequest by two grateful patients. Shields served on the faculty at Duke for 25 years before coming to Yale in 1997.

Heping Zhang, PH.D., associate professor of epidemiology and a member of the Child Study Center faculty, has been named a fellow of the American Statistical Association (ASA). Zhang was recognized at the Joint Statistical Meetings in Indiana last summer "for significant contributions to methodology in non-parametric classification and non-linear regression, for influential work in statistical genetics, and for applications in epidemiology and psychiatry." Zhang earned his doctorate at Stanford in 1991 and has been a member of the ASA since 1992.

—Claire Bessinger

Send faculty news items to: Claire Bessinger , Yale Medicine Publications, P.O. Box 7612, New Haven, CT 06519-0612

New Books

The following books by or about alumni and faculty have recently been published. Descriptions are provided by the publisher.

Clinical Urography, 2nd Ed., *edited by Bruce L. McClennan, M.D., professor and chair of diagnostic radiology, and Howard M. Pollack; W.B. Saunders (Philadelphia), 2000*. This book is the standard textbook in genito-urinary radiology, a compilation of modern day imaging and intervention, and has been the reference book of choice for urologists and radiologists.

Fragile Success: Ten Autistic Children, Childhood to Adulthood, 2nd Ed., *by Virginia Walker Sperry, M.A., research affiliate in the Child Study Center, and the late Sally Provence; Paul H. Brookes Publishing Co. (Baltimore), 2001*. For more than three decades, Sperry meticulously traced test results, experiences, social habits, family life, and work arrangements of 10 individuals with autism. Her book offers a unique child-to-adulthood look at autism—a severe developmental disorder characterized by social withdrawal and an inability to relate to others—and is an invaluable source of support to parents.

International Public Health: Diseases, Programs, Systems, and Policies, *edited by Michael H. Merson, M.D., dean and professor of public health, Robert E. Black and Anne J. Mills; Aspen Publishers Inc. (Gaithersburg, Md.), 2001*. By emphasizing diseases, programs, health systems, and health policies, this textbook helps students understand the scope and depth of challenges of global public health issues and the various approaches nations adopt to deal with them.

Leonardo da Vinci, *by Sherwin B. Nuland, M.D. '55, HS '61, clinical professor of surgery; Lipper/Viking (New York), 2000*. Being a physician, Nuland is particularly interested in Leonardo's pioneering anatomical dissections and drawings. In this book, he completes his 20-year quest to understand an unlettered man who was painter, architect, engineer, philosopher, mathematician and scientist.

Nutrition in Clinical Practice: A Comprehensive Evidence-Based Manual for the Practitioner, *by David L. Katz, M.D., M.P.H. '93, associate clinical professor of public health; Lippincott Williams & Wilkins (Philadelphia), 2000*. Comprehensive and sufficiently detailed to be of value to nutritionists, dietitians and clinical specialists, the book is intended to serve as the one nutrition reference non-specialists can rely on to answer almost all of the questions that come up in clinical practice. It is designed to help bring a consistent and meaningful dialogue about the role of nutrition in disease prevention and health promotion into the doctor-patient relationship.

PC, M.D.: How Political Correctness is Corrupting Medicine, *by Sally Satel, M.D., HS '88; Basic Books (New York), 2000*. Satel shows how political correctness has infected the world of medicine and public health—with results that may actually threaten everybody's well-being. She begins by describing the presumption of some health professionals that because the sickest people in society are also disproportionately the poorest, the practice of medicine must address matters of social justice. She feels this has led to the diversion of resources away from what the medical profession does best—the treatment and prevention of injury and disease.

Physician: The Life of Paul Beeson, *by Richard Rapport, M.D.; Barricade Books (New York), 2001*. No contemporary figure has had more influence on the way Western-trained doctors practice medicine than Paul Beeson. One of the founders of the discipline of infectious disease, Beeson discovered the first vital class of cellular proteins now called cytokines. He was chair of medicine at Yale from 1952 to 1965 and has been celebrated by dozens of awards, including the naming of the Yale-New Haven Hospital Medical Service in his honor. Medical students, house officers and doctors around the world recognize Beeson as a model for the ideals of medicine.

Runner's Blood, *by James J. Fischer, M.D., Ph.D., HS '65, chair and Robert E. Hunter Professor of Therapeutic Radiology; Word Association Publishers (Tarentum, Penn.), 2000*. Fischer is a cancer specialist and marathon runner who has written a tale of mystery and deception based on a discovery made in his own medical laboratory. This finding, developed to treat cancerous tumors, is so sophisticated that it makes blood doping seem primitive. The novel focuses on a fictional marathoner and his realization that his main rivals are illegally enhancing their performance.

MICHAEL MARSLAND

Send notices of new books by or about alumni and faculty to Cheryl Violante, Yale Medicine Publications, P.O. Box 7612, New Haven, CT 06519-0612.

WOODRUFF/BROWN PHOTOGRAPHY

The first major renovation of E.S. Harkness Hall since its construction in 1955 has brought high-speed Internet access and a homier feel to the 11-story dormitory building, which houses Marigolds dining hall, a day-care center and the offices of student affairs and education on its first three floors.

Harkness renovations heralded

High-speed Internet access, other amenities bring aging dormitory up to snuff.

A $20 million renovation of E.S. Harkness Hall has brought new plumbing, heating and electrical wiring to the aging dormitory as well as such amenities as high-speed Internet access and lounges with modern kitchenettes. The renovations are the 11-story building's first major overhaul since its construction in 1955 as a residence for students in the health professions.

The improvements complete a process that began in 1995, when the School of Medicine took over management of medical school housing and dining services from the University Graduate Housing Office and the Yale University Dining Services. Changes to the building's aging infrastructure—plumbing was built with World War II scrap metal that became brittle—include not only repairs, but a new conduit for telephone lines, cable television and computer cables. Also, dormitory rooms on the third floor gave way to space for an expanded office of education, as well as other offices dealing with student issues, such as student research, the M.D./PH.D. Program, international health and multicultural affairs. The renovations provided a single destination for students for handling their educational and support needs. "The building was worn out," said Eric Schonewald, associate director of resident life at the medical school. "Technology had accelerated to the point where we needed to upgrade, and the old housing was a turnoff to prospective students."

Work started in the mid-1990s with the construction of Marigolds, a new cafeteria and dining area that opened in 1997 with a broader choice of meals and expanded hours. A facelift of the building's exterior followed, including the replacement of more than 250 windows and frames, and starting in June 1999, floor-by-floor renovations brought the building into compliance with modern fire, safety and handicapped-access codes. "As floors were completed we moved the students up one level and leapfrogged up through the building," Schonewald said, adding that the School of Medicine's Office of Project Management and Construction oversaw the work. "They had to plan a renovation around an occupied building."

"That was the greatest challenge: People were living in the building," said Peggy Rubens-Duhl, project architect with Svigals Associates, the firm that designed the renovated space. The architects consulted with students to design more efficient rooms with more conveniently placed electrical and data outlets and new wardrobes and sinks that took up less space. Doorways were recessed to give each room the appearance of a private entrance. "We know that the students are working in medical facilities, which tend to be sterile, so we wanted it to be like a home," said Rubens-Duhl.

Two rooms on alternating floors were sacrificed to create new lounges, the building's first common spaces on the residential floors. Four of the eight residential floors have kitchenettes built off of the lounge areas, two floors have lounges with televisions and two floors have quiet study areas.

Rooms, each averaging about 15 feet by 10 feet, are equipped with a sink, a closet, a chest of drawers, a single bed and a desk.

The dormitory keeps about 12 of its 180 rooms available for visitors, such as medical school applicants. Although a number of rooms were kept vacant during renovations, Schonewald expects the building to be full in the next academic year. "We have created a living space that is competitive with any dormitory at Yale, and we are offering a product that welcomes our first-year students," said Schonewald.

—John Curtis

Benefit for the hungry and homeless raises $25,000

New Haven's mayor, deans Merson and Chase take bids at eighth annual auction.

The eighth annual Hunger and Homelessness Auction achieved a number of firsts in November as it raised more than $25,000 for New Haven charities. For the first time, organizers recruited an auctioneer from outside the medical school—New Haven Mayor John DeStefano Jr. The auction had its own Web site, and it expanded from a one-day to a four-day event, including two days of bidding.

"We wanted to create awareness," Miriam Parsa, a public health student and one of five auction coordinators, said of the expanded schedule. Over the course of the four days activities included a canned-food drive sponsored by the Tercentennial committee at the School of Public Health, the screening of a movie on homelessness, a fast involving approximately 40 medical and public health students, and silent and live auctions offering 234 items and services. Bidding on the silent auction began the day before the live auction. On the block were "12 hours of babysitting," "editing for two major papers by Yale English Lit. degree holder" and lessons in everything from piano to rock climbing to figure skating.

Coordinators also had practical reasons for spreading the bidding over two days. "We figured it would be a more efficient way of collecting the money," said Parsa. As a result, said medical student Matt Kronman, the coordinators had $15,000 in hand the day of the live auction.

DeStefano solicited bids on the first item, a plane ride over New Haven piloted by Fred S. Kantor, M.D., HS '60, the Paul B. Beeson Professor of Medicine. "You can go over the suburbs, too, if you really want to," DeStefano said. The flight went for $200.

This year also marked the auctioneering debuts of public health Dean Michael H. Merson, M.D., and Herbert S. Chase Jr., M.D., deputy dean for education. "What could be more romantic than a July weekend on Martha's Vineyard for two?" Merson asked, while soliciting bids on the getaway home of Frederick J. Sigworth, PH.D., professor of cellular and molecular physiology. A question from the audience brought laughter: "Is this a romantic weekend *with* Dr. Sigworth?"

Proceeds went to the Cook and Care Walk-A-Thon, Community Soup Kitchen, New Haven Home Recovery, Loaves and Fishes, and Douglas House.

—John Curtis

JERRY DOMIAN

The Hunger and Homelessness Auction in December had its own Web site for the first time, but students also resorted to old-fashioned chalk for this advertisement on the driveway in front of Sterling Hall of Medicine.

Diana Bojorquez, a third-year medical student, received the Herbert W. Nickens, M.D., Minority Medical Student Scholarship for 2000, which was announced in the fall by the Association of American Medical Colleges. The scholarships honor the work of Nickens in promoting justice in medical education and health care and are given to outstanding minority medical students who have demonstrated leadership in eliminating inequities in those areas.

Corey Martin, a third-year medical student, was one of six scholars selected from applicants representing 55 U.S. medical schools to receive a 2000 scholarship from the Piscano Leadership Foundation Inc., the philanthropic foundation of the American Board of Family Practice Inc. The scholarships, valued at up to $50,000 each, provide educational programs, leadership training, and funding for outstanding third- and fourth-year medical students who have been identified as future leaders in the field of family practice. Martin is helping to establish a Tar Wars Program at Yale to discourage children from smoking, implementing a long-term family physician shadowing program for interested medical students, and was a delegate to the Connecticut Academy of Family Physicians.

—Claire Bessinger

Send student news items to:
Claire Bessinger, Yale Medicine Publications, P.O. Box 7612, New Haven, CT 06519-0612.

Reports from Suriname, East Timor and Vietnam

Students return with insights on traditional healing in the Amazon, the effects of war in East Timor and a needle exchange program in Vietnam.

Second-year medical student Christopher Herndon spent last summer in Suriname's Amazon jungle working on a project that seeks to improve the health care of indigenous people while preserving the skills of their traditional healers. Shamans, Herndon said, possess a wealth of information about medicinal plants and herbs in the Amazon. Yet the Westernization of their cultures has led to a loss of that knowledge. "Many of these shamans are over 70 years old," Herndon said during a presentation in October. "Most don't have apprentices to whom they can transmit this knowledge that has been accumulated for generations."

Medical Mission Suriname, which delivers primary care to remote regions of the country, has begun a pilot program in which shamans practice alongside primary care physicians. Shamans and physicians refer patients to each other and participate in joint workshops to learn about their respective healing systems. "This is an unprecedented opportunity to create a model for the integration of traditional medicine into primary care delivery in indigenous communities throughout tropical America," Herndon said.

He was one of three students to make presentations at the Fall Symposium, Poster Session and Reception sponsored by the Committee on International Health. The annual event, held on Oct. 18 last year, highlights the work of students in medicine, public health, nursing and the Physician Associate Program who have conducted research abroad. Joining Herndon in making presentations in the Hope Building were Bahar Firoz, a second-year medical student who studied the effects of war and human rights violations on mental health in East Timor, and Laura Phan, a public health student who studied a needle exchange program in Vietnam.

The three were among 18 students who traveled abroad last summer on Downs International Health Student Travel Fellowships, which honor Wilbur G. Downs, M.D., M.P.H., a Yale faculty member and expert in tropical diseases who encouraged students to learn by doing. "In all of you who traveled abroad to do research, he would have found a kindred spirit," said Curtis L. Patton, PH.D., professor of epidemiology (microbiology) and director of the Downs program.

Firoz surveyed the mental health of patients in the Bairo-pite Clinic in Dili, the capital of East Timor. After Indonesia invaded and occupied the country in 1975, the East Timorese population lived under martial law in a land where assassinations, kidnapping, rape and torture were commonplace. Violence increased in late 1999 after East Timor, in internationally monitored elections, voted for independence.

Firoz recounted the story of a 27-year-old woman who fled to the mountains during an attack by militias opposed to independence. After three weeks in hiding, the woman returned to her village to find her home and possessions burned. "This is very common in the lives of most people I spoke with," Firoz said. Of the more than 100 patients she interviewed, 95 percent had experienced similar trauma and lost family members in the violence. A preliminary data analysis found depression in about 40 percent and symptoms of post-traumatic stress disorder in about 7 percent of those she interviewed. "The timing of this was very important," Firoz said of her study, which was done on-site within months of the trauma. "Most studies on mental health are done a couple of years after the event."

Phan, who was born in the United States to Vietnamese parents, traveled to Ho Chi Minh City, home to almost a third of Vietnam's 100,000 injecting drug users. The Hope Café is one of two sites in the city offering clean syringes to drug users, who are most at risk for infection in the country's growing AIDS epidemic. "It is the first big step at embracing harm reduction," Phan said of the cafe.

Most of the 195 drug users who responded to Phan's survey reported that heroin was their preferred drug and that they did not share needles. Despite high levels of syringe hygiene, they reported low levels of sexual-risk reduction. Prevention efforts, Phan said, should be expanded to all 11 districts in the city, and their scope should include prevention of sexual transmission of HIV.

—John Curtis

Chase scenes

Second-year show an initiation of sorts for new education dean.

Anyone who has met the relentlessly upbeat deputy dean for education, Herbert S. Chase Jr., M.D., knows that he's nothing like the grumpy schemer depicted in *2001: A Chase Odyssey*, the Class of 2003's second-year show. As most faculty members will attest, being lampooned in the show is a rite of passage, a sign of acceptance. For Chase, who took up his duties in July, this show was his initiation.

The plots of most recent shows revolve around an errant faculty member engaged in shenanigans for the perceived betterment of the medical school. This show was no exception. It has Chase arriving at Yale after two decades at Columbia only to be horrified by what he finds —boring lectures, low attendance at classes and widespread apathy among students, all things which surely never happen here. His scheme to subvert the hallowed Yale System by suborning students to fail exams goes awry when a copy of the plan finds its way into *The Kit*, the orientation guide for first-years. With the help of Yale's own Charlie's Angels, Chase succeeds in confiscating all but one of the kits. The plot then detours through the medical school as it follows the remaining kit, poking fun along the way at targets such as Britney Spears, medical students, *Top Gun*, the med school dining hall, Japanese cooking shows and, of course, the Yale System.

In the end Chase comes to realize the virtues of the Yale System and all is forgiven. Erik Weiss, the medical student who portrayed Chase, was joined onstage by three deans who bought their way into the show at the annual auction to benefit the homeless and hungry. Associate Dean Ruth Katz, J.D., M.P.H., and Associate Dean for Student Affairs Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, appeared onstage as a ladybug and bumblebee. Dean David A. Kessler, M.D., hopped onstage in a bunny suit, with his microphone disguised as a carrot. "At this year's auction, I bid some money," sang Kessler, to the tune of Louis Armstrong's *Wonderful World*. "That's why I'm here, dressed as a bunny. And I think to myself, what a wonderful school."

—John Curtis

***2001: A Chase Odyssey*, the Class of 2003's second-year show, lampooned new Deputy Dean for Education Herbert Chase Jr. and many other familiar campus figures, often with their participation. Dean David Kessler appeared dressed as a bunny, with a microphone hidden in his carrot. One of the show's producers, bare-midriffed Clare Drebitko, mimicked singer Britney Spears singing "I'm not that competent."**

PETER CASOLINO (2)

'40s

This dispatch arrived recently from **A. Harry Chapman**, M.D. '47. "At the age of 77, I am still active in my specialties of neurology and psychiatry; my major responsibility is the administration of an electroencephalographic service in a hospital in the inland Brazilian city of Bahia, population 350,000. In recent years I have authored two books and various articles on psychiatry and neurology in *The Lancet*, *The British Journal of Psychiatry* and three Brazilian medical journals; the books were published by an American medical publisher. I have four children, ranging in age from 13 to 49—Miriam Celeste, Americo Araujo, Marcelo Arthur and Jose Henrique—and numerous grandchildren. Life for me, like most people in Brazil, goes on largely in the context of a large extended family of cousins, in-laws and others. My wife, Elza Mendes de Almeida Chapman, and I are in reasonably good health. I was last in the States in 1965, but I would be interested in hearing from anyone who remembers me. Any letter sent to Chapman, CP 98, 45000-000 Conquista-BA, Brazil, will reach me."

'50s

Kristaps J. Keggi, M.D. '59, HS '63, received an honorary doctorate of humane letters from Quinnipiac University last May for his work as an orthopaedic surgeon. Quinnipiac president John L. Lahey said, "His medical and administrative skills have been tested from prestigious American hospitals to the battlefields of Vietnam. But above all, Keggi has been instrumental in renewing understanding between the peoples of the former Soviet Union and the West. He also has brought a sense of hope, self-reliance and self-respect to people nearly engulfed by economic crisis and national emergency." In 1988, Keggi founded the Keggi Orthopaedic Foundation, which provides professional exchanges and training opportunities for orthopaedic surgeons in the former Soviet republics.

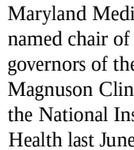
Amilcar Werneck de C. Vianna, HS '59, a dental surgeon in Rio de Janeiro, writes to say that he has been named a fellow of the International College of Dentists and a member of the board of the College's chapter in Brazil.

Carl R. Woese, PH.D. '53, a microbiologist at the University of Illinois (UI) at Urbana-Champaign, was among 12 scientists and engineers to receive the National Medal of Science in December. Woese, who was a doctoral student and postdoctoral fellow in biophysics at Yale in the 1950s, changed the way scientists classify life on Earth with his discovery of the archaea in the 1970s. Collaborating with microbiologist Ralph S. Wolfe, Woese overturned one of the major dogmas in biology. Until that time, biologists believed that all life belonged to one of two primary lineages, the eukaryotes and the prokaryotes. Woese and Wolfe showed the existence of a third group of organisms, the archaea, which are very simple in genetic makeup and tend to exist in extreme environments thought to resemble that of Earth in its early stages. "I am a molecular biologist turned evolutionist," says Woese, who holds the Stanley O. Ikenberry Endowed Chair at UI. He calls the study of the archaea "central to the understanding of the nature of the ancestor common to all life."

'60s

Stephen C. Schimpff, M.D. '67, HS '69, chief executive officer of the University of Maryland Medical Center and executive vice president of the University of Maryland Medical System, was named chair of the board of governors of the Warren Grant Magnuson Clinical Center at the National Institutes of Health last June. Schimpff, a member of the board and its executive committee since their inception four years ago, was formerly the chair of the finance working group.

'70s



Michael L.J. Apuzzo, M.D., HS '72, will be the honored guest laureate at the annual meeting of the Congress of Neurological Surgeons in San Diego in late September. The theme of the meeting, "Reinventing Neurosurgery," will be explored in concert with Apuzzo's contributions and innovations in numerous areas that have helped to redefine the scope and state of international practice. Apuzzo is the Edwin M. Todd/Trent H. Hells Jr. Professor of Neurological Surgery, Radiation Oncology, Biology and Physics at the Keck School of Medicine at the University of Southern California in Los Angeles. A native of New Haven, Apuzzo began his undergraduate studies at Yale with a primary interest in architecture. As a work study student, he was assigned to catalog books at the Harvey Cushing Medical Historical Library under the direction of Madeline Stanton, former secretary to Cushing, who is considered the father of modern neurosurgery. This experience helped redirect his goals, leading him into medicine. Since medical school he has devoted himself to the refinement of cerebral surgery concepts, advanced neuro-oncology and the development and transfer of complex technology initiated within the aerospace and defense industries to the operating room and other areas of patient care. Apuzzo has been a pioneer in the clinical areas of deep cerebral microsurgery, neuro-endoscopy, imaging-directed stereotaxy, radiosurgery and the emerging field of cellular and molecular neurosurgery with neurorestoration.

David L. Coulter, M.D. '73, e-mailed us in March to say, "After 15 years as associate professor and director of child neurology at Boston University School of Medicine, I moved across town in January to join the departments of Neurology and Social Medicine at

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After 60 years, "I've never left"

Nicholas Spinelli, a devoted son of Yale, finds that dedication is a two-way street.

GALE ZUCKER

The Spinelli Office of Alumni Affairs was named in honor of Nicholas Spinelli in November, as was a room at the neuroscience research facility at the West Haven VA.

In 1941 Nicholas P.R. Spinelli, M.D. '44, crossed the campus from Yale College, where he had spent his undergraduate years, to begin the next phase of his education at the School of Medicine. Six decades later, he would say, "I've never left."

Born in Stratford, Conn., Spinelli never strayed far from his roots. After service in the Army he returned to his hometown and to Yale, where he completed a residency in internal medicine. He always found time for his alma mater. He taught and counseled medical students, helped them with scholarships and, years later, provided funds for the first White Coat ceremony, which has become an annual event to welcome the first-year class.

In honor of his contributions to the medical school, two rooms were dedicated in Spinelli's honor on Nov. 20, one at the PVA/EPVA Neuroscience Research Center at the VA Connecticut Healthcare System in West Haven and the other at the medical school.

In his remarks to faculty, students, alumni and his sister Viola Spinelli, who holds an M.P.H. degree from Yale, Spinelli said the school's mission was to have "bright, brilliant students admitted and matched with bright, brilliant teachers. So I opted to support aid to the dean."

When Spinelli entered Yale College in 1937, times were lean. His father had lost his contracting business during the Great Depression and later opened a gas station on the Boston Post Road. As a freshman Spinelli waited on tables in the college dining room. As a sophomore he worked in a biology laboratory, where he found a mentor in Edgar J. Boell, a biology professor. "He was determined that I was going to medical school and that I should go to Yale," Spinelli recalled.

On the night of December 7, 1941, instead of studying for an anatomy exam he was glued to the radio. "FDR came on and told us about Pearl Harbor and that we were at war," he said. He and his 42 classmates were inducted into the Army as privates first class and had their medical education abbreviated to three years.

After the war, Spinelli practiced internal medicine in Stratford, Conn., until 1958, when heart problems forced him to retire. He became director of medical education at Bridgeport Hospital. In the early 1970s he chaired the medical school Alumni Fund, helping to increase awareness of the financial aid needs of medical students. He also served as president of the Association of Yale Alumni in Medicine (AYAM) from 1981 until 1985, when he was named director of alumni affairs by then-Dean Leon Rosenberg, M.D. Since retiring as director in 1990, Spinelli has remained active in alumni affairs. He received the AYAM's distinguished alumni service award in 1987 and the Peter Parker Medal in 1994.

"You only get to meet someone like Nick once in a lifetime," said Stephen G. Waxman, M.D., chair of the Department of Neurology, during the ceremony at the VA. Spinelli, he said, "devoted most of his life to young people and to helping them."

Later that day came the dedication of The Spinelli Office of Alumni Affairs at 100 Church St. South. Sharon R. McManus, director of alumni affairs, recalled meeting Spinelli in 1985 on her first day on the job at the Yale Alumni Fund for Graduate and Professional Schools. "He said there was nothing better and more gratifying than raising money for Yale," McManus recalled. "I didn't realize it at the time, but he really meant it."

—John Curtis

PETER CASOLINO

Samuel Kushlan, pictured above at his 65th reunion last year, received the medical school's highest honor, the Peter Parker Medal, in February.

"It's like having a mystery story every morning . . ."

Drop in on medical grand rounds or morning report and you're likely to encounter Samuel Kushlan, 89, an enduring representative of the Class of 1935.

Before the advent of antibiotics, chemotherapy, open heart surgery, dialysis or effective treatments for diseases that are easily cured today, Samuel D. Kushlan, M.D. '35, was ready to follow in the footsteps of the family doctor in New Britain who had inspired him, a man known for his compassion and respect for patients.

Almost seven decades later, Kushlan, who has dedicated his life to Yale and New Haven, was awarded the medical school's highest honor, the Peter Parker Medal. Kushlan, who celebrated his 89th birthday on Feb. 17, has never retired from medicine. His desire to help students and his curiosity about science make him a familiar figure on campus and particularly in the Department of Internal Medicine, where he attends grand rounds every Thursday and morning medical report nearly every day.

"It's like having a mystery story every morning. It's extremely interesting," he said. "My function, as I see it, is to toss in a pearl from time to time to pay my way."

As an undergraduate at Yale College, where he was one of the top 10 scholars in the Class of 1932 and a member of the basketball team, Kushlan persuaded then-Dean Milton C. Winternitz, M.D., to admit him to the medical school at age 19. When he graduated three years later, he remembers, "we thought [medicine] was very advanced, but as you look back it was very primitive. It was really very simple—there was nothing you could do for strokes or heart attacks."

Only four medicines—aspirin, digitalis, phenobarbital and quinine—were commonly used to treat illnesses. And as polio patients flooded the hospital each summer, Kushlan and the house staff hoped that "prayer and good luck" would help them escape the contagion.

A Connecticut native, Kushlan ventured only once from his alma mater, going in 1938 to Harvard University and Massachusetts General Hospital, where he worked under Paul D. White, M.D., a cardiologist to President Dwight D. Eisenhower. "After a short while, I decided the grass was not greener there and when I came back I was content," he said.

From World War II until the late 1960s, Kushlan practiced internal medicine and gastroenterology in New Haven and taught as a member of the clinical faculty. He served from 1967 until 1982 as associate physician-in-chief at Yale-New Haven Hospital and also as clinical professor of medicine. After retiring from the latter post in 1987, he reviewed cases at Yale's medical and legal office for the next five years. An active member of the alumni association since 1936, its bequest and endowment officer and a resident of New Haven, "My life is really centered around Yale," Kushlan said.

The Peter Parker Medal, which Kushlan calls the capstone of his medical career, is named for a 19th century medical missionary to China educated at Yale's medical and divinity schools. The medal is not the first recognition Kushlan has received at Yale. The Samuel D. Kushlan Lectureship, established 32 years ago, brings some of the best and brightest names in the field of gastroenterology to campus annually.

And about a decade ago, the Department of Internal Medicine named one of its hospital medical services after him, putting him in the same league as Allan Goodyer, Elisha Atkins, John Punnett Peters and Gerald Klatskin. "The other services were named after world-class physicians and I'm a local-class physician. But I was told that teaching and supporting the community for more than 50 years—that's worth something."

—Rachel Engers

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Harvard Medical School and Children's Hospital Boston. I am also affiliated with the Institute for Community Inclusion at Children's Hospital, where I am involved in research and teaching on developmental disabilities. My research focuses on ethics, spirituality and disability. I am co-editor of the *Journal of Religion, Disability and Health*, which publishes articles on the intersection of spirituality and health in caring for and being with people with disabilities. My research also involves work on the etiology, definition, classification, treatment and prevention of intellectual disability (mental retardation)."

H. Steven Moffic, M.D. '71, professor of psychiatry and behavioral medicine at the Medical College of Wisconsin, reports that he was the only psychiatrist appointed to the Wisconsin Turning Point Initiative, a large-scale effort to transform the state's public health system and create a healthier Wisconsin. Moffic also received a state grant to establish a mental health program for refugees in Milwaukee, who number about 20,000 and come from Southeast Asia, Eastern Europe, Africa and other regions.

Richard L. Neubauer, M.D. '76, medical staff education director at Alaska Regional Hospital, has been elected governor of the Alaska chapter of the American College of Physicians-American Society of Internal Medicine (ACP-ASIM). He was installed in the post at the national organization's annual meeting in Atlanta last April. His responsibilities during the four-year term will include planning scientific meetings, credentialing new members and disseminating college policy. Neubauer will also represent Alaskan members by serving on the national ACP-ASIM board of governors.

Carroll Schilling, M.P.H. '77, is chief executive officer of The Enterprise Center, a non-profit organization created in 1999 by Yale University, the United Illuminating Co. and New Haven Savings Bank to help small businesses. The center provides young companies with such services as business planning, market research, financial structuring, capital source development and management assistance. Schilling was formerly the entrepreneur-in-residence at the Yale School of Management, helping students in the M.B.A. program to evaluate the business potential of discoveries made at Yale and in the community. Schilling also serves on the business and industry committee of the Association of Yale Alumni in Public Health.

Elston Seal Jr., M.D., HS '79, was inducted in October into the Alumni Hall of Fame of the North Plainfield (N.J.) High School for a lifetime of achievement in the field of medicine. Seal, a commissioned officer in the U.S. Public Health Service at the rank of medical director, is detailed to the Human Studies Division of the U.S. Environmental Protection Agency in Chapel Hill, N.C., where he is special assistant to the director of the division, chief of the research support staff and director of the medical staff.

'80s

Alicia I. Barela, M.D. '81, an obstetrician and gynecologist at Kaiser Santa Theresa in California, received the Alumnae Medal of Honor from Mount Holyoke College in South Hadley, Mass., at its 2000 reunion celebration last June. The medal recognized Barela's service to the college and her work as a member of its board of trustees. Barela has been chosen by the People to People Ambassador Programs of Spokane, Wash., as a delegate to China for two weeks beginning June 8. The program sponsors groups in various professions to meet with colleagues in other countries. This group will be touring hospitals, attending roundtable discussions and learning about Chinese medicine.

Thomas D. Fogel, M.D., HS '85, reports that he is president of the Coastal Radiation Oncology Medical Group Inc., which owns and operates eight freestanding radiation oncology centers in California. Fogel is also past president of the American Cancer Society's California division and is a member of the organization's national board of directors.

'90s

Susan G. Anderson, M.D. '90, served as an expedition physician and lecturer on two around-the-world trips in November and January. The 21- and 24-day trips via private 757 jet were planned and guided by TCS Expeditions in Seattle. The "Around-the-World Millennium Trip" began in Los Angeles and went from Easter Island to Samoa through New Guinea, Cambodia, Nepal, India, Oman, Tanzania, Jordan, Timbuktu, Mali and Morocco. The "Ancient Crossroads Trip," sponsored by the Museum of Natural History in New York, included stops in London, Jordan, Iran, Burma, Cambodia, Mongolia, China and Syria. Anderson is clinical assistant professor of medicine in the division of infectious disease and geographic medicine at Stanford University School of Medicine and co-director of a new travel medicine service that is being developed at Stanford. "One of my main roles at Stanford is to assist medical students and undergraduates in pursuing clinical, research and public service-oriented international health projects. Another role is [performing] pre-travel and post-travel evaluations," Anderson wrote in an e-mail message. Serving as an expedition physician "was an incredible opportunity to practice travel medicine in the field and help people of all ages with all types of medical histories travel safely to remote places."

—Claire Bessinger

Send alumni news items to:
Claire Bessinger, Yale Medicine Publications, P.O. Box 7612, New Haven, CT 06519-0612.

Institute of Medicine adds alumni to its rolls

Four alumni of the School of Medicine and its training programs have been elected to the Institute of Medicine. New members are nominated by incumbent members based on their distinguished professional achievement in a field related to medicine and health. Yale alumni added to the roll last fall were:

George K. Aghajanian, M.D. '58, HS '61, professor of psychiatry and pharmacology, Yale University School of Medicine, elected as senior member (See *Faculty News*).

Dennis S. Charney, M.D., HS '77, chief, Mood and Anxiety Disorder Research Program, National Institute of Mental Health, National Institutes of Health.

Shimon (Seymour) M. Glick, M.D., HS '57, professor of internal medicine and director, Center for Medical Education, Ben-Gurion University of the Negev, Beer-Sheva, Israel.

John A. Parrish, M.D. '65, professor and chair, Department of Dermatology, Harvard Medical School, and chief, dermatology service, Massachusetts General Hospital.

Archives

From the Winter 1975 issue of *Yale Medicine*: "Dr. George Palade, chairman of the section of cell biology, was awarded the 1974 Nobel Prize for Physiology or Medicine, for his discoveries concerning the structural and functional organizations of the cell. He shares the honor with Dr. Albert Claude, his former professor and colleague at Rockefeller University, and Dr. Christian de Duve. ... [Palade's] skill and his enthusiasm for unraveling the intricacies of the fine structures of cells attracted many students and research associates to his laboratory. ... There is seemingly no letup in the pace at which new and important observations emerge from the Palade laboratory."

From the Winter 1976 issue: "Yale-New Haven Hospital is one of the first hospitals in the nation to use a computerized axial tomographic scanner. This new diagnostic instrument, which is similar to the brain scanner, is capable of producing extremely detailed images of any part of the body. ... Combining X-ray and computer technology, the scanner produces a television image of the body in cross section, which is actually a computer-reconstructed image of a selected area of the body, seen on two television screens, one color and one black and white. The colors represent different densities of body tissue, such as the difference between blood and brain. The scan image also shows the relationship of the body parts in depth. This is an advance over conventional X-ray films, which cannot "see" a difference between body structures aligned over one another."

IN MEMORIAM

Louis V. Avioli, M.D. '57, the Sidney M. Shoenberg Professor of Medicine, professor of orthopaedic surgery and director of the Division of Bone and Mineral Diseases at Washington University School of Medicine, died of cancer at his home on Nov. 21. He was 68.

Avioli graduated magna cum laude from Princeton University. After receiving his medical degree at Yale he trained at the University of North Carolina at Chapel Hill and the National Institutes of Health. In 1961 he joined the faculty of the New Jersey College of Medicine and in 1966 began his career at Washington University as an assistant professor of medicine.

Avioli served on the NASA Skylab Project, The Endocrine Society Council and the board of the Paget's Disease Foundation and as a consultant to the Public Health Services of China, Finland, Australia and Canada. In 1979 he founded the American Society of Bone and Mineral Research, and in 1994 he founded the Association of Osteobiology.

James F. Ferguson Jr., M.D. '40, died July 3. He was 61.

Born in New Haven, Ferguson graduated from Yale College in 1936 before entering the School of Medicine. After his graduation he served his internship in New Jersey, then returned to Connecticut in 1949 to be a family doctor in Wallingford. He was in practice there until his retirement in 1978.

During nearly three decades of practice, along with his partner Robert Boyd, M.D., Ferguson also served as the Wallingford school doctor. He was a member of the Connecticut Medical Society and the American Medical Association. He was also a member and past president of the Wallingford Rotary Club and was named Rotarian of the Year in 1969 and a Paul Harris Fellow in 1980.

Louis S. Goodman, M.D., a former Yale faculty member, co-author of one of medicine's leading pharmacology texts and discoverer of the first effective anticancer chemotherapy, died Nov. 19 in Salt Lake City. He was 94.

Goodman also pioneered the use of an obscure drug from the Amazon named curare. He founded and edited pharmacology journals, was a member of the National Academy of Sciences, consulted for pharmaceutical firms and served on committees of the National Institutes of Health.

It was during World War II that Goodman, working at Yale with his friend and colleague Alfred Gilman, PH.D., investigated chemical warfare agents for the war effort. They found that nitrogen mustard produced abnormally low levels of white blood cells in those exposed to it. He successfully applied this finding to cancer therapy, and chemotherapy joined radiation and surgery as standard treatments.

Goodman graduated from Reed College in 1928, received his medical degree from the University of Oregon Medical School in 1932 and interned at Johns Hopkins Hospital. He came to New Haven to study and ultimately teach pharmacology, becoming an assistant professor at Yale in 1937.

In response to the outmoded textbooks of the time, he and Gilman wrote a text for their students in which they correlated pharmacology with other medical sciences. *The Pharmacological Basis of Therapeutics*, now in its ninth edition, remains a standard clinical reference.

In 1943 Goodman left Yale for the University of Vermont. A year later he became the founding chair of the department of pharmacology at the University of Utah. He retired as chair in 1971.

Dorothy M. Horstmann, M.D., the first woman appointed a full professor at the School of Medicine and a scientist who helped make polio vaccines possible, died Jan. 11 in New Haven. She was 89.

Horstmann's research into polio countered the prevailing belief that the virus attacked the nervous system directly. She showed that the virus reached the brain by way of the blood. Horstmann's team detected the polio virus in the blood of infected monkeys and chimpanzees before signs of paralysis appeared. They found that by the time paralysis developed, antibodies had eliminated the polio virus from the blood.

Horstmann's work contributed to the licensing of an oral polio vaccine developed by Albert Sabin, M.D., from live, weakened virus.

Horstmann was born in Spokane, Wash., on July 2, 1911. She earned her undergraduate degree from the University of California at Berkeley and her medical degree from the University of California at San Francisco. In 1942, she moved to Yale as a Commonwealth Fund fellow to perform research with John R. Paul, M.D. The following year, she joined the Yale poliomyelitis unit and helped battle a polio epidemic in New Haven. At midcareer Horstmann became a pediatrician, and in 1961 was the first woman at the medical school named to the John Rodman Paul Professorship, an endowed chair in epidemiology and pediatrics.

William Kaufman, M.D., a research fellow at Yale in the 1940s, died Aug. 24 at Forsyth Memorial Hospital in Winston-Salem, N.C. He was 89.

Kaufman, a graduate of the University of Pennsylvania, received an M.A. in chemistry in 1932, a PH.D. in physiology in 1937 and an M.D. cum laude in 1938 from the University of Michigan. He was also awarded the Sternberg Memo-

rial Medal for Excellence in Preventive Medicine. He came to Yale in 1940 as the Dazian Foundation Fellow in Physiology and remained a research fellow in physiology until 1942. Kaufman was in private practice in Connecticut and then became an executive with a New York medical information company until his retirement in 1981. Kaufman served for many years as American editor-in-chief of the *International Archives of Allergy and Applied Immunology*.

Robert I. Levy, M.D. '61, an international authority in lipid metabolism and a research visionary who linked cholesterol reduction to the prevention of coronary disease, died of pancreatic cancer on Oct. 28 at a New York hospital. He was 63.

Levy, born in the Bronx and a resident of Morristown, N.J., was a graduate of Cornell University and Yale School of Medicine. He joined the National Heart, Lung and Blood Institute at the NIH in 1963 and served as its director from 1975 to 1981. At the NIH he studied lipid disorders and atherosclerosis. He was a co-discoverer of the internationally used classification system of hypercholesterolemia, describing five distinct types. When awarding him a public health award in 1980, the Lasker Foundation cited his work in the Hypertension and Follow-up Program, which proved that the treatment of even mildly hypertensive patients was lifesaving.

Levy's unique professional experience and expertise led him to serve as a vital link and advisor to government, academia and industry. He was an active member of the Institute of Medicine of the National Academy of Sciences.

In 1981, Levy joined Tufts University School of Medicine as vice president and dean. He was also vice president for health sciences and professor of medicine at the Columbia University College of Physicians and Surgeons. From 1988 to 1992, he served as president of the Sandoz Research Institute, and in 1992, he joined American Home Products Corp. (AHP) as president of its Wyeth-Ayerst research division. In 1998 he was named senior vice president for science and technology at AHP.

Margaret S. Lyman, M.D. '50, died Nov. 17 at the Middlesex Convalescent Center in Middletown, Conn. She was 76.

Born in Middlefield, Conn., Lyman graduated from Smith College before entering the Yale School of Medicine. In 1964 Lyman joined the faculty at New York University Medical Center as an assistant professor of pediatrics. From 1968 until her retirement in 1992, she was an associate clinical professor of pediatrics. She was also on the staff at Bellevue Hospital.

She provided pediatric care to the children of recovering addicts at Odyssey House and volunteered her time providing recreational activities for residents of the Queens Convalescent Home, now High View Health Care Center. Lyman was on the board of directors of the Lyman Farm in Connecticut and wrote a supplement to the genealogy of the Lyman family.

Joseph L. Melnick, PH.D. '39, a founder of modern virology who taught epidemiology at Yale, died of Alzheimer's disease on Jan. 6 in Houston. He was 86.

Melnick was born in Boston and moved to New Haven as a boy. He graduated from Wesleyan University in 1936 and then earned a PH.D. in physiological chemistry at Yale. Melnick stayed at Yale, becoming a professor of epidemiology in 1954. He became a chief virologist at the division of biological standards at the National Institutes of Health in 1957. He moved to Baylor University in 1958, where he became the founding chair of the medical school's Department of Virology and Epidemiology.

A pioneer in polio research and a leader in environmental science, Melnick was among the first to discover that the polio virus belonged to a larger group known as the enteroviruses and that these viruses only rarely invade the central nervous system. In the early 1940s, Melnick found that the virus appeared in sewage when new polio infections peaked in the summer, but dwindled at other times of the year. That insight pushed him to the forefront of environmental virology work.

Melnick began his scientific career at Yale under polio expert John R. Paul, M.D. Melnick died five days before Dorothy M. Horstmann, M.D., another polio pioneer and Yale colleague with whom he wrote scientific papers.

James J. Smith, M.D. '40, died Sept. 9 in Washington D.C. He was 88.

At the age of 14 Smith joined the Brothers of the Christian Schools to prepare for a career in teaching and philosophy. His study of the scholastic philosophers and their dictum "a healthy mind in a healthy body" led him to petition the Vatican for a release from his vows so that he could study medicine. While at Yale School of Medicine he married classmate Beatrix Goldzieher, who was his professional collaborator for 56 years.

Smith served his internship at Bellevue Hospital and was a medical officer at the U.S. Army First General Hospital during World War II. He was later appointed chief of medical intelligence for the Office of Strategic Services in Europe. He returned to New York, where he founded and directed two research laboratories and an outpatient clinic at New York University-Bellevue Medical Center.

In 1946 Smith began a private practice in internal medicine and endocrinology. He also developed and promoted the uses of ultrasound and received a Pioneer Award from the American Institute of Ultrasound in Medicine. Smith held faculty appointments at George Washington University School of Medicine and Georgetown University's Center for the Advanced Study of Ethics. From 1972 to 1985, as director of the Nuclear Medicine Service for the Veterans Administration (VA), he devoted considerable energy to developing a state-of-the-art service for the VA network of 172 hospitals. In 1982, a wing of the Salt Lake City VA hospital was dedicated to him.

Continuing Medical Education at Yale

For information, contact the Office of Postgraduate and Continuing Medical Education, Yale University School of Medicine, 333 Cedar Street, New Haven, CT 06520. Tel: (203) 785-4578

September 7 Friday	**Glaucoma Symposium** Course Director: M. Bruce Shields, M.D. *Farmington Marriott, Farmington, Conn.*
September 7-8 Friday and Saturday	**Workshop on Positron Coincidence Imaging** Course Director: Chin K. Ng, Ph.D. *New Haven Hotel*
September 19-22 Wednesday to Saturday	**The 25th Yale PA Board Review/Primary Care Conference** Course Director: Mary Warner, PA-C, M.M.Sc. *Mary S. Harkness Auditorium, Sterling Hall of Medicine*
October 5 Friday	**Growing Up With HIV** Course Directors: Ann Williams, R.N.C., Ed.D., F.A.A.N., and Jane Burgess, A.C.R.N., M.S. *Farmington Marriott, Farmington, Conn.*
October 26-27 Friday and Saturday	**Irritable Bowel Syndrome** Course Director: Irvin Modlin, M.D. *Omni Hotel, New Haven*
November 6 Tuesday	**Fourth Annual Frisbee Foundation Stem Cell Symposium** Course Director: Edward Snyder, M.D. *Omni Hotel, New Haven*