Winter 1999

Yale Medicine : Alumni Bulletin of the School of Medicine, Winter 1999- Summer 1999

Yale University. School of Medicine

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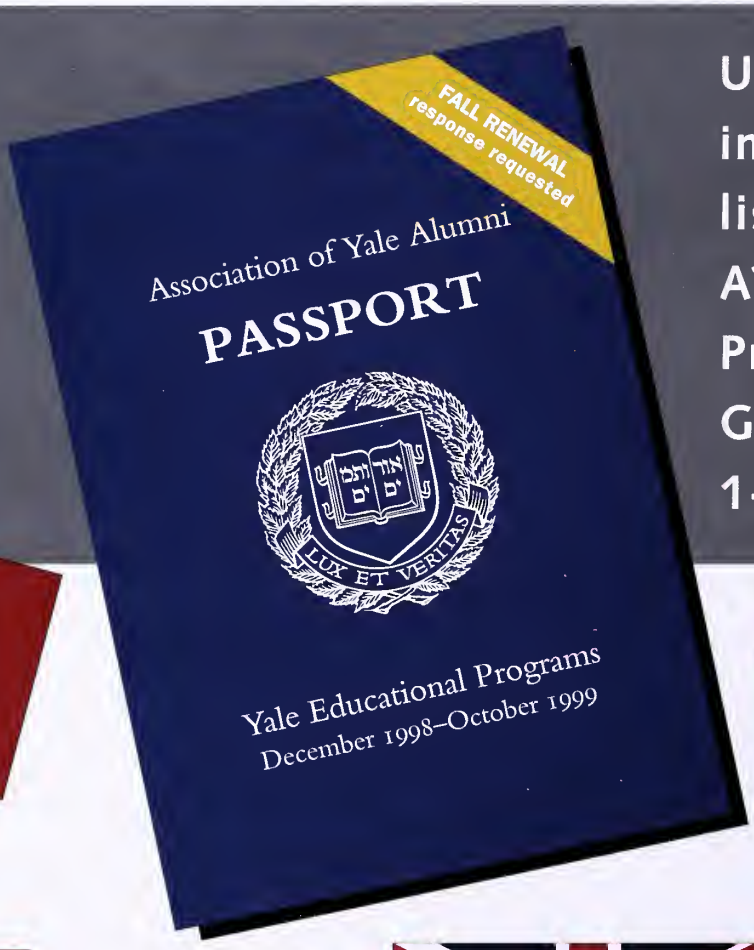

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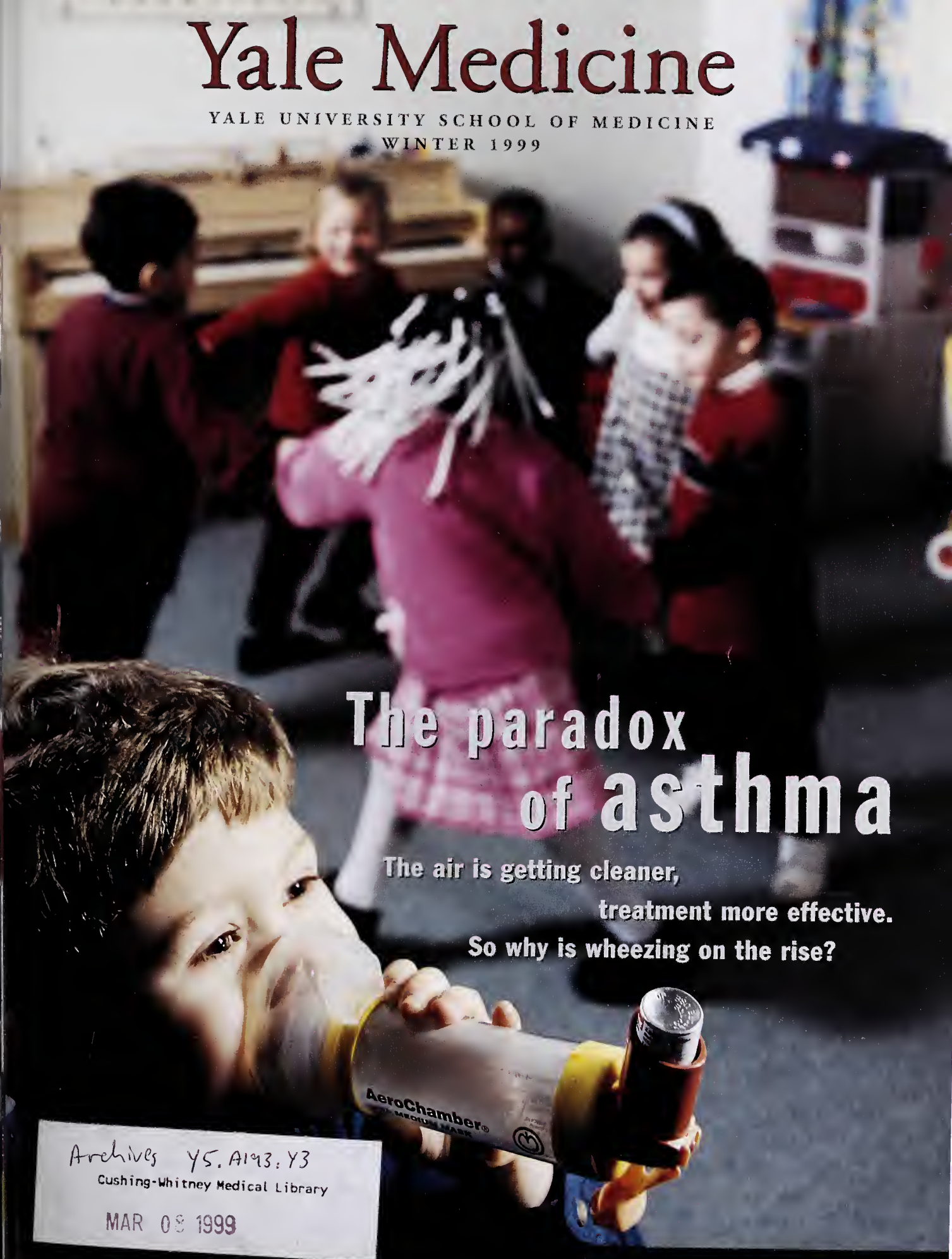
Yale Medicine

YALE UNIVERSITY SCHOOL OF MEDICINE
WINTER 1999

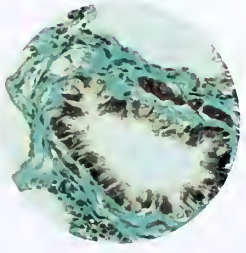


The paradox of asthma

The air is getting cleaner, treatment more effective. So why is wheezing on the rise?

FEATURES

LIZ PAGANO



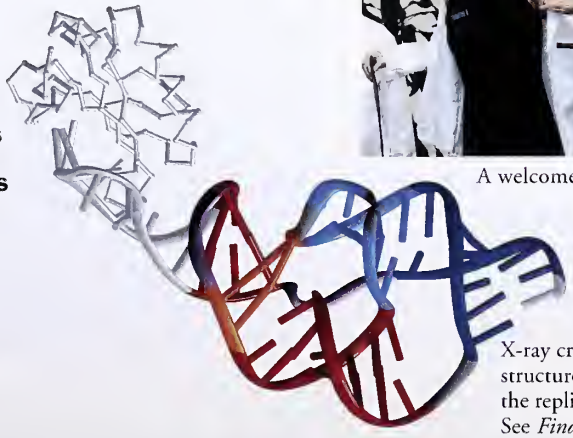
COVER STORY

ROBERT LISAK

PETER CASOLINO

A welcome to medicine, page 43

DEPARTMENTS



X-ray crystallography reveals the structure of an enzyme involved in the replication of hepatitis delta virus. See *Findings* in Scope, page 10.

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On the cover: A growing number of children must learn to manage the symptoms of asthma, now understood to be a disease of inflammation. Research at Yale is throwing new light on the molecular events that provoke an immune response where none is warranted. Cover photography by Robert Lisak.

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

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Wake up and smell the herbs

To the Editor:
With considerable hope and anticipation, I read your articles on vision research and treatment at Yale (*A Closer Look at Sight*, Fall 1998) in the last issue. My hope and anticipation were dashed.

You admit you're not doing anything for wet or dry macular degeneration except using the laser blunderbuss, which doesn't do the job at all. Why doesn't such a lofty research institution explore all potential therapies, including the use of herbs for both types of macular degeneration?

I am 83 and in excellent health; five years ago I developed wet macular degeneration in my left eye. A highly regarded ophthalmologist blinded that eye with a laser. Knowing the danger to my good eye, I applied to two esteemed clinics for treatment. One refused me because my bad eye was too bad, and my good eye too good, for their FDA protocol. The other turned me down because I was taking Coumadin. So what was I to do?

I wrote about my plight in a *Wall Street Journal* article. Immediately I received about 200 letters and calls, one from a technical journalist in California. He encouraged me to try herbs to strengthen the walls of the little capillaries and to prevent the growth of unwanted capillaries. I have now been on herbs for three years, going on four. My own ophthalmologist in New York says my good eye is just as good as ever: I read without glasses, drive anywhere day or night and use distance glasses for golf four times a week.

Even though orthodox medicine frowns on much of alternative medicine, I would encourage Yale to explore herbal approaches in treating macular degeneration. It might open your eyes and help you help thousands, even millions, of other people keep their eyes open.

Woodrow Wirsig
Palm City, Fla.

Bruce Shields, Department chair responds: Although ophthalmology has made great strides in the preservation of vision with regard to many disease processes, macular degeneration remains one for which we still have very little to offer our patients. The good news, however, is that this is one of the areas in which the greatest amount of research is being concentrated. I fully agree that our efforts should leave no stone unturned. At the Yale Eye Center, we have identified macular degeneration and related retinal disorders among our primary research targets, and we have both research scientists and clinician-scientists working diligently toward this goal.

Peters was vindicated but dismayed by decision

To the Editor:
The article on the symposium honoring John P. Peters, M.D., (Fall 1998) omitted the fact that his loyalty case was taken up by the United States Supreme Court. Dr. Peters was exonerated personally, and his position at the National Institutes of Health was reinstated. This narrow decision did not deal with the broader issue of the constitutionality of the loyalty hearings and was deeply disappointing to him.

Sylvia Axelrod, M.D. '50, HS '50-52
Valley Stream, N.Y.

Shame and grief over a matter of words

To the Editor:
I read with interest the note about Howard Spiro and the quotation from his address in Vienna (*Faculty Notes*, Summer 1998). Dr. Spiro is quoted as saying, "The shame that has no vent in words makes other organs weep."

There are various ways to translate, and attribution to original sources is sometimes difficult, but when I passed through the pathology department as a medical student, I thought it was Virchow who had said, "Grief that has no vent in tears makes other organs weep." Perhaps Dr. Spiro modified Virchow's statement to fit the direction of his address, and, perhaps with the full address before me, I would not be carping like this. The way I learned it seems somewhat more appropriate, especially given that we used to believe that stress was responsible for various gastrointestinal problems.

Robert C. Wallach, M.D. '60
New York, N.Y.

From Howard Spiro: *I am grateful to Dr. Wallach for providing the source of the original quotation that I often repeat, even in my textbook. I had long ascribed it to the psychiatrist Maudsley but, on assurance that he had never said, "The sorrow that has no vent in tears makes other organs weep," I have usually just put it in quotes. Perhaps I was overly subtle in switching "shame" for "sorrow" and "words" for "tears" but, in the context of what the Austrians were finally confessing, I thought I was making a point. I will trade a copy of my published remarks for the specific reference to Virchow. Fair enough?*

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.**

COME HOME TO NEW HAVEN

A dozen reasons to attend Alumni Reunion Weekend

June 4 and 5

1. Take a stroll down Cedar and College streets—and memory lane
2. Hear about plans for the new research and teaching building on Congress Avenue
3. Learn about cutting-edge research from Yale faculty
4. Hear from the former director of the World Health Organization
5. Celebrate 30 years of the Downs Fellowship
6. Have dessert with the EPH faculty
7. Have a burger at Louis's (smuggle in your own ketchup)
8. See if the Blue Room is still serving tea
9. Take a last look at Harkness dorm before renovations
10. Visit the newly reopened British Art Center
11. Stock up on YSM lapel pins
12. Stand in line at Pepe's

SAVE THE DATES

FRIDAY JUNE 4
50 Years of Yale Surgery
EPH Focus on Global Health
Dean's Reception
New England Clambake
Alumni and Downs Fellowship Celebration Dinner

SATURDAY JUNE 5
Research at Yale
AYAM Annual Meeting
Luncheon, Guided Tours, Class Dinners

INFORMATION
Full program will be mailed in early spring
Office of Alumni Affairs 203 785.4674
info.med.yale.edu/ayam

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SCOPE

First-year class brings more than smarts to school

Gaining entry to the School of Medicine remains among the academic world's most competitive selection processes. With more than 3,000 applicants for the approximately 100 slots in each first-year class at Yale, being smart and well-prepared are givens. It takes more than that to get in. "We're looking for people who have shown that they are truly concerned about other people and have done something in their lives that really illustrates that spirit," says Deputy Dean for Education Robert H. Gifford, M.D., HS '67. The 102 members of the Class of 2002 arrived in New Haven at summer's end with just that experience.

It took more than academic credentials to gain admission to the class of 2002. Life experience helping others counted as well. The class gathered during the white-coat ceremony.

The 57 men and 45 women represent a broad cross section of backgrounds and interests. They include 21 Yale graduates, 15 Harvard graduates, at least one lawyer, a mother of three, and two children of faculty members. The mean age of the class is 24. About half the class is Hispanic, African-American or Asian-American. As for the assessment of those more humane qualities, Dean Gifford says, "they needn't have anything to do with medicine. We look for people who have given of themselves to others, such as working with kids, or as camp counselors, or with the disadvantaged in the community."

Among the entering students, Vivek Murthy organized a program while in college that sent American college students to India to conduct HIV prevention workshops for teenagers. Alison Norris developed school libraries in Zanzibar and helped restore overgrazed land in Kenya before working on public health issues at Harvard and the Rockefeller Institute. Patricia Diaz traded an apartment on Central Park South and a successful career as a lawyer in New York City for a dormitory room in Harkness and a full schedule as a medical student. She finds that she's not alone in having an unexpected background for a medical student. "Everyone here," she says, "has an exceptional and fascinating story of their own."

A clean room for gene therapy and stem cell transplantation

In 1989 leukemia patient Richard D. Frisbee III became the first child in Connecticut to receive a bone marrow transplant. He died later that year, but were he alive today he might be a candidate for a stem cell transplant, which has emerged as a promising way to halt leukemia and other cancers. To help pursue new treatments and honor this young patient, the Richard D. Frisbee III Laboratory of Stem Cell Transplantation and Hematopoietic Graft Engineering opened in October at Yale-New Haven Hospital's Blood Bank in the Department of Laboratory Medicine.

A "clean room" laboratory for gene therapy and stem cell manipulations, the Frisbee Laboratory will be used for both clinical applications and basic science research by a number of medical school departments and the Yale

THOMAS McDONALD

Christine Frisbee helped establish the new stem cell lab in memory of her son, Richard.

Cancer Center. "It is literally a biological manufacturing facility," says Edward L. Snyder, M.D., the blood bank's director and a professor of laboratory medicine. "This unique laboratory provides an opportunity to link together the Yale Cancer Center, Yale-New Haven Hospital and the School of Medicine in a three-pronged attack against cancer."

In the new Class 10,000 laboratory—so named because it has fewer than 10,000 dust particles per cubic foot of air—Yale physicians and scientists will have a cleaner environment in which to process stem cells from the blood or bone marrow of both patients and donors. After chemotherapy, a patient's previously collected stem cells are reinfused and migrate to the bone marrow, where they reproduce and differentiate, creating blood cells that commit to specific functions in the body. For stem cell transplants for patients who do not have a "matched" donor, T cells can be removed from donor blood or bone marrow to prevent graft-versus-host disease in recipients. "We need to be in a special environment with purified air so that we do no harm to the cells when we are doing our manipulation," says Diane Krause, M.D., Ph.D., assistant professor of laboratory medicine and director of stem cell processing at the Blood Bank at Yale-New Haven Hospital.

Stem cell therapy is especially promising because "rather than trying to beat the disease to death with chemotherapy, it allows us to step back and apply a more gentle treatment," says Dennis Cooper, M.D., HS '82, clinical director of stem cell transplantation at the Yale Cancer Center. He says that work by investigators including Joseph P. McGuirk, D.O., and Stuart E. Seropian, M.D., is pushing the limits of existing therapies. By manipulating stem cells to attack tumor cells through an immunologic response, these new therapies give patients a much better chance of surviving after being diagnosed with cancer. "The most exciting area in the next 10 years," Dr. Cooper says, "is going to be in identifying the different cell types that can attack the tumor without harming the patient. The Frisbee lab is where many of these cell manipulation studies will be done."

As the field of gene therapy matures over the next five to 10 years, the laboratory will provide a facility for testing newly designed vectors, the altered viruses that are used to deliver therapeutic genes in the treatment of cancers and other diseases. (Yale has another Class 10,000 clean room in the Sterling Hall of Medicine that is also used for basic research in gene therapy, under the directorship of Albert Deisseroth, M.D., Ph.D.)

Creation of the Frisbee Laboratory was made possible through the fundraising efforts of Christine Frisbee, Richard's mother and former administrator of the stem cell transplant unit at Yale. In 1990, she launched a foundation named for her son, which, since then, has raised and distributed more than $1 million. The new laboratory is the foundation's largest undertaking to date. "We want to fund things that other people won't fund, that we think are innovative and that bring the field of transplantation forward," she says.

The foundation also provided support for the First Annual Frisbee Foundation Stem Cell Symposium, held in October to coincide with the opening of the Frisbee Laboratory. Speakers discussed cord blood processing and its effect on stem cell transplantations, advances in breast cancer research and graft-versus-host disease. "Our aim," says Ms. Frisbee, "is to get people who are doing the most advanced research to educate other health care professionals with the hope that more people will use this knowledge to help find cures."

Lessons of healing: Exploring the link between spirituality and health

Throughout the ages, men and women have thanked deities for favors bestowed. Such blessings may be good health, fortune or romance, and their commemoration has taken the form of sculptures, paintings, carvings and pilgrimages. Artists Melinda Bridgman and Ana Flores traced the history of ex-votos, also known as *milagros*, the Spanish word for miracles, as part of a two-day symposium on *Health and Spirituality* held in October at the medical school. The conference brought together health professionals and academic researchers from mainstream and alternative medical worlds. Talks and workshops covered topics such as the relationship between health and the environment in a talk by William Foege, M.D., professor at the Rollins School of Public Health at Emory University, and the value of religion for health in a lecture by Dale Matthews, associate professor of medicine at Georgetown University.

"We all had much to think about," says Howard M. Spiro, M.D., professor of medicine and director of the Program for Humanities in Medicine, one of the sponsors, "but my conclusion was that mainstream doctors have got to take the lessons of alternative medicine, the lessons of healing, more to heart than they do. We should consider mind and spirit as well as the body."

With a mechanical heart, a patient goes home—and waits

Everywhere Robert Kenyon goes these days a bundle of electrical wires connects him to a battery pack that powers an artificial heart embedded in the walls of his abdomen. His life literally depends on the device, a left ventricular assist system, or LVAS, designed to sustain heart patients until a donor heart becomes available. When Mr. Kenyon, who suffers from cardiomyopathy, a fatal degenerative heart disease, left Yale-New Haven Hospital in September, he became the first patient in New England and one of only about 20 around the country to return home with this type of device. Without it, his chances of surviving the wait for a scarce donor heart would be small. Since leaving the hospital, the life-sustaining booster for his diseased heart has allowed him to resume many aspects of a normal life.

"I'm fully employed," says Mr. Kenyon, 60, a reinsurance broker who lives in Darien. "I work from a computer in my house, which I have been doing for the last 15 months. I'm still developing new business for my company."

His need for a dependable power supply keeps him close to home, and his status at the top of the heart recipient waiting list keeps him no more than an hour's drive away from New Haven. The batteries and backups he carries in a bag over his right shoulder have become his inseparable companions. His wife, Kathy, also carries spares in a backpack, and at home he plugs the artificial heart into a monitor that provides direct current.

The LVAS keeps Mr. Kenyon alive by providing support to the diseased left side of his heart, which pumps blood to the body. "The left heart has a real heavy load," says John A. Elefteriades, M.D. '76, HS '76-83, professor and chief of cardiothoracic surgery. Working with George Tellides, M.D., Dr. Elefteriades implanted the device.

Some 28 years in the making, the LVAS is the latest generation of artificial hearts. Made by Novacor, a California-based division of Baxter Health Care Corporation, the LVAS received approval in September from the Food and Drug Administration as a bridge to transplant. In Europe, where the LVAS was approved for use several years ago, some patients have already lived up to three years connected to the device.

Mr. Kenyon received his LVAS under an experimental protocol during a five-hour operation that required the services of a dozen surgeons, anesthesiologists and nurses and an engineer from Novacor. After a month in the hospital, Mr. Kenyon went home. "I'm glad this technology is available," he says, "but I'll be glad when I can get rid of it. This thing allows me to live at about 50 percent of where I was 10 years ago. I want to be at 90 percent."

JOHN CURTIS

With a battery pack powering his left ventricular assist system (LVAS), Robert Kenyon receives a routine checkup at the Yale Physicians Building. One of the first in the country to leave the hospital with an LVAS, Mr. Kenyon relies upon the mechanical booster until a donor heart for transplant becomes available.

Yale epidemiologist leads study of risks from radon in drinking water

Radon in Connecticut's drinking water poses a minimal health risk, primarily when it is released into household air, according to a recent study by experts convened by the Connecticut Academy of Science and Engineering. The state Department of Public Utility Control requested the study after receiving reports of radon in drinking water and requests for treatment of public drinking water supplies to reduce radon content.

The panel, chaired by Jan A. Stolwijk, Ph.D., Susan Dwight Bliss Professor Emeritus of Epidemiology, found that the major adverse health effect of radon is a possible increase in lung cancer risk resulting from inhalation. According to the report, some adverse health effects, primarily in the stomach, may result also from the ingestion of drinking water containing radon, although the effect is "expected to be less than for inhalation."

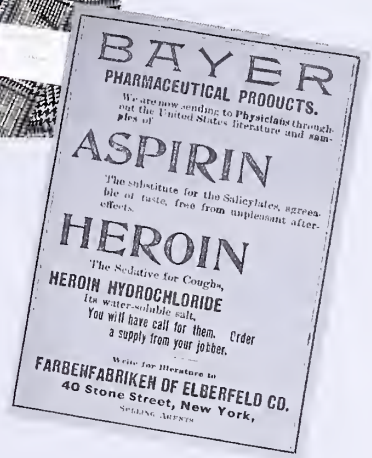
From cough medicine to deadly addiction, a century of heroin and drug-abuse policy

A century ago, scientists at a German pharmaceutical firm investigated a chemical modification to morphine that made it more palatable as a cough suppressant. The Bayer Co., predecessor to today's pharmaceutical giant, marketed its popular new remedy as "Heroin." Although it worked against coughs caused by serious and then-common diseases such as tuberculosis and pneumonia, physicians and pharmacists soon noticed an unhappy side effect—patients required ever larger doses and were becoming increasingly dependent on the elixir. By 1912 it had emerged as a recreational drug among young men in New York City. Two years later, addicts were knocking at the doors of New York and Philadelphia hospitals in search of treatment.

The history of the drug's use and abuse was the topic of *One Hundred Years of Heroin*, a conference held at Yale in late September. It brought together some of the nation's leading thinkers on the drug problem, such as U.S. Sen. Daniel Patrick Moynihan of New York; Egil Krogh Jr., who directed drug policies during the Nixon administration; and Jerome H. Jaffe, M.D., who, under President Nixon, became the nation's first so-called drug czar.

Organized by David F. Musto, M.D., professor in the Child Study Center and the Section of the History of Medicine and a leading historian of drug abuse and drug-abuse policy, the conference focused largely on the Nixon years because, according to Dr. Musto, it was then that the modern federal drug program was created. Social and political issues drove many developments in drug policy. Spurred in part by a desire to show a drop in crime before the 1972 elections, the Nixon administration began a pilot program in the District of Columbia, where half the inmates in local jails tested positive for opiates. Mr. Krogh, now a lawyer in private practice in Seattle, told the conference audience, "If we could get results in the District, we could use them across the country." As treatment, including methadone, became available in the capital, crime did indeed drop, he says.

HAROLD SHAPIRO



Conferees Sen. Daniel Patrick Moynihan, left, and Egil Krogh Jr. initiated modern federal drug policy during the Nixon administration. Below: **Bayer marketed heroin as a cough suppressant until its addictive properties were recognized.**

Another impetus for solutions to drug use started half a world away, in Vietnam, where studies found that up to a fifth of the American soldiers were addicted to heroin. On a trip to Vietnam Mr. Krogh told soldiers, "I'm here from the White House to find out about the drug problem." Then, Mr. Krogh recalls, a soldier took a drag of marijuana and replied, "I'm from Mars, man."

Dr. Jaffe, who was director of the Special Action Office for Drug Abuse Prevention at the time, introduced programs that reduced the addiction rate among returning Vietnam veterans. He also tried to expand treatment programs, create a research base and develop a national strategy for drugs. Money became available in greater amounts than ever before, for both treatment of addiction and training in substance-abuse treatment. "We developed more federal support in treatment capacity in the first two years than had been developed in the preceding 50," says Dr. Jaffe.

A century after its introduction, heroin continues to pose complex medical, legal, social and public health questions and to resist efforts at control. "We seem to have a peak in heroin use every 20 to 25 years," says Dr. Musto. "Some have explained this as 'generational forgetting.' Whatever the explanation, heroin will remain a problem indefinitely for those who become addicted. However, it is, in part because of methadone, more treatable than uncontrolled cocaine."

Improving public health from the ground up

Faculty in epidemiology and public health are joining forces with Griffin Hospital in Derby to create an innovative program to improve health in Connecticut's Naugatuck River Valley region northwest of New Haven. The hospital will house a new prevention research center focusing on cardiovascular disease, the area's leading cause of death, with programs in smoking cessation, obesity management and cardiac screening. The center will design future interventions based on health surveys in six Naugatuck Valley towns and discussions with community representatives. The federal Centers for Disease Control and Prevention have provided $2.9 million for the efforts and follow-up studies to determine which interventions should be maintained.

"It is a major philosophical shift in public health—the notion that experts can't simply go into a community and tell people what they need," says David L. Katz, M.D., M.P.H. '93, director of preventive medicine at the hospital and assistant clinical professor of public health and medicine. "It just doesn't work. You need community buy-in. The best way to get it is to ask people what they want."

Dr. Katz will serve as director of the center, which will be staffed at Griffin Hospital. Physicians from the hospital will collaborate on the project with Yale faculty and students. A community advisory committee will work with center staff, faculty, community leaders and citizens to identify health needs and recommend initiatives. Each project will have a community action team to target public health priorities. "Whatever the community asks us to do over the next five years, we will find someone who has that expertise," says Dr. Katz. "This new center," adds Michael H. Merson, M.D., dean of public health, "has great potential for improving the health of the population living in the lower Naugatuck Valley."

School, government settle suit over credit balances

A federal investigation into the medical school's billing practices ended in September with a $5.6 million settlement over credit balances accrued during the last 20 years. The school has also agreed to abide by a four-year corrective action plan that includes annual audits, establishment of a credit balance department and biannual instruction programs for those involved in resolution of credit balances. The settlement includes no admission of liability on the part of the School of Medicine.

The U.S. Attorney's office in New Haven had contended that the medical school improperly handled a significant number of credit balances, billing insurers and individuals more than once for the same procedure. "As the government recognized in the settlement, the complexity of health insurance payment systems makes credit balances unavoidable," says Irwin M. Birnbaum, the medical school's chief operating officer. "Nevertheless, in past years Yale failed to have adequate administrative and billing systems in place to process all payments properly." The disputed credit balances accrued prior to the installation of a new computer billing system in 1995. They represent a small fraction of the payments for clinical services made to the school during the period in question. Payments are expected to reach $120 million in this academic year alone.

The $5.6 million settlement includes a $500,000 refund to the federal government for Medicare and other federal health programs. In addition, Yale will provide $1.8 million to certain health care carriers, $2.5 million to individuals and other entities, and $700,000 to the federal government to resolve all claims.

As part of an overall modernization of accounting and information systems, Yale has completed a $15 million upgrade of its systems and management, including major improvements to its computer billing and information systems.

State-of-the-art imaging for neurovascular disease

One of the nation's most advanced diagnostic neuroangiography suites for diagnosis and treatment of neurovascular system disease opened recently at Yale-New Haven Hospital. The $2.3 million suite is the only one of its type in the country outside the National Institutes of Health and is considered the most advanced anywhere. It features a Philips biplane imaging system that offers radiologists simultaneous front and side views of vascular images, along with ultrasound and CT scanning. This markedly decreases the time it takes to perform complex examinations and allows performance of life-saving embolization procedures. A table-side module provides on-the-spot processing of results and image analysis. "The combination of all these features in the neuroangiography suite represents the pinnacle of today's medical imaging technology," says Barbara Maione, manager of special procedures and intervention services.

New research clinic seeking to identify schizophrenia earlier

While traditional treatment of schizophrenia, or psychosis, seeks to reduce symptoms after they have affected people's lives, the psychiatry department's new PRIME Research Clinic is launching the first study in the country to explore the prevention, delay or reduction of serious symptoms. Through early identification and treatment, the clinic hopes to address the disease before it becomes debilitating.

The PRIME clinic, which stands for Prevention through Risk Identification, Management and Education, will study individuals who, while in the prime of their lives, show signs of being at risk for developing a debilitating mental illness. It includes people from ages 14 to 45 who are concerned with a recent change in their thoughts or feelings.

Possible signs that someone may be at risk for mental illness include a sudden decline in work or school performance, social withdrawal, trouble concentrating or thinking clearly, feelings of suspicion or worry about the intentions of other people without apparent justification, and bizarre changes in the way things look or sound. These experiences may be accompanied by mood shifts such as depression, anxiety or angry outbursts, explains Thomas H. McGlashan, M.D., professor of psychiatry, executive director of the Yale Psychiatric Institute and leader of the study.

Dr. McGlashan and the PRIME clinic plan to provide those entering the study with preventive counseling as well as participation in a medication trial. The experimental program will offer treatment for one year followed by one year of monitoring.

Preliminary results from research conducted in Australia indicate that early intervention may prevent symptoms from developing or may significantly reduce symptoms of psychosis. "Most people diagnosed with serious mental disorders encounter sometimes irreversible reduction in quality of life, including failure at work or school, loss of sense of self, social estrangement, or distractions from persistent voices and fear of persecution," Dr. McGlashan says. "Because of its early onset—typically in the late teens and early twenties—schizophrenia robs society of its victims' intellectual and physical productivity."

A pediatrician's frank talk about fibs

Long before Independent Counsel Kenneth Starr's report and possible presidential lies were the topic of the day, Diane M. Komp, M.D., professor of pediatrics, decided to explore the issue of lying: why people do it and whether lies are ever justified. Her book on that topic, *The Anatomy of a Lie: The Truth About Lies and Why Good People Tell Them*, makes only one small mention of President Clinton and the Lewinsky affair, yet the coincidence of the book's release and the release of Independent Counsel Kenneth Starr's report couldn't have been more appropriate, according to its author.

Pediatric oncologist and author Diane Komp explores the ethics and reasons for lying in her new book.

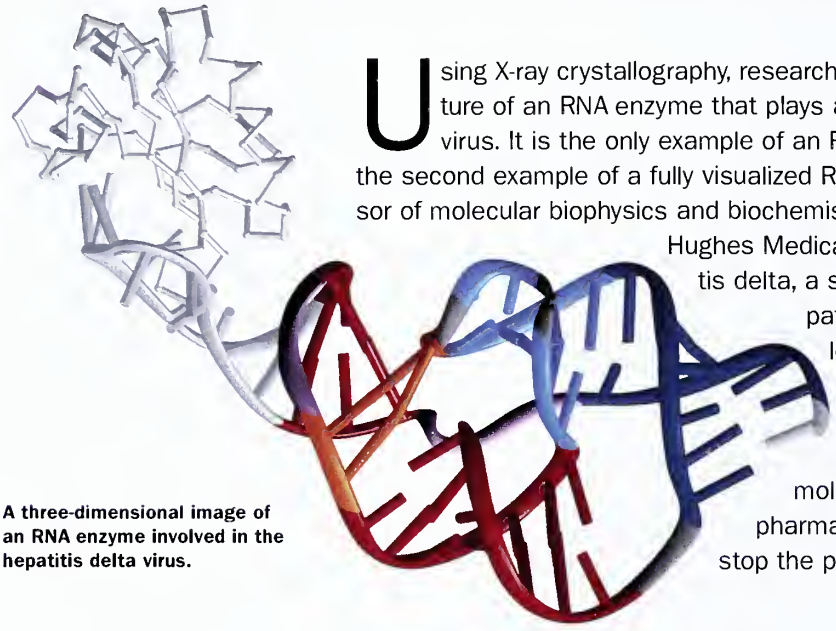
Her own soul searching inspired Dr. Komp to write her book, which was published in the fall by Zondervan, a HarperCollins imprint. Dr. Komp, a pediatric oncologist, has written five other books, including *A Window to Heaven* and *Children Are ... Images of Grace.* She began to examine her personal standards of honesty after she came upon a memoir by American Civil War veteran H. Clay Trumbull titled *A Lie Never Justifiable.* Trumbull, a Yankee chaplain, describes how he would rather kill one of his Confederate captors than lie to him to cover an escape attempt.

Perplexed by Trumbull's reasoning, Dr. Komp began to question whether there are, at times, good reasons for lying. She devotes a chapter to a Dutch family who sheltered Jews during the Holocaust and asks whether lying to the Gestapo is justifiable. She questions her own lie of omission to the mother of a child stricken with cancer. The cancer, she told the mother, had not progressed. But, seeing the mother's need for hope, she left out the bad news—the cancer was not going away either.

While examining other people's dishonesty and tracking her own "white lies" in a journal, she couldn't help noting that while we condemn dishonesty in political leaders, police officers, doctors and others we expect to trust, many of us pay little heed to the impact of our own falsehoods. "There may be a personal price to pay in downsizing duplicity, but we can't afford not to pay it," Dr. Komp writes in her book.

FINDINGS

Imaging RNA enzyme a step toward understanding hepatitis



ADRIAN R. FERRÉ-D'AMARÉ

A three-dimensional image of an RNA enzyme involved in the hepatitis delta virus.

Using X-ray crystallography, researchers have solved the three-dimensional structure of an RNA enzyme that plays a role in the replication of the hepatitis delta virus. It is the only example of an RNA catalyst found in a human pathogen and the second example of a fully visualized RNA enzyme. Jennifer Doudna, Ph.D., professor of molecular biophysics and biochemistry and an investigator with the Howard Hughes Medical Institute (HHMI), led the research. Hepatitis delta, a secondary infection that sometimes occurs in patients with hepatitis B, is a significant problem in developing countries, where it is often fatal. "It is known that this RNA enzyme is essential for replication of the virus," says Dr. Doudna. "Using our knowledge of its molecular structure, it may be possible to design pharmaceuticals that interfere with its function and stop the progression of the disease."

'Jumping DNA' may help explain evolution of immune system

A bit of DNA that has the ability, heretofore unseen in humans, to "jump" from one organism to another may have given rise to the human immune system, according to Yale researchers. A team led by David G. Schatz, Ph.D., associate professor of immunobiology and an HHMI investigator, has found evidence that tiny gene particles vital to the task of producing millions of different kinds of antibodies in humans act like a gene segment that can "jump" into foreign DNA. Their findings were published in the Aug. 20 issue of the journal *Nature*. Although such genes abound in lower organisms, the "jumping DNA" is the first cut-and-paste "transposase" ever found in humans. Dr. Schatz theorizes that such a jump may have happened within the mammalian genome some 450 million years ago. "This helps explain why the jawed vertebrates—including humans—are the only species that have a second, adaptive immune system in addition to the innate immune system that all other species have," says Dr. Schatz. Any clinical applications of this knowledge are speculative, he says, although there may be implications for the diagnosis or prevention of lymphoma.

Early study suggests new way to treat schizophrenia

A drug under development for anxiety has been found to reverse schizophrenia-like effects of "angel dust" in rats without apparent side effects, according to a School of Medicine study. The drug, designated LY354740, offers a possible alternative to current schizophrenia therapies, which affect the brain's dopamine system and may cause side effects such as Parkinsonian-like tremors. LY354740 acts by lowering levels of the chemical glutamate, one of the neurotransmitters responsible for relaying messages between neurons. Bita Moghaddam, Ph.D., associate professor of psychiatry and neurobiology, who led the study, cautions that the new drug has only worked in animal models. "This is just rats, which do not get complex cognitive disorders like schizophrenia," she says. She and research associate Barbara W. Adams reported their findings in the Aug. 28 issue of the journal *Science*. Clinical trials for the drug's use in treatment of schizophrenia are expected to begin later this year.

Women under 75 fare worse than men after heart attacks

Many clinicians have long believed that men were more prone to death from heart attack than women. Evidence from a Yale study suggests that age, as well as sex, determines the outcome. "We found that the younger the age of the patient, the worse the outcome for women compared with men," says Viola Vaccarino, M.D., assistant professor of epidemiology and public health, who led the study. In the 1,000 cases studied, women under 75 were almost twice as likely as men to die in the hospital following a heart attack, according to findings published in the Oct. 12 issue of *Archives of*

Internal Medicine. Conversely, women 75 or older had a significantly lower risk of death than men that age. Dr. Vaccarino said the age 75 cut-off was chosen only for description of the results. However, no clear dividing line at age 75 was found. On the contrary, there was a gradual increase of risk of dying for women compared with men going from older ages to younger ages. A follow-up study that reviewed about 400,000 cases confirmed the original findings, she says. Further investigations are being planned to look at the reasons for the relatively poor prognosis after heart attacks for younger female patients.

A little testosterone may aid estrogen replacement therapy

A dose of testosterone may be a good thing for postmenopausal women undergoing hormone replacement therapy. Estrogen mixed with an equal amount of methyltestosterone, also known as androgen, improved sexual desire and response in women who were dissatisfied with estrogen alone, according to a study in the October issue of *The Journal of Reproductive Medicine*. "Giving estrogen alone to menopausal women helped a little bit, but gradually over time the effectiveness was lost," says Philip Sarrel, M.D., professor of obstetrics and gynecology and of psychiatry, and principal investigator for the study. "What we found in our study was the missing part—the lack of androgen replacement." Side effects and failure of the treatment to meet the patient's needs are the most common reasons women give for discontinuing hormone replacement therapy.

Many heart-failure patients would rather not be revived

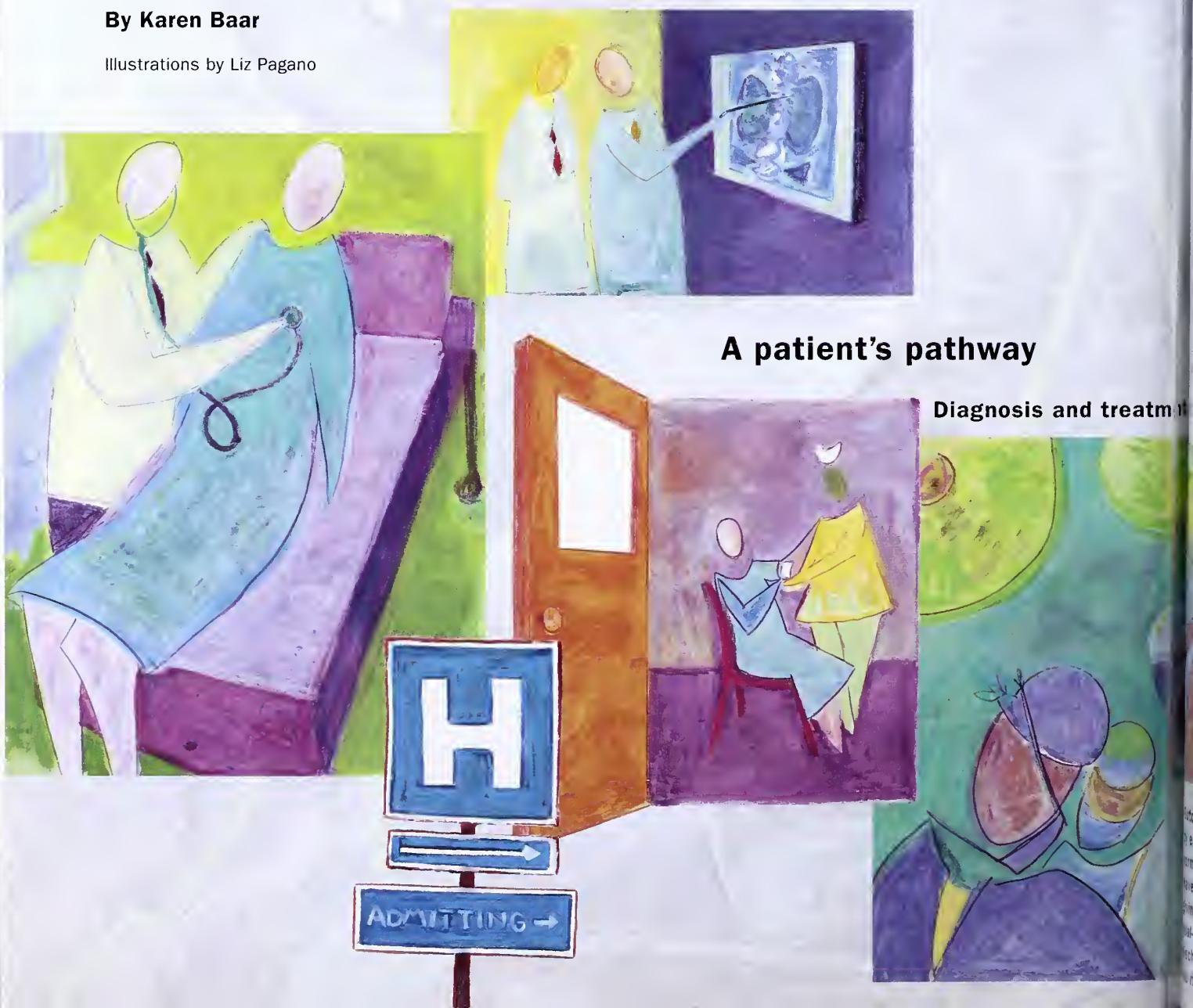
Nearly one-quarter of all patients hospitalized for severe congestive heart failure say they do not wish to be resuscitated if their hearts stop beating, according to a study authored by Harlan M. Krumholz, M.D., associate professor of medicine and epidemiology, in the Aug. 18 issue of *Circulation*, the journal of the American Heart Association. Another 69 percent definitely wanted resuscitation and 8 percent were uncertain. Patients who perceived that they would live less than two more months were the most likely to reject the prospect of resuscitation, researchers found. Patients who were older, wealthier and less able to take care of their own basic needs in the two weeks before hospitalization also were more likely to reject resuscitation. The study, Dr. Krumholz says, points up the need for discussions of end-of-life care. "We, as a profession, need to develop approaches so we can talk about these issues without extinguishing hope," says Dr. Krumholz. "In many cases these discussions are not happening."

A recipe for *better medicine*

Rapid advances in technology and the rise of managed care have raised questions about the cost and benefits of medical care. Outcomes research aims to define just what optimal care should include. But, when it comes to health, how do you define a happy outcome?

By Karen Baar

Illustrations by Liz Pagano



Is there a formula for the best medical care? Physicians will tell you that for most maladies the same treatment that works in one case is very likely to work in the next. If it doesn't, the physician will pull out the next arrow in the medical quiver. In more cases than physicians might care to admit, however, the treatment applied to two patients with the same disorder can vary enormously from region to region, among hospitals and even among clinicians within the same hospital. Researchers investigating quality of care and insurers who pay for enormously different forms of care for the same ailment are beginning to ask why such variations exist.

As a result, hospitals and some clinical researchers are striving to develop standards of care to make sure that, no matter who or where, a patient's treatment will not deviate from accepted norms—at least not without a good reason. At the same time, many are asking whether such a drive for statistically objective standards of care won't turn medicine into a computer-driven system that will ultimately undercut the individual and human element at its core.

With the increasing pace of medical advances and the explosion of new information available to both patients and health care professionals, academic health centers are looking ever more closely at health outcomes. The drive to hold the line on costs and to bring the most effective treatments to bear has put medical centers on notice that they must establish care guidelines. The challenge is to develop logical methods for determining what works best without removing physician experience and individual judgment from the art of medicine.

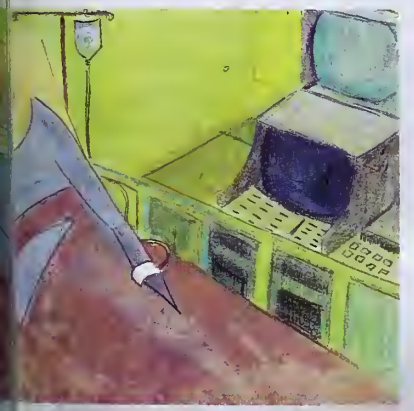
Karen Baar is a writer based in Woodbridge, Conn.

Outcomes research, a relatively recent field of inquiry, hopes to do just that by studying which approaches to patient care make the patient healthiest and happiest when all is said and done. Outcomes research strives to match the best care with the most patients, all the while keeping an eye on costs.

Such research is also one of those relatively uncommon occasions when the interests of academic investigators and practitioners coincide. "Academic research is methodologically rigorous, slower, more nuanced; it results in publications, not action," says cardiologist Harlan M. Krumholz, M.D., an associate professor of medicine and epidemiology and a leader in the field. He is one of a number of School of Medicine faculty at the Center for Outcomes Research and Evaluation (CORE) at Yale-New Haven Hospital working to evaluate the quality and outcomes of health care from many perspectives—the patient, health care professionals, hospitals, managed care organizations and employers. "Hospital staff," he notes, "typically don't have the time or background to take the academic approach. They are responsible for actually taking care of people; they also have to make policy and business decisions to keep the organization running. CORE offers a wonderful synergism between projects to improve care and academic inquiries about finding the best opportunities to do that."

BEYOND MORBIDITY AND MORTALITY

"Outcomes research is really a catch-all phrase," explains Dr. Krumholz. "Traditionally, the measures were morbidity and mortality. Now we are looking at newer and sometimes less tangible domains, including cost, satisfaction, functional status and quality of life."



Early recovery

Outcomes research, or evidence-based medicine, strives to improve care by examining which treatments work best and by defining accepted norms for the care of patients in any number of clinical areas. Yale-New Haven Hospital has documented close to 60 such clinical pathways, giving both patients and care-givers a roadmap for treatment. The overall goal—from diagnosis and treatment to early recovery in the hospital and discharge home, to the patient's return to daily activities—is to ensure the right things are done for the right people at the right time.

FRANK POOLE

Harlan Krumholz's studies of outcomes from treatment of heart attacks have helped to standardize and improve care nationwide.

For clinicians, it means working through guidelines developed to assure that each of their patients gets comprehensive, optimal care. Yale-New Haven Hospital has developed 57 clinical pathways for inpatients, for problems such as coronary artery bypass surgery, hip replacement, pneumonia, strokes and chemotherapy of standard diseases, says Edwin Cadman, M.D., a professor of medicine and chief of staff at YNHH. "We wanted to document that we were improving quality of care and the outcome of care."

Clinical pathways and outcomes research are ideas brought over from engineering and business management theory. A clinical—sometimes called critical—pathway is a predefined set of instructions that takes a clinician through each day—sometimes through each few hours—of treating a patient with a particular diagnosis. Usually, a physician tracks progress by initialing various boxes on the chart; the pathway typically includes nursing care, medications, nutrition, rehabilitation, education and discharge planning.

One common area of medical care, treatment of heart attack, has already benefited from Dr. Krumholz's studies of treatment-related outcomes and the development of clinical pathways aimed at improving outcomes. "A heart attack is a heart attack," says Dr. Cadman. "There is no reason why we shouldn't as a country expect the same therapy for a routine myocardial infarction whether it happens in Connecticut or California, but there is amazing variability."

A recent study by Dr. Krumholz and his colleagues, published in the Aug. 19 issue of the *Journal of the American Medical Association (JAMA)*, found that patients who received beta-blocker therapy had a 14 percent lower risk of death at one year after discharge. Despite its documented benefit, only half of 45,000 patients who were ideal candidates for beta-blockers, a possibly life-prolonging treatment, were prescribed the drug when they were released from the hospital. "Given that mortality after acute myocardial infarction is high in the elderly and that beta-blockers reduce mortality in this group, our findings reveal an ample opportunity to improve the care and outcomes for such patients," says Dr. Krumholz. Not only were large numbers of patients not getting a potentially beneficial drug, patients in certain regions of the country were far less likely to get the drug. Use of beta-blockers ranged from a low of 30 percent in Mississippi to a high of 77 percent in Connecticut.

On Jan. 28 *The New England Journal of Medicine* published a follow-up study by Dr. Krumholz and colleagues including CORE's deputy director, Martha J. Radford, M.D., and medical student Jersey Chen. They showed that much of the better performance by top U.S. hospitals in acute myocardial infarction could be explained by their greater use of two inexpensive but highly effective drugs, beta blockers and aspirin.

Yale's outcomes researchers are helping to establish benchmarks for care, thereby decreasing such wide variability. "Harlan's work on congestive heart failure in the elderly has changed our thinking about how to work up and manage a group of patients. It's having a national impact," says Ralph Horwitz, M.D., chair of the Department of Internal Medicine.

Going home

Dr. Krumholz has also published research that links emotional support to recovery for coronary patients, demonstrating that those with social networks are far more likely to recover quickly. This has led to more direct efforts by hospitals to ensure that patients, who may not have family or friends to assist them after discharge, receive more than a prescription upon leaving the hospital.


ROBERT LISAK

Staff at the Center for Outcomes Research at Yale-New Haven Hospital pore through patient data for evidence of which approaches to treatment are the most effective. From left, Joan Amatruda, R.N., Sally Roumanis, R.N., Martha Radford, M.D., and Jennifer Mattera, M.P.H.

DEFINING A GOOD OUTCOME

While cost efficiency and the effort to develop state-of-the-art care motivate outcomes research, the goal of physicians lies elsewhere. "The system should be for patients," says Dr. Krumholz. "The question is how to configure it in a way we can afford."

To be sure they are getting accurate and complete information, then, is a challenge for CORE staff. "We try to use a combination of standardized, validated surveys that have been used in the field, " says Jennifer Mattera, M.P.H. '95, CORE's assistant director. "And we include a few open-ended questions, what I would call common-sense questions, like 'How do you feel? Do you feel you've recovered? Do you feel better now than before you came to the hospital?' Both are useful in different ways."

What complicates matters is that patients may not value the same things as their doctors. What, for example, determines if a hip replacement procedure is a success? A surgeon may focus on technical achievement: Did the patient leave the hospital alive and well? But this explains only a small part of the outcome. Researchers want to know: What percentage of patients who had hip replacement feel they are better off as a result six months later? And how do they measure "better off," which can vary from returning to the game of golf they love to just getting out of bed in the morning without pain? Linking perceptions of benefit with real cost reductions can help physicians formulate the optimal approaches to treatment and follow-up care.

Another question researchers are asking is why some people do better than others, even when the severity of their medical conditions is the same. "It may have to do with whether and where they had rehabilitation or if they have a family member invested in their recovery," says Dr. Krumholz. "If we can isolate these factors, we can then identify people at risk and develop interventions for them."

The YNHH Congestive Heart Failure Continuity of Care (C-Care) Program, a study developed by Dr. Krumholz and Joan Amatruda, R.N., B.S.N., along with a team of nurses, physicians, epidemiologists and social workers, exemplifies this approach. C-Care is designed to improve outcomes for people with heart failure, thereby decreasing their hospital readmission rates. "Our idea is to design a strategy that will improve patients' quality of life and allow them to get control over their illness," says Ms. Amatruda, C-Care's director of clinical nursing services.

For the study, patients have been randomly assigned to two groups. On leaving the hospital, one group gets the standard care and a set of written instructions for what to expect and how to respond to problems. With the second or "intervention" group, Ms. Amatruda and other staff go to extra lengths to follow up and educate the patients. During home visits, Ms. Amatruda teaches patients about their illness, medications, and lifestyle and health behaviors that play a significant role in the condition. She also teaches them the early signs and signals of a problem and makes sure that patients know how to get the help they need. And she gives patients a book she wrote which summarizes the necessary information and lists community resources and how to get access to them.

With one patient in the C-Care program, part of the intervention was teaching him to negotiate the system. When heart attack-sufferer George Sholes was discharged from the hospital for a second time, he recalls that his attending physician told him, "'When you notice or suspect you've got this, that or the other thing, call me.'" Mr. Sholes wasn't clear just what that meant in practical terms. "I was pretty sure he didn't mean simply, get in touch with me, since that's what I thought I had been trying to do by going through the usual chain-of-command from my primary care person at my HMO." Nor did he think he should page the physician, as a ward nurse suggested. He was feeling adrift as he was preparing to go home until Ms. Amatruda made sense of the "cultural fog." She told him that, in the event of a problem, he was to call his attending physician's nurses, who would contact the doctor if it were necessary. Moreover, she supplied the necessary telephone numbers.

"It's no magic formula but absolute common sense," explains Ms. Amatruda. Researchers will follow both groups and compare their readmission rates. If the pro-

gram is successful, it can be adapted to any number of other diseases.

THE SUBJECTIVE ANIMAL

One of the challenges facing outcomes researchers is assessing patient satisfaction and quality of life in a scientifically acceptable way. Some researchers hold that only standardized tools that have been proven reliable and valid when used in large populations are legitimate. But others argue that instruments such as checklists lose sight of the individual and miss important information. Moreover, some physicians view this work as a challenge to their authority and interference with their practice. They are suspicious that managed care and cost considerations are driving the research. Detractors say that medicine is an art and that clinical pathways are "cookbook medicine" that will stifle innovation.

"It's troublesome that the psychometric academic Mafia think that they can tell you the quality of your life from some sort of checklist," says Alvan Feinstein, M.D., Sterling Professor of Medicine and Epidemiology. "Creating these checklists for measuring health describes a status, but not quality of life. Suppose we consider someone who has had paralysis in both legs and has to walk with braces and crutches. Does that person have good quality of life? If you say no, you are denying that Itzhak Perlman has a good quality of life. There's a difference between someone's health status and their reaction to that status and the only way to measure that in my opinion is to ask someone directly." To critics who dismiss such a technique as subjective, he replies: "If you want to deal with wholly objective data, study rats; it's the subjective stuff that distinguishes people as people."

Ms. Amatruda's home visits for the C-Care Program demonstrate how misleading any patient-supplied information may potentially be. "One gentleman looked good on his profile," she says, "but when I visited, he was living alone and was unable to get up to his second-floor bedroom. He had set up an old broken Barcalounger in the kitchen to elevate his legs so that he could sleep. There was nothing in the refrigerator and his stomach was growling." Ms. Amatruda sent in a social worker; he now has a home health aide several times a week and has accepted Meals on Wheels.

On the other hand, Ms. Amatruda visited a woman whose husband had just died and who, based on her profile, looked like she was in trouble. But the home visit revealed that she was appropriately grieving and had plenty of support.

PUTTING DATA TO WORK

The rise of outcomes research has been powered in part by the increasing use of computers to collect

Evaluation of quality of life

Predicting who will benefit most from surgery

ROBERT LISAK

Susan Spencer

The majority of people with epilepsy have what is called localization-related epilepsy; their seizures are triggered in one area of the brain. Of these people, about 20 percent have seizures that cannot be controlled.

Susan Spencer, M.D., professor of neurology at the School of Medicine, is principal investigator of the Multi-Center Study of Epilepsy Surgery, a major investigation funded by the National Institutes of Health to predict who will benefit most from surgery used to treat this condition. The procedure is decades old, but as diagnostic technology, such as magnetic resonance imaging, has improved, so has the ability to identify and define the responsible area in the brain.

"We are now using the treatment more and more," says Dr. Spencer, "but no one has rigorously studied what are the best predictors of success in terms of quality of life. And it appears, looking at our patients, that some have remarkable improvement and some do not."

Over the next two years, Dr. Spencer and colleagues will be recruiting at least 400 patients at six medical centers. Researchers will periodically assess the patients' quality of life for two years after their surgery.

"The quality-of-life issue has never figured into patient selection, but it may begin to figure as much as seizure control," says Dr. Spencer. "We need to know who are the patients for whom we can make the biggest difference." For example, even when their seizures are eliminated, only some patients go on to hold jobs or drive. "We may begin to study what prevents people from improving and whether we should be providing counseling or vocational training. We'll perform the same service much better."

Edwin Cadman

"There is no reason why we shouldn't expect the same therapy for a routine myocardial infarction whether it happens in Connecticut or California, but there is amazing variability."

Ralph Horwitz

"Work [at Yale] on congestive heart failure in the elderly has changed our thinking about how to work up and manage a group of patients. It's having a national impact."

and maintain data about patient care. Physician-to-physician comparisons can be made, as well as studies of across-the board care of similar conditions. "Every order at our hospital is computerized," says Dr. Cadman. "You cannot hand write an order and haven't been able to do that for five years. That sets us apart from probably 95 percent of other medical centers. Because everything is retained in the database we can ask 'How many times does Physician X order such a test?' or 'How many times is this test ordered in heart attack cases?'"

Having such information is invaluable. When hospital administrators learned, for example, that surgeons were ordering a daily chest X-ray for patients undergoing a particular surgical procedure—and that the X-ray almost never showed any change—they were able to report back to the surgeons and eliminate the practice. "In a case like that, there's no diminution in quality of care and you can reduce costs substantially," says Dr. Cadman. It can also be used as a teaching aid. For example, cardiac surgeons discuss how they treat patients, debate the merits of various practices and come up with a consensus, which then becomes the "Yale" standard of care. Once developed, the standards are available on the computer system. "It's a great teaching tool for interns and residents," says Dr. Cadman.

In addition to individual patients and clinical treatments, CORE staff look at the bigger picture: "How should resources be allocated?" asks Dr. Krumholz. "Where are the gaps? What care ought to be delivered and how?"

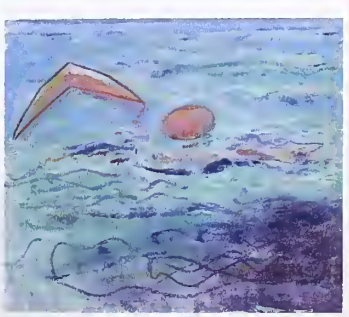
Outcomes research can help to fill in holes in medical care. For example, says Dr. Krumholz, "People with a condition called atrial fibrillation can be treated with blood thinners to prevent strokes. But the number of people getting this treatment is small. Why?" The aim of outcomes researchers in this instance is to identify the gap and to increase the number of patients being treated appropriately.

Although Dr. Krumholz and colleagues acknowledge the potential for problems, they argue that the clinical pathways are not static. Rather, they represent the optimal suggested practices based on current knowledge. In the case of Yale-New Haven Hospital, teams of local expert clinicians worked exhaustively over several years to come up with the 47 existing pathways, a process coordinated by Dr. Cadman and colleagues Leo Cooney, M.D., and Victor Morris, M.D. Are those pathways now complete? No, says Dr. Krumholz, and they never will be. "We have to continually reevaluate the best practices and new treatments," he says.

Besides, a physician is free to depart from the standard. "But if he or she deviates there must be a reason," says Dr. Cadman. "Maybe that particular patient is sicker or there is another complicating feature." And because any variation must be documented and justified on the patient's chart, physicians and the hospital gain a measure of legal protection in the event of a malpractice claim.

While deviations from the standard may need to be justified, they aren't necessarily bad. "Not offering a blood thinner to someone with atrial fibrillation because no one thought about it is the variation we aim to get rid of," says Dr. Krumholz. "But tailoring an intervention to an individual patient's preferences—we never want to extinguish that kind of variation." YM

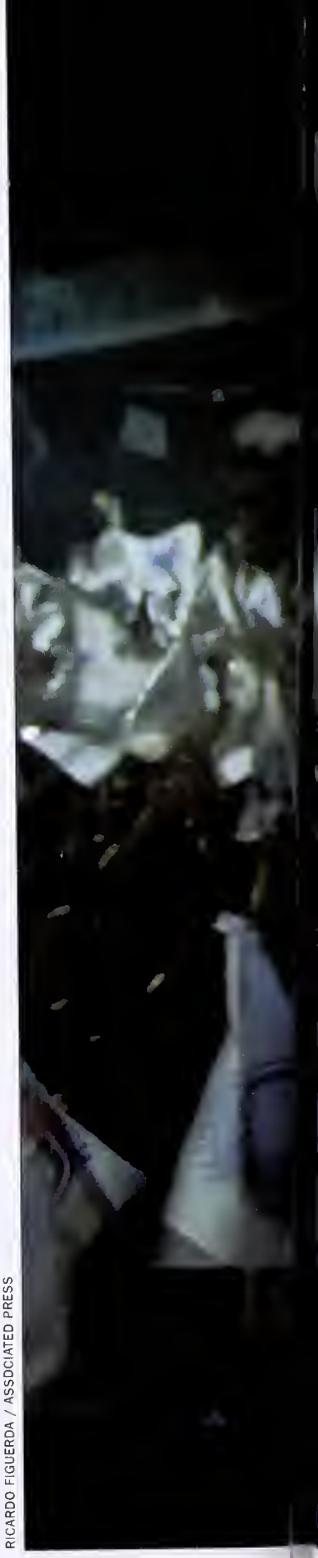
Return to daily activities



A new prescription for Puerto Rico

Puerto Rico's popular and controversial governor, a Yale-educated physician bent on health care reform and statehood, has taken island politics by storm.

By John Curtis



RICARDO FIGUERDA / ASSOCIATED PRESS

Pedro J. Rosselló Jr., M.D. '70, celebrates his second gubernatorial victory in Puerto Rico on Election Day 1996.

On a chilly evening last March, Pedro J. Rosselló strode to a podium at the Yale Law School to argue that Puerto Rico, the U.S. island-commonwealth he has governed since 1993, should become the nation's 51st state. In the audience at this symposium on the island's political status were members of the issue's three dominant political camps—advocates either of statehood, independence or continued commonwealth status. While the governor doubted that his remarks would change any minds, it was an important speech. He would deliver essentially the same message a few days later to the U.S. Senate, where he was scheduled to testify in support of the United States-Puerto Rico Political Status Act, which proposed placing the long-debated question of status in the hands of Puerto Rican voters.

For Governor Rosselló, a Yale-educated physician and public health expert, the Law School symposium was a homecoming of sorts. A successful pediatric surgeon and former health director for the city of San Juan, he spent four years in New Haven, graduating cum laude from the School of Medicine as president of the class of 1970. Since his election as governor six years ago in the first of two landslides, he has pursued major structural change in Puerto Rico with enormous energy. Topping the list: health care reform, which has created a single-payer system for almost half the island's population during the last four years; and statehood, a highly charged issue with a still uncertain future. In a December referendum on self-determination, 50.2 percent of the voters chose "none of the above," widely seen as both a protest against the vote and support of commonwealth status. But Dr. Rosselló took comfort in the showing for statehood, which garnered 46.5 percent of the vote. "Today the people spoke and they said statehood is the

John Curtis is a staff writer.

future of Puerto Rico," he insists in the face of the ambiguous results.

"Puerto Rican statehood," Dr. Rosselló told the Law School audience last spring, "will create a bilingual, bicultural bridge, linking the American continents. It will spur trade, investment, and greater prosperity for peoples all around our hemisphere." He added: "It will convert our island from a disenfranchised outpost to an evermore valuable asset as the Americas team up to compete as a single trading bloc in the global marketplace."

His advocacy of political and economic causes does not end at his home borders. To avoid crossing a labor picket line, he asked that the venue for his speech move to the Law School from New Haven's Omni Hotel, where workers were locked in a unionization dispute with management. As he entered the hall, he received a standing ovation, even from those on other sides of the most important debate in Puerto Rico.

It is clear that, as governor, he incites strong passions. His constituents have twice given him overwhelming victories—and they have erupted in fury at some of his policies, with unions nearly shutting down the island for several days last summer, for example, over his proposal to privatize the government-owned telephone industry. Undeterred, Dr. Rosselló seems capable of pressing forward with issues that he considers important, regardless of the uproar from various quarters.

"Any change will create controversy because you alter the status quo," he said during an interview in Connecticut last spring as he prepared for his Yale speech. Possessing an easygoing charm and, at 54, still showing the trim figure of the nationally ranked tennis player he was in his youth, he arrived fresh from an afternoon jog and shower and deftly fielded questions about health care reform, statehood and his time at Yale.

Since Puerto Rico became a commonwealth in 1952, with the island's political destiny in the hands of Congress, nothing has inflamed and divided islanders more than their political status. In a nonbinding 1993 referendum, the commonwealth option prevailed in a narrow victory over statehood, 48.6 percent to 46.3 percent.

Now, not only as governor, but also as last year's president of the U.S. Council of State Governments and chair of both the Democratic and Southern Governors' Associations, Dr. Rosselló has secured a platform for a goal he has pursued since his medical school days. During much of 1998, however, other events competed for his attention. The year began with a rebuke from the Inter-American Press Association, which accused him of abusing his office by withdrawing government advertising from a newspaper critical of his administration. Dr. Rosselló responded that the government was simply seeking a more effective advertising medium. In July, 50 unions struck for two days over the telephone privatization plan. And in September, Hurricane Georges killed 11 people in Puerto Rico, caused an estimated $2 billion in damage and left 17,000 homeless.

AN EYE ON HEALTH CARE

His 1996 reelection by the largest margin of any Puerto Rican governor in 32 years attests to an administration distinguished by more than discord, dissent and disaster. Since his inauguration in 1993, access to health care has increased, the crime rate has dropped by half, taxes have gone down nearly 20 percent, community schools have replaced a centralized education bureaucracy, and public servants have received major salary hikes and the right to unionize. Eager to wean the island's economy from dependence on federal tax exemptions, he has modernized the industrial infrastructure, streamlined permit requirements and created incentives for tourism and exports.

While Dr. Rosselló's health plan has angered some, almost everyone in Puerto Rico agrees that change was sorely needed. Before health care reform, only about half the island's population had private insurance or the means to pay for medical services. The other half, the 1.7 million islanders considered medically indigent, relied on Medicaid and a government health system hampered by bureaucracy, inadequate funding and political partisanship. The island has the highest infant mortality rate and the lowest average infant birth weight among all U.S. states and territories. It also had the frightening distinction of being home to seven of the 10 hospitals with the highest death rates in the United States.

Despite those deficiencies, many Puerto Ricans were simply too poor to seek medical care outside the government-run clinics. Of the 3.8 million islanders, 58 percent live at or below poverty level. The per capita income in 1996 was $8,403, about half that of the poorest of the 50 states, Mississippi.

Dr. Rosselló has resolved to replace the parallel, but unequal, health systems with a single, managed care system. "The government is redefining its role," Dr. Rosselló says. "Instead of being the direct provider, it is using its resources to buy insurance for people. The goal is a transition from two separate systems, one public and one private, into one system, which is accessed through health insurance." Why was change needed? "The problem of the previous system," the governor says, "was that the outcomes were very different." Infant mortality, for example, was shown to be higher in the public system than in the private.

In 1993, Dr. Rosselló signed a bill passed by the island's legislative assembly that created the Puerto Rico Health Insurance Administration. The PRHIA immediately launched a pilot program in Fajardo, a city on the island's northeastern coast with high infant mortality and teen pregnancy. By the end of 1998, health reform had enrolled 1.5 million people. Since the reform began, more physicians, pharmacies, clinics, hospitals and health care centers have become accessible to the medically indigent. The island's infant mortality rate declined from 12.7 per thousand in 1995 to 10.5 per thousand in 1996. Outcomes studies are also under way to measure the reform plan's impact on people's health. The cost of delivering health care has not gone down, but it has not increased as rapidly as before the reform. "If we had continued the old system, it would not have gone down," Dr. Rosselló says. "It would have gone up at a steeper rate."

No longer providing direct medical care, the government health department is concentrating on preventive measures, such as vaccinations. It is also selling its hospi-

The mechanics of reform

In 1993, during his first term as governor, Pedro J. Rosselló, M.D. '70, sought to eliminate the two-tiered health care delivery in Puerto Rico that divided care into public and private systems. His health reform has given 1.5 million of the 1.7 million medically indigent islanders insurance cards that provide access to managed care services throughout Puerto Rico. The government health system—understaffed, underfunded and overburdened—is to be dismantled, and the local government and Medicaid funds that supported it are to be diverted to the health reform.

In 1993, the Puerto Rico Health Insurance Administration was created as the supervisory agency of health reform, authorized to organize regional health alliances and contract with insurers for coverage. Blue Cross of Puerto Rico received a $30.2 million contract to serve the small northeastern city of Fajardo, the pilot program for the health reform, chosen for its high infant mortality, high rate of teen pregnancy and low life expectancy. Since then, three other insurance companies have joined the reform plan, providing coverage to 1.5 million Puerto Ricans. By June 1999, 1.6 million people are expected to receive coverage.

In Fajardo in January 1994, Dr. Rosselló distributed the first 400 personal health insurance cards, known as *la tarjetita*, the little card, which give holders access to basic medical services such as vaccinations and checkups. By the time it is fully implemented, in June 2000, the reform plan is expected to cover about 55 percent of the island's population, including everyone at or below 200 percent of the poverty level and all government employees.

Before health reform about 1.2 million people, 34 percent of the island's population, had partial medical coverage through Medicaid and another 450,000 people, or 11 percent, depended on public health systems provided by the island or municipal governments. They will be covered by the reform plan, which also includes Medicare subscribers who cannot afford supplementary care.

GERARDO GONZÁLEZ NÚÑEZ/LA FORTALEZA

Gov. Pedro Rosselló, at left, has made health care reform a centerpiece of his administration. He presents a family from the northeastern town of Loiza with the government health insurance card.

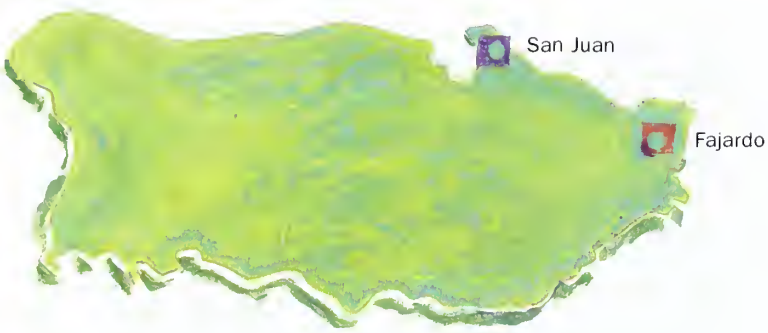
The impact of the pilot program in Fajardo was immediate. Within 17 days of the start of health reform, the ratio of patients to primary care providers went from 1,325-to-1 to 484-to-1. Participation by physicians is voluntary, but as health reform spread across the island, many physicians saw the number of fee-for-service patients decline. In addition, an increased number of health care centers and pharmacies became available.

"Of the total resources that we invested in health, about 15 percent were federal, mostly Medicaid funds, and 85 percent were state," says Dr. Rosselló. "Instead of using this to run our own hospitals and pay public service doctors and nurses, we are using those resources to buy insurance. It's using those resources we had before. We are using them in a different way."

tals and clinics to pay off the debt for the construction of those facilities. Support for the health reform, however, has not been unanimous. Although Dr. Rosselló cites studies showing a patient satisfaction rate of 90 percent, a report prepared by the College of Physicians and Surgeons of Puerto Rico in 1996 gave the reform mixed reviews. For the medically indigent, the report noted better and faster access to primary care, laboratories, medications, emergency rooms and hospitals. But it also found widespread discontent over reimbursement among physicians, who struck in protest for 10 days in 1996.

Doctors who participate in the reform plan receive a capitation payment of $46 per patient per month. Physicians say it is too low because medical coverage is broad and because physicians have no control over ancillary services, such as those provided by laboratories, pharmacies and emergency rooms. Doctors are working more, earning less and spending less time with their patients. "The problem with the reform," says José Román de Jesús, M.D., a former president of the Puerto Rico Medical Association who led the study, "is that they have done it too fast, without stopping to analyze problems that exist, look for alternatives and then move ahead."

Dr. Rosselló responds that physicians must simply adapt to new incentives under the health reform. "Before," he says, "you made more money the sicker the patient was. The new paradigm is you make more money the healthier your patient is."



Puerto Rico at a glance

1998 population: 3.8 million
Annual health budget: $1.75 billion
Number enrolled in health reform: 1.5 million
Per capita income (1996): $8,403 (United States, $18,552)
Infant mortality: 10.5 per 1000 live births in 1997 (United States, 6.5/1000)
Life expectancy: 76.6 years (United States, 76 years)
Unemployment rate: 12.5% (United States, 5.4%)
Poverty rate (1997): 58% (United States, 13.3%)
Poverty level (1990): $12,674 for a family of four
Literacy rate: 89% (United States, 97%)

Sources: Pan American Health Organization, Puerto Rico Department of Health, Puerto Rico Department of Economic Development and Commerce, Department of Labor and Human Resources of Puerto Rico and the U.S. Census Bureau.

Political status

1898: Spain cedes Puerto Rico to the United States at the close of the Spanish-American War through the Treaty of Paris.
1902: The United States declares Puerto Rico a territory.
1917: The Jones Act gives Puerto Ricans U.S. citizenship and a locally elected legislature; executive authority remains in the hands of a governor appointed by the U.S. president.
1947: Congress permits Puerto Ricans to elect their governor, effective in 1948.
1952: Congress ratifies a local constitution for Puerto Rico, subordinate to and compatible with the U.S. Constitution; the territory is denominated a commonwealth.
1967: In the first plebiscite on the island's status, Puerto Ricans endorse commonwealth over statehood, 60 percent to 39 percent. Independence garners 1 percent of the vote.
1993: In a second plebiscite, the commonwealth polls 48.6 percent to statehood's 46.3 percent, with independence at 4.4 percent.
1998: A third plebiscite, offering four options based on legislation approved earlier that year by the U.S. House of Representatives, generates 46.5 percent backing for statehood; nearly all of the remaining votes (50.2 percent) are cast for "none of the above" in a protest led by commonwealth advocates.

Sources: Time Almanac 1999 *and the Office of the Governor of Puerto Rico.*

THE PATH TO POLITICS

Dr. Rosselló's route to a political career began in medicine. After his graduation from Yale, he went on to residency at Beth Israel Hospital in Boston, where he trained with renowned Harvard cancer specialist Judah Folkman, M.D. (While at Yale, Dr. Rosselló married his wife, Maga, the former Irma Margarita Nevares, with whom he has three sons, one a Yale College graduate.) In 1976, he returned to Puerto Rico to start the academic career he had contemplated while in New Haven—a pediatric surgery practice and a teaching post at the University of Puerto Rico (where he remains on the faculty). But back at home he saw his surroundings with new eyes. "What I encountered on the island was sobering," Dr. Rosselló wrote in his 1993 proposal for health reform. "Our health service delivery system fell far short of the standard to which we aspired: that is, quality care for all, regardless of the patient's economic circumstances."

In 1981 he earned a master's degree in public health from the University of Puerto Rico and, four years later, became director of health in San Juan, the island's capital. He chaired the pro-statehood New Progressive Party's 1988 platform committee, which called for health care reform. Of his decision to enter politics, he says, "The triggering factor was my desire to improve health care delivery in Puerto Rico. I did not expect to be in the public health field and even less in the political arena when I made my career choice initially."

The unexpected transition from a surgeon to a nationally prominent political figure is in keeping with his character, say medical school friends who recall his prowess both with a scalpel and a tennis racket. He had been captain of the tennis team during his undergraduate days at Notre Dame, and he brought some of that same leadership and competitive drive to his medical studies. "He made a number of important contributions to the field of pediatric surgery," says Robert J. Touloukian, M.D., a Yale professor of surgery and pediatrics and one of his instructors. Among his accomplishments, Dr. Rosselló originated an esophageal lengthening procedure that is now used all over the world.

Robert Rosa, M.D. '70, met Rosselló as a first-year student and was his anatomy class partner. "What led

him into politics, I think, was a great concern for Puerto Rico and its people," says Dr. Rosa. "That was probably the motivating factor, that he could provide the kind of leadership and direction that he felt Puerto Rico needed." Another classmate, W. Romney Burke, M.D. '70, recalls long conversations in Spanish in which his friend spoke in favor of statehood. "I would not have predicted his becoming governor," says Dr. Burke, now a urologist in Oregon. "But I'm not surprised."

Speaking at Yale last March, Dr. Rosselló ticked off reasons why statehood would be good for Puerto Rico and dismissed the standard objections. Proponents of English as the nation's official language worry about admitting a state where the majority speak Spanish. Bilingualism, answers Dr. Rosselló, is a cornerstone of Puerto Rico's role as "midwife" to the commercial integration of the hemisphere. Political delegations from certain small states believe the admission of Puerto Rico will cost them seats in the House of Representatives. A 1911 act of Congress limiting House membership to 435 seats, Dr. Rosselló says, could be amended to increase the size of the House. To those who argue that the current commonwealth status offers the best of both worlds, conferring U.S. citizenship without federal income taxes, he countered that the status quo perpetuates the congressional oversight that has ruled the island since 1898.

Although the House of Representatives approved the bill in March 1998, the Senate adjourned last year without addressing it. The Senate did pass a resolution recognizing the right of Puerto Rican voters to express their views in a referendum and make them known to the president and Congress. Puerto Rican officials then scheduled for December 13 a nonbinding referendum offering five choices: commonwealth, statehood, free association, independence and none of the above. With the bulk of the vote divided between statehood and "none of the above," the next step is unclear. Dr. Rosselló's opponents, who urged voters to cast their ballots for "none of the above" to protest the plebiscite, saw the results as an affirmation of the status quo. But the governor vowed to press his campaign to make Puerto Rico the 51st state. "It's a watershed moment," he says. "For the first time there is a consensus in Puerto Rico that there has to be a change in political status."

ROBERT LISAK

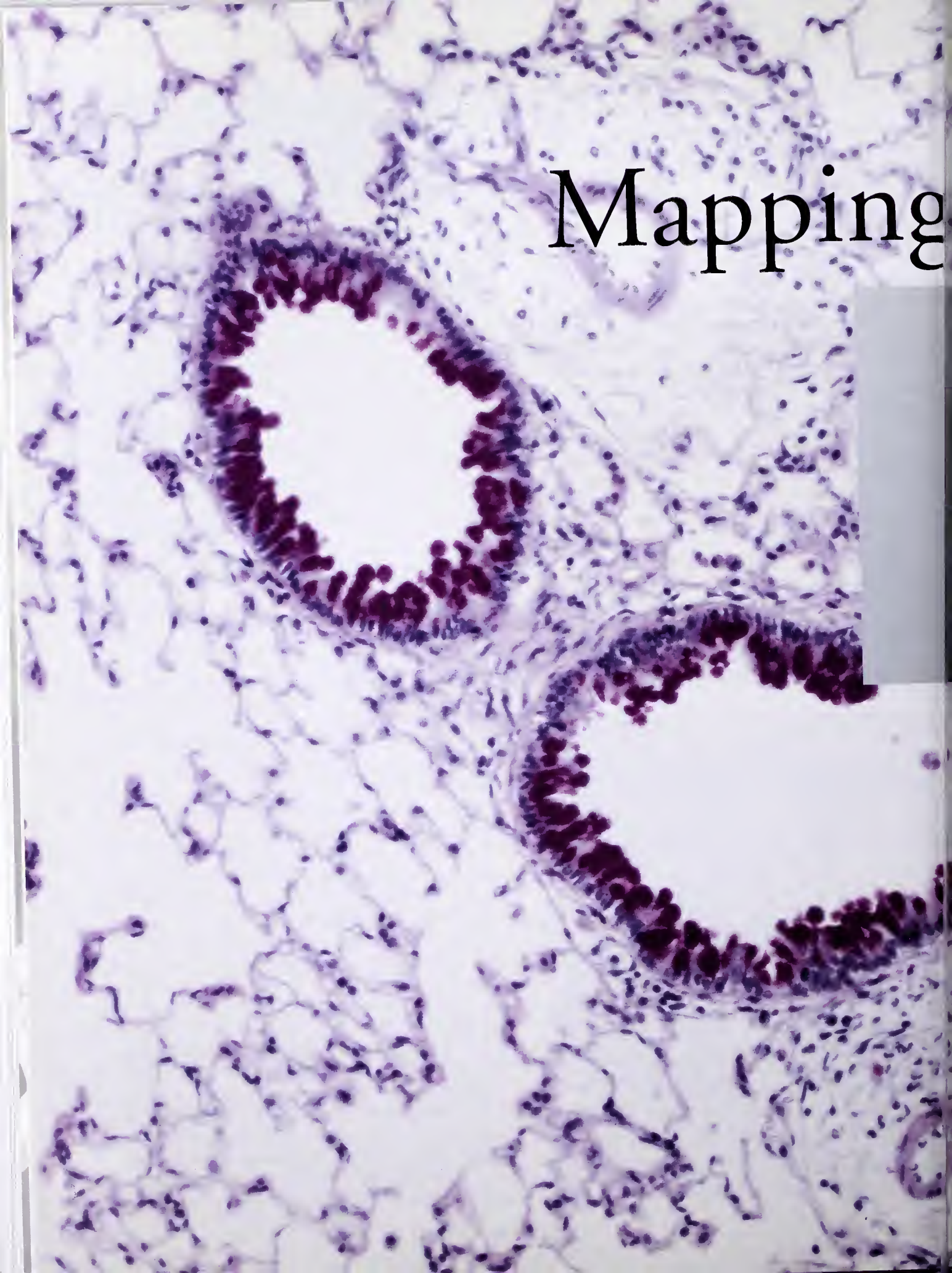
President of his medical school class, Gov. Rosselló returned to Yale in March 1998 to push for statehood for Puerto Rico during a speech at the law school before traveling to Washington to speak to Congress.

Among the beneficial effects of statehood, Dr. Rosselló believes, would be a redistribution of wealth as the more affluent become, for the first time, subject to federal income tax. "We have to recognize that statehood for Puerto Rico does have an internal impact of having wealth redistributed from the top level to the bottom level," he says. "That is a goal that I am very much in favor of."

His political goals might appear to conflict with his own interests as a physician and a member of the island's higher social ranks. Dr. Rosselló and his three sisters grew up in a household rich in political and social connections. Their father, a prominent psychiatrist who had held high government and university posts, inspired Dr. Rosselló to become a physician by his example. The family's roots in Puerto Rico go back several generations, to ancestors who migrated from Mallorca, a Spanish island in the Mediterranean.

Dr. Rosselló insists his own interests, however, are secondary to the social benefits of the policies he endorses. "They represent the common good, the best options for our people." Statehood also would prove a boon to health care, Dr. Rosselló believes. It would invert the present funding formula so that federal funds would provide 83 percent, rather than the current 15 percent, of the island's health budget.

"In a very conscious way we have tried to make this big change. It has not been without difficulties and it still has some resistance," he says, adding that he borrowed ideas from President Clinton's 1993 national health reform proposal. "Eventually it will serve at least as a discussion model. As a health advocate, this is central to me. I think Puerto Rico is on the verge of establishing a principle that is dear to health advocates, that health care is not the privilege of some, but the right of everyone." YM



Mapping

the landscape of *Asthma*

Inhaled steroids have dramatically improved the management of asthma, decreasing both the frequency and severity of episodes by reducing inflammation. Tara DellaCamera, above, uses an inhaler during a visit to the Yale Physicians Building. To study the molecular underpinnings of the disease, Yale researchers have implanted human genes implicated in asthma into mice. The purple stain in the image at left is mucus accumulating in the airway of a transgenic mouse.

Asthma was once thought to be on the wane, but in recent decades its incidence has soared. Yale scientists have solved a piece of the puzzle and hope their findings will lead to new ways to treat and even prevent the disease.

by Marc Wortman

Anyone who visited East Germany prior to the fall of the Berlin Wall in 1989 remembers a heavy pall of gray and yellow smoke that hung over much of the landscape. The widespread burning of soft coal for heat and energy and the lack of pollution controls for motor vehicle exhaust and heavy industry made for some of the worst air pollution and general environmental quality in the world. An ecological nightmare, it was also a disaster for the lungs of East Germans, who suffered extremely high rates of respiratory problems like emphysema and bronchitis. Public health officials, who

Marc Wortman is a contributing editor.

were already contending with the skyrocketing increase in asthma rates throughout Western Europe, feared a veritable tidal wave of patients arriving from the East with severe asthma problems when the wall came down. They were in for a shock.

Airborne pollutants like coal dust, auto exhaust and chemical emissions from industrial smokestacks are among the most potent triggers of the chronic coughing, mucous production, wheezing and dangerously constricted airways that typify asthma. According to most standard theories about its causes, chronic, high-level exposure to pollutants, dust and other environmental stimuli should increase the likelihood that a person will develop the disease and suffer frequent attacks. That and the generally limited health care system and medications available in East Germany appeared to create fertile ground for an asthma problem of monumental proportions. Yet just the opposite proved true. While East Germans did have very high levels of other respiratory infections, they were afflicted with dramatically lower rates of asthma than their Western brethren. Much of the medical community was baffled.

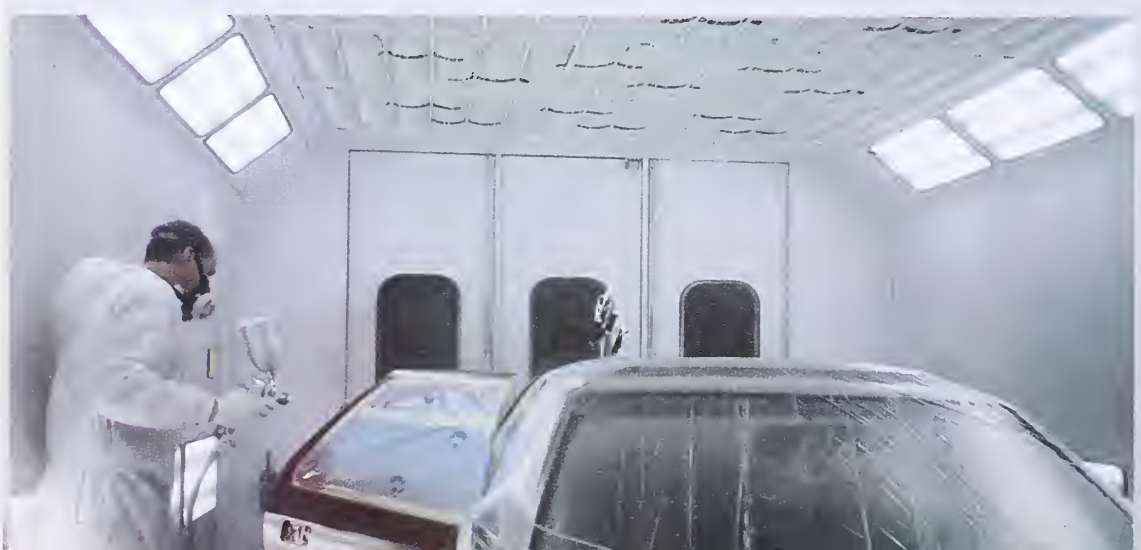
Isolating asthma

Asthma most often arises during childhood, but adults exposed regularly to certain industrial chemicals are also at risk for developing the disease. Figuring out why children get asthma can be enormously complex, but the cause of the disease when it develops in the workplace can sometimes be identified. Yale researchers hope that studying work-related asthma may lead to new ways of preventing it from developing in exposed workers, as well as to a better understanding of the mechanisms underlying other types of asthma.

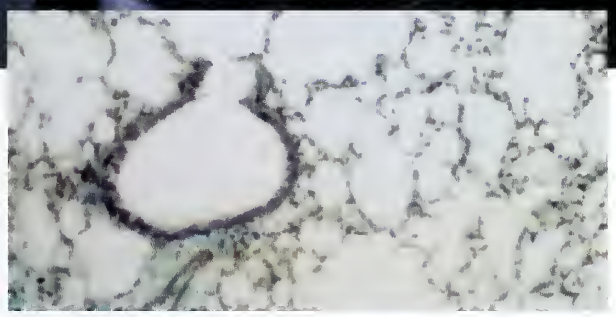
Certain adults develop asthma due to workplace exposure to specific chemicals. These can include doctors, dentists and nurses, who are exposed to latex in gloves, and beauty salon workers, who are exposed to hair sprays and nail polishes. One of the most common causes of workplace asthma is exposure to isocyanates. These chemicals are found in the hard, shiny spray paints and lacquers used in auto-body shops and in numerous polyurethane foam and plastic products such as mattresses and boat hulls. Somewhere between 5 and 20 percent of workers who are exposed to isocyanates develop asthma. "It's a problem in industry," says Carrie Redlich, M.D., who is directing studies of work-related asthma. "Once you get asthma you need to get away from the chemicals. You can lose your livelihood."

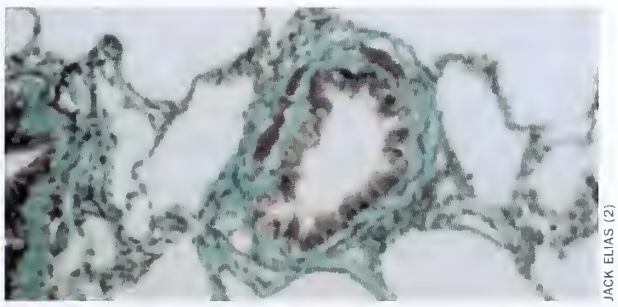
Working with small auto-body shops around New Haven, Dr. Redlich, an associate professor of medicine, has been investigating the allergy process, as well as who is in danger of getting the disease and, when they do get asthma, what actually happens in the lungs. Dr. Redlich gives asthmatic workers controlled doses of isocyanates in an exposure chamber—the only one of its kind in the U.S.—and then studies the physiologic and immunologic responses. She can also expose human lung cells to isocyanates to better understand how the chemicals cause asthma.

Eventually she hopes to develop a test to see who among industrial workers have begun to develop the disease. "If we can identify them early enough," Dr. Redlich says, "and get them away from exposure, we may be able to prevent the development of asthma. But if you miss them, they may go on to develop chronic asthma that could be with them—and possibly disable them—for the rest of their lives."



Workers in autobody shops are exposed to chemicals that can lead to career-ending asthma.





JACK ELIAS (2)

Jack Elias, above, directs one of the nation's seven NIH-funded Specialized Centers for Research for the study of asthma. A hallmark of the Yale program is to introduce human genes believed to be associated with asthma into the lungs of mice and observe the resulting changes. Above top: **A normal mouse airway and, below, that of a transgenic mouse with scar tissue caused by asthma, stained green.**

Some scientists, including many at Yale, now believe they have a plausible explanation for why this happened. These researchers suspect that improved hygiene and pollution control, immunization, antibiotics and early diagnosis and treatment of diseases may have paradoxically made Western Europeans and Americans more prone to developing asthma. Our immune systems, they contend, evolved to deal with a pathogen-filled world. With fewer pathogens around to defend against, powerful immune responses have instead focused on otherwise benign inhaled allergens, setting off a cascade of changes to lung tissue resulting in asthma. While the theory remains controversial, epidemologists have found additional anecdotal evidence in other population groups around the world to support it, and Yale researchers have recently discovered molecular evidence to back it up.

That research is part of a concerted effort at Yale to tackle the disease. The designation by the National Heart, Lung and Blood Institute of the National Institutes of Health (NHLBI, NIH) in January 1997 of Yale as one of the nation's seven Specialized Centers of Research (SCOR) for the study of asthma underscored the strength of the work being done by the researchers. If their efforts to parse out the genetic and molecular path-

ways that lead to asthma ultimately bear fruit, they—along with their clinical colleagues applying these basic science concepts to health care practices—will raise hopes of finding new means to prevent and even halt the chronic and sometimes fatal disease.

AN EPIDEMIC OF WHEEZING

There is an enormous need for improved understanding of asthma and for better diagnostic tools, prevention methods and treatments. While some have insisted that the rise in asthma rates reflects improved recognition of the disease by clinicians and better reporting by the health care industry, there is little evidence that this can account for the across-the-board size of the increase. Jack Elias, M.D., a professor of medicine at Yale and chief of the section of pulmonary and critical care medicine is head of the asthma SCOR. He says, "In the 1970s, asthma was actually getting less common. Then something happened. We've seen a documented increase, a doubling of its prevalence and severity." According to the U.S. Centers for Disease Control and Prevention (CDC) statistics, asthma rates have risen enormously by all measures. There were about 6.8 million cases of asthma in 1980. That number rose to more than 15 million in 1998, encompassing about 5 percent of the population.

The highest proportion of cases is seen among children ages 5 to 14. According to the NHLBI, somewhere between 5 and 6 million children suffer from asthma, making it the most prevalent chronic childhood disease. It causes more missed school days—well over 10 million annually—than any other chronic disease. It is also among the top three causes of hospital admission in the country for all age groups and the leading cause for children. The annual cost of treating asthma jumped from around $6 billion in 1990 to more than $10.2 billion by 1997. The severity of asthma attacks has increased alarmingly as well. In the 1970s, death from asthma was uncommon. Unrelieved asthma suffocated somewhere between 5,000 and 7,000 people last year.

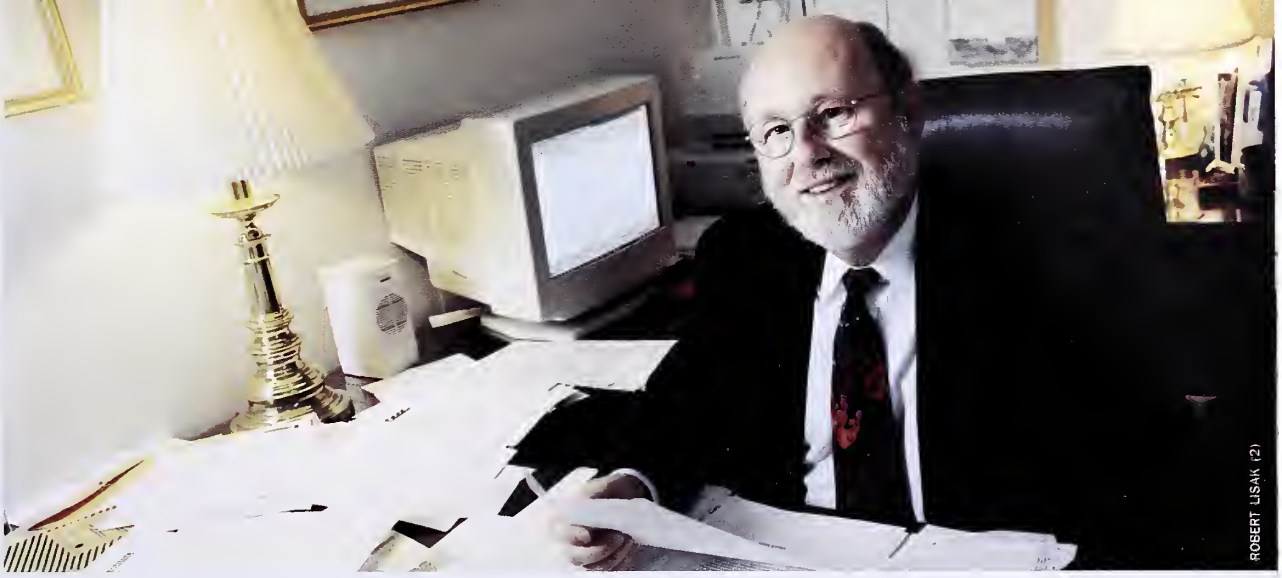
Although high asthma rates now affect all segments of American society, it has reached epidemic proportions among inner-city minorities. For instance, in Connecticut non-whites make up only 13 percent of the total population but account for nearly 50 percent of all asthma hospitalizations. The death rate among non-whites from asthma is three times higher than that for whites.

It is only in the past decade that researchers have begun to gain a clearer understanding of the disease. Asthma is a chronic disease characterized clinically by recurring episodes of spasms, or muscle contractions, of the bronchial tubes, constricting and closing off airways. Pathologically, the tissue of an asthmatic's airways is constantly raw and inflamed, leading to frequent coughing and wheezing. Those inflamed airways are hyper-responsive to a wide variety of stimuli. In the large majority of cases, asthma attacks result from viral infection. In many others, asthma is worsened by allergic-type reactions to allergens, or triggers, like pollen, foods, dust mites, mold, animal dander and feathers. (Most often, these asthmatics have other types of allergic reactions as well, such as rashes and food allergies.) Once asthma becomes chronic, the triggers that can set off an attack embrace more and more environmental stimuli and can include colds and other upper-respiratory-tract infections, cigarette smoke, heavy exercise and even rapid swings in weather conditions.

Researchers suspect that improved hygiene and pollution control, immunization and antibiotics may have paradoxically made Western Europeans and Americans more prone to developing asthma.

A polluted industrial landscape in Russia.

JAMES HILL



ROBERT LISAK (2)

Brian Leaderer, at left, heads a large study designed to understand what home conditions may cause children to develop asthma. Below: **an apparatus he designed to collect gases in the home.**

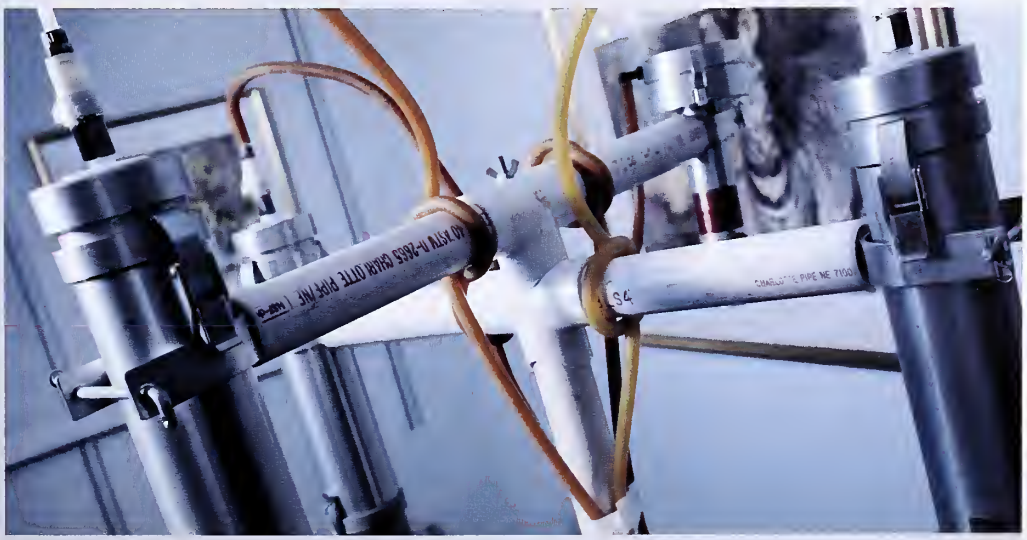
Collecting dust for science

Why do 15 percent of all American children—and an even higher proportion among inner-city minority groups—develop asthma? No one knows. There is clearly a genetic predisposition, because parents with asthma are significantly more likely to have a child with asthma; a child whose older sibling has asthma is more likely to develop the disease as well. It's also known that exposure to allergens, such as dust mites, cockroach droppings and dog and cat dander, raises the likelihood of developing asthma. But nobody knows when, and at what levels, exposure proves critical to developing the disease. Yale researchers have started vacuuming hundreds of houses and collecting tens of thousands of dust samples to try to answer these questions.

With the help of a $3.7 million, five-year grant from the National Institute of Environmental Health Sciences, a team led by Brian Leaderer, Ph.D., professor of epidemiology, has been going into the homes of around 1,000 infants living in and around Bridgeport, Hartford, New Haven and Springfield, Mass., to study how the home environment affects the development of asthma. The infants were selected at birth by finding mothers who already had a child with asthma in the home.

After taking lengthy medical and family histories and gathering information about the families' houses, the teams then visit the homes and, using special vacuum cleaners, collect dust samples from critical spaces, including infant bedrooms, crib bedding, the room of the older asthmatic child, the main living room and kitchen. The dust is then checked for the presence of known allergens. Air is also sampled for fungi and mold and a passive monitor is placed in the home to measure gaseous pollutants, such as sulfur dioxide and tobacco smoke. Periodically, the team returns to collect additional samples and measure the airborne pollutants. Four times annually, the team gathers information about the infants' respiratory health.

Dr. Leaderer hopes that his study will provide the first data that pinpoint which allergens at which point in early life can cause asthma to develop. "You have to understand the factors that cause asthma first," he says, "and then you can develop effective mitigation strategies. We don't know what exposure at what level over what period of time impacts the development of asthma."



For reasons that aren't entirely understood, the seriousness of asthma can range widely. Low-level asthma problems can be limited to occasional wheezing and shortness of breath. (Moreover, children will sometimes "outgrow" their asthma, like other allergies.) During a full-blown asthma attack, however, the airways undergo a condition similar to what takes place in nasal passages during a bad cold: The walls of the airways produce excess mucus, become swollen and further inflamed, and their muscles spasm and contract. An attack may be brief or can last several days or more. Lack of early treatment of asthma can have grave consequences down the line, because the damage can accumulate until the airways lose their ability to recover from the spasms. Delaying treatment of a severe attack can have deadly consequences because the inflamed airways may not respond to medications.

Historically, inhalers—bronchodilators—that relax the muscles of the airways and open them up were the main weapon in treating asthma. By 1990, investigators had identified the condition that causes asthma: chronic inflammation of the airways. Controlling that inflammation is now recognized as the key to preventing asthma attacks and reducing their severity. While bronchodilators are used for symptomatic relief, the only medications with proven effectiveness in controlling airway inflammation are corticosteroids. Generally the steroids are inhaled or, in severe cases, taken in pill form.

There has been a huge rise in the use of steroids as a result of the increase in asthma and improved understanding of the etiology of the disease. Many pediatricians and pulmonary specialists now recommend that very young children, even infants, receive steroids at the first signs of asthma to prevent the inflammation from becoming chronic. However, the use of steroids, especially by children, is controversial because of their immune-system-suppressing side effects and because, at very high doses, they have the potential to thwart growth. Robert Biondi, M.D., assistant clinical professor of pediatrics and co-director of the pediatric allergy and asthma clinic of the Yale-New Haven Hospital Primary Care Center, says, "Like any medication, you pay a price. The benefits in this case definitely outweigh the side effects. Studies show that many adults who develop chronic pulmonary disease had untreated asthma as kids. Moreover, persistent inflammation remodels the airways—they get stiff. Eventually, they don't budge with bronchodilators." Ramsay Fuleihan, associate research scientist in pediatrics and clinic co-director, says, "Early treatment, medical management and patient education are absolutely vital for preventing lifelong problems."

SEARCHING FOR A CAUSE

There are many theories about the causes behind the huge increase in asthma rates. Most are environmental and none is proven. Speaking at an American Medical Association briefing last year, Dr. Stephen Redd of the CDC expressed the general bafflement of the medical community: "The genetic makeup of the population couldn't have changed enough to see the increases in asthma that are being seen in many developed countries. So there's got to be some kind of environmental exposure, but exactly what that is really isn't known." Environment-related theories include population concentration in urban centers, more energy-efficient, airtight homes that don't recirculate fresh air and more sedentary lifestyles, especially among inner-city children, all resulting in higher exposure to dust mites, cockroach droppings, air pollution, animal dander, cigarette smoke and other common allergens. "No one answer seems to explain everything," says Yale pulmonary medicine chief Dr. Elias. "It may end up that a lot of little things are going on that add together to increase the rate."

"No one answer seems to explain everything," says Yale pulmonary medicine chief Jack Elias. "It may end up that a lot of little things are going on that add together to increase the rate."

Researchers face a complex puzzle that doesn't fit neatly into any single discipline. Laboratory scientists and clinicians from a half dozen separate departments at Yale are looking at the full disease phenomenon, from the genetic and cellular cascade that results in chronic airway inflammation to the environmental and genetic factors that may combine to trigger the disease to new clinical interventions aimed at preventing the disease from developing and, when it does, reducing the current great demand for hospital treatment of asthma attacks.

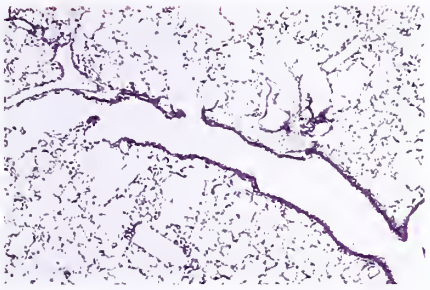
A major breakthrough in the understanding of the molecular mechanism behind the disease came through

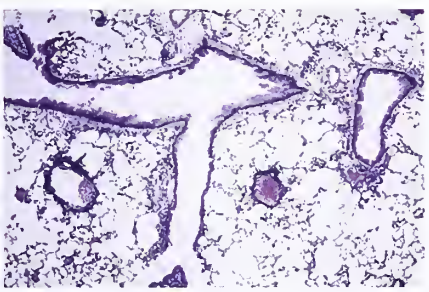
ROBERT LISAK

the work of basic scientists, including some at Yale. When it occurred, no one even realized the work they were doing had anything to do with asthma. In the mid-1980s, Kim Bottomly, Ph.D., professor of immunobiology and investigator in the Howard Hughes Medical Institute, showed that one of the basic components of the immune system, the CD4+ T lymphocyte cells, differentiate when activated into two different effector cell lines. She found that the two types of effector T cells have distinctly separate immune functions. Shortly after her finding, Tim Mosmann, Ph.D., an immunobiologist at the University of Rochester, made an epochal discovery: he found that the two types of effector T cells secreted unique panels of small molecules called cytokines that accounted for their distinct functions. The two types of lymphocytes were designated Th1 and Th2.

The Th1 and Th2 lymphocytes use a variety of mechanisms to rid the body of pathogens such as viruses and parasites. Th1 cells secrete cytokines that induce cells containing disease-causing microbes to kill them, clearing the body of pathogens that live inside cells. Th2 cells deal with pathogens that are too large to be engulfed by cells or replicate themselves outside of body cells, such as worms. Th2 cells induce the production of a variety of small molecules that bind to the pathogen and facilitate clearing it from the body.

An overarching evolutionary economy seems to govern the immune system. Researchers speculate that the immune response to the continuous pres-





Kim Bottomly, above left, and Lauren Cohn have been exploring the role of Th2 cells in the development of asthma by activating them in transgenic mice. Left: **A normal mouse airway followed by the airway of a mouse in which the Th2 cells have been activated resulting in increased production of mucus in the airways.**

"Early treatment, medical management and patient education are absolutely vital for preventing lifelong problems."

ence of pathogens is normally kept in balance by Th1 and Th2 cells working in a dynamic system that reciprocally regulates each other's activities. The body needs to have enough of both kinds of cells and not too many of either one. "It's important," says Dr. Bottomly, "that the immune system make the right kind of response to a pathogen. Mostly it does because we're all alive in a world filled with germs and parasites." Sometimes, though, the immune response goes haywire and it attacks the body's own cells. Many diseases that plague humans, including rheumatoid arthritis, diabetes and possibly multiple sclerosis, are autoimmune disorders that are now believed to be caused by an inappropriate Th1 response.

Researchers suspect that other categories of disease may be caused by overactive Th2 cells, including allergic disorders. One unrealized side effect of successful immunization programs and the widespread use of antibiotics to eradicate childhood diseases may be that the lack of childhood infections leads to a reduction in Th1 cell responses. The pathogens that induce their activation simply aren't there anymore. While the health benefits of immunization and antibiotics have been beyond calculation, the consequences for the body in some cases are not entirely positive. "The lack of Th1 immunity allows Th2 activity to go unchecked," says Dr. Bottomly. "In a world without the worms and other large parasites Th2 cells evolved to respond to, they're left to become activated by the benign environmental substances present in chronic, low-dose amounts." One extremely common source of low-dose environmental substances is air breathed through the nose. The "immune distraction" or "immune deviation" model of asthma holds that asthma results from a chronically exaggerated response to pollen, dust mites and other allergens in the absence of infectious diseases leading to Th1 immunity and in the absence of worms leading to Th2 immunity.

Retrospective studies of populations such as those that lived behind the wall in East Germany have lent support to the theory. Other studies have found that children in Japan who responded strongly to a skin test indicating that they had been exposed to tuberculosis are

Speaking the language of asthma

Asthma is the most frequent cause of hospital admission for children in the U.S. The damage of all sorts done to the children who suffer from asthma is great, including the health effects, social isolation and school days missed. The cost of caring for them mounts well into the billions of dollars annually. However, minorities require hospitalization for asthma and die from the disease at much higher rates than whites. The differences between the two groups are significant in Connecticut. Asthma rates are generally comparable between whites and non-whites in Connecticut, yet non-whites, who form 13 percent of the state's population, account for 48 percent of hospital admissions for asthma. Moreover, non-white Hispanics, who make up only 6 percent of Connecticut's population, compose close to a quarter of all hospital admissions for asthma in the state.

Differences in environmental exposures to allergens or population genetics cannot completely account for these heavily skewed rates. Studies show that cultural barriers to proper understanding and treatment of asthma may underlie the higher rates. Developing an integrated approach that will allow physicians to address all of these issues represents a complex challenge for Yale's Pediatric Asthma Program. In addition to providing educational tools and activities for both primary care providers and families with asthma, last fall the program established the Pediatric Asthma Clinic to reach out to minority populations in the New Haven region.

The clinic combines the expertise of pediatric pulmonologists and allergists, and it is geared toward providing children with asthma and their families with comprehensive care without the need for several clinic visits. As part of the clinic's work, Spanish-speaking health care providers teach non-English-speaking Hispanic patients how to avoid asthma triggers and how to use medications properly to prevent attacks. Program director Jose Calderon, M.D., assistant professor of pediatrics, who is originally from Colombia, believes that such "culturally and linguistically attuned" clinics and outreach programs could decrease the number of emergency room visits and hospital admissions in the targeted populations by as much as 70 percent. Says Dr. Calderon: "We want to educate, to speak their language, understand their concerns and establish a partnership."

Asthmatic children are the single largest patient group seen by Yale pediatricians. By unifying interdisciplinary services, Yale clinicians hope to reduce hospital admissions for asthma. Alia Bazzy-Asaad, co-director of the Pediatric Asthma Care Team, listens to patient Anthony Papale's lungs.

less likely to suffer from asthma or other allergic diseases. Similarly, in a study of Italian soldiers, those who tested positive for antibodies to hepatitis A virus—a sign of more childhood infections in general—had significantly fewer allergies.

Armed with promising new directions for the study of molecular mechanisms for asthma, in the early 1990s Dr. Elias set out to expand research in the field at Yale. The first challenge he encountered, however, wasn't scientific at all. Instead, he needed to convince his colleagues to devote valuable time and resources to understanding the disease.

> "In a world without the worms and other large parasites Th2 cells evolved to respond to, they're left to become activated by the benign environmental substances present in chronic, low-dose amounts."

BUILDING THE ASTHMA TEAM

He faced an uphill struggle. At the time, Yale had very little presence in the study of asthma. "Yale has a great tradition in biology and immunology," says Dr. Elias, "but lacks much of a tradition in the asthma and allergy fields." He wanted to bring that great tradition to bear on a new and pressing problem. "I literally went door to door." His enthusiasm for the possibilities opening up in the field drew a strong response and soon about 75 scientists from all over campus, including the departments of pathology, public health, occupational medicine, immunobiology, pediatrics, the Boyer Center for Molecular Medicine and his own pulmonary medicine section, were looking into the disease. The Yale Asthma Working Group, as the loose confederation of researchers was designated, has now been gathering once a month for more than five years. At first, the educators

needed an education. "We spent the first years having clinicians teach basic scientists what asthma was and the basic scientists explaining to the clinicians what could be happening at the cellular and molecular level," recalls Dr. Elias.

The efforts to build an organization paid off handsomely. With Dr. Elias as principal investigator, the asthma working group achieved a major coup when it was awarded a five-year, $10.2 million grant in January 1997 from the NHLBI to support multidisciplinary research. That prestigious award established Yale as one of only seven Specialized Centers of Research (SCOR) focusing on asthma in the country. The SCOR group has since added more than a half dozen other substantial federal grants as it pursues its general goal of ferreting out the molecular causes of asthma and moving those basic science discoveries rapidly to clinical testing. "The vision in creating this group has been an outstanding success," says Anuradha Ray, Ph.D., who, along with her husband Prabir Ray, Ph.D., both associate professors of pulmonary medicine, studies the genetics underlying asthma. "Jack has shown that with the right vision, you can do tremendous things. Now, the goal is landmark observations."

From basic science to clinical care, the landmarks have started to pile up.

One of the biggest challenges to understanding asthma has been the lack of an adequate animal model to study the development of the disease. Dr. Elias has been working closely with Dr. Bottomly and Richard Flavell, Ph.D., chair of the Section of Immunobiology and investigator in the Howard Hughes Medical Institute, to create transgenic mice. They have succeeded spectacularly over the past year. "It's so exciting how powerful this is," says Dr. Elias. "We're the only people in the world who have put a human asthma gene in a mouse lung and turned it on and off, even in utero. This mouse is as close as we've come to human asthma. It allows us to study asthma in neonates and the adult mouse, and to see the difference in how the disease affects each." With this new mouse model, researchers can go back to study how the gene is produced in humans on the one hand and how to block its production in the mouse on the other. Eventually, the asthma team hopes to figure out how to modulate the genetic activity—to prevent asthma in humans from occurring or possibly to develop a cure.

"We're the only people in the world who have put a human asthma gene in a mouse lung and turned it on and off, even in utero. This mouse is as close as we've come to human asthma."

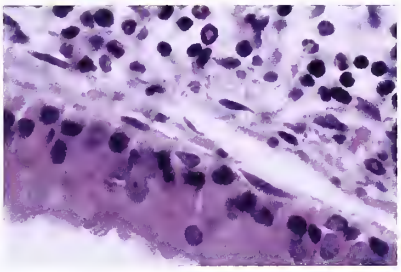
To that end, Dr. Anuradha Ray's studies in mouse models of asthma have recently identified the transcription factors that explain how Th2 gene expression results in the cascade of signals that bring eosinophils, a type of white blood cell, into the lungs. When compared with normal lungs, asthmatic lungs have hugely higher numbers of eosinophils. Once in the airways, eosinophils release a group of proteins that injure tissues, causing the inflammation that makes the airways of asthmatics so hypersensitive. Working with colleagues at Yale and at McGill University in Montreal, Dr. Anuradha Ray is now looking for ways to target the early genetic expression leading to the proliferation of eosinophils with medications. "It would be like steroids," she says, "but steroids affect many other things. We would hope that this would have more specific action and fewer side effects."

BREATHING EASIER

While the study of animal models provides excellent clues about the nature of the disease in humans, only clinical study can provide a true understanding. Other members of the SCOR group have been attempting to

Yale asthma researchers gather monthly to review progress.

ROBERT LISAK



In her laboratory, Anuradha Ray studies how Th2 gene expression in transgenic mice precipitates a cascade of events resulting in the accumulation of eosinophils in the airways. The presence of increased eosinophil cells in the airways, shown at left, underlies the tissue damage that eventually leads to asthma.

take the knowledge learned in the laboratory and bring it to clinical research. "There's a great marriage between M.D.s and Ph.D.s," says Dr. Ray. Clinicians have been studying industrial workers who contracted asthma as adults as a result of exposure to workplace chemicals to examine the disease process. (See *Isolating asthma.*) Epidemiologists are looking closely at how home environment might affect the development of the disease in children. (See *Collecting dust for science.*)

Efforts to understand and improve treatment of asthma are taking place in many different disciplines. For instance, researchers in the section of pediatric respiratory medicine are studying the effects of hypoxia (low oxygen in the blood)—a common consequence of an asthma attack—on brain function in the young as well as how the muscles of respiration respond to the increased work of breathing imposed by acute and chronic airway obstruction.

Physicians from the section have also come together with primary care physicians in the community as the Pediatric Asthma Care Team (PACT) to coordinate care for children with severe asthma. According to Alia Bazzy-Asaad, M.D., an associate professor of pediatrics who is co-director of PACT along with Gabriel Haddad, M.D., chief of the section of respiratory medicine, the Department of Pediatrics now treats more than 500 children each year, making it the single largest patient group in the department. "Patients often get seen in many different places," she says. "We get everyone around the table and ask how we can do this in a coordinated way." PACT members are also developing innovative programs to reach out to the minority community to reduce epidemic asthma rates. (See *Speaking the language of asthma.*)

These many different approaches to asthma raise hopes that the skyrocketing increase can be slowed. At the same time, the very recent breakthroughs in understanding the biological basis of the disease have created guarded optimism that prevention and perhaps a cure may one day be possible. The researchers still have a long way to go before they can get a handle on the disease. "We're making headway in understanding the disease mechanism," says Dr. Bottomly, "but we don't know much about interfering with it."

They recognize just how important it is to figure that out. "For some people," says Dr. Elias, "asthma dictates everything about their everyday life. It can be a life-threatening event every time they get a cold or walk into a room filled with animal hair or sleep in a dusty bed." For the first time since asthma rates began their upward climb, though, there's hope that one day asthma sufferers may no longer need to worry about losing their breath. YM

Perfecting the Faculty Practice

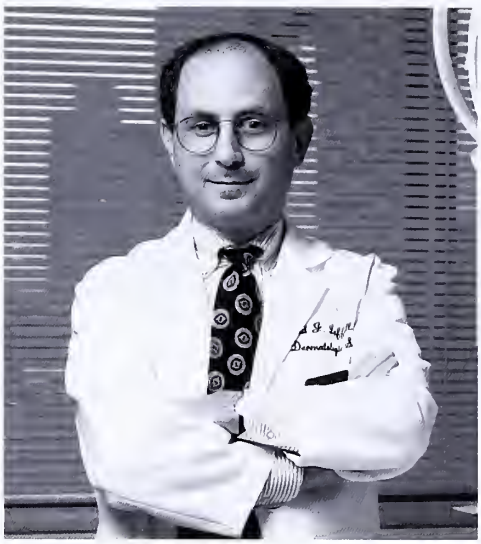
New associate dean will keep an eye on quality of care, as well as the bottom line.

David J. Leffell, M.D., medical director of the Yale Faculty Practice for the past three years and a professor of surgery and dermatology, has been appointed the medical school's associate dean for clinical affairs and director of the Faculty Practice. He will have oversight of all clinical and business activity for the practice, which represents more than 650 Yale physicians and provides tertiary care to thousands of patients throughout the region.

The appointment by Dean David A. Kessler, M.D., effective Jan. 1, comes at a time when academic medical centers across the United States are responding to major economic forces affecting their operation. Lower reimbursements under managed care, along with changes in the way attending and resident physicians must account for their time, have prompted medical schools to re-examine the way they do business in the clinical sphere. Dr. Leffell's primary task, Dean Kessler said, will be to help define the Faculty Practice as an efficient organization that facilitates the research and educational missions of the school.

"Our mandate is to be efficient, responsive and available," Dr. Leffell said in an interview. "We can't serve any of our constituencies, not least of all our patients, unless we're on a sound economic footing. And without patients, there is no medical school."

A native of Montreal, Dr. Leffell is a 1977 Yale College graduate who received his medical degree from the McGill University Faculty of Medicine in 1981. He completed a residency in internal medicine at Cornell Cooperating Hospitals in 1984 then spent two years as a dermatology resident at Yale and one as an NIH-sponsored fellow, also in New Haven. He became a Yale faculty member in 1988 after a fellowship in dermatologic surgery at the University of Michigan.



HAROLD SHAPIRO

David J. Leffell is the new associate dean for clinical affairs and director of the Yale Faculty Practice.

The Faculty Practice, originally established as a billing and collection unit for the clinical services of Yale professors, has evolved into a complex organization responsible for negotiating contracts, marketing its services, and planning strategically in a changing health care environment. For the year ending June 30, the Faculty Practice logged more than 400,000 patient encounters and collected revenues exceeding $100 million for clinical activity at the Yale Physicians Building, Yale-New Haven Hospital, the Yale Sports Medicine Center and other offsite locations. Its operation had been complicated by flaws in the school's APS computerized billing system, which has been phased out with the successful implementation of a new IDX system.

Dean Kessler cited Dr. Leffell, an authority in the genetics of skin cancer and an expert in the management of the disease, for "his strong administrative skills and an outstanding record of scholarly achievement." The dean added: "I have every confidence that, under his direction, the Faculty Practice will achieve an even higher standard of excellence." The school's chief operating officer, Irwin Birnbaum, was similarly enthusiastic: "David has the professional experience and the vision to help the Faculty Practice truly become a multi-specialty academic group practice."

AAAS elects seven fellows from ranks of faculty

AAAS

Seven medical school faculty members were elected to the rank of fellow by the American Association for the Advancement of Science (AAAS) in September. They include **Vincent A. Andriole**, M.D '57, professor of medicine; **Joseph E. Craft**, M.D., professor of medicine; **Richard L. Edelson**, M.D. '70, professor of dermatology and in the Cancer Center; **Maurice J. Mahoney,** M.D., professor of genetics, pediatrics, and obstetrics and gynecology; **Stephen E. Malawista**, M.D., professor of medicine; **I. George Miller Jr.,** M.D., John F. Enders Professor of Pediatrics, Epidemiology, Molecular Biophysics and Biochemistry; **Edward L. Snyder**, M.D., professor of laboratory medicine. The awards were presented in January during the AAAS Fellows Forum at the association's annual meeting in Anaheim, Calif.

Expert in genetics of hypertension is named chair


PETER CASOLINO

New genetics chair Richard Lifton

Richard P. Lifton, M.D., Ph.D., a Howard Hughes Medical Institute investigator whose research in hypertension has led to the identification of more than a dozen genes that regulate blood pressure, has been appointed chair of the Department of Genetics.

Dr. Lifton will preside over a department of 28 full-time faculty members, 58 postdoctoral fellows and associates, and 45 graduate students, including a number of the most distinguished scientists in modern genetics. "What makes Rick an outstanding choice for this job is his great ability to bridge the worlds of basic science and clinical medicine," said Dean David A. Kessler, M.D. "That is increasingly important in an era when laboratory discoveries are being translated for the benefit of patients more quickly than ever before."

A native of Washington, D.C., Dr. Lifton is a 1975 graduate of Dartmouth College and holds M.D. and Ph.D. degrees from Stanford University, where he worked in the laboratory of molecular geneticist David Hogness. While at Stanford, he and fellow graduate student Michael Goldberg discovered a short DNA sequence, known as the TATA box, that regulates the initiation of gene transcription in all higher organisms. Dr. Lifton spent four years as resident and chief resident in medicine at Brigham and Women's Hospital, then three years with Howard Hughes investigator Jean-Marc Lalouel, M.D., D.Sc., in Utah, where he identified the first known gene affecting the regulation of human blood pressure.

Since then, Dr. Lifton and members of his research team have identified a dozen genes that either raise or lower blood pressure by influencing how the kidney handles salt. He came to the Yale faculty, from Harvard, as an assistant professor of medicine in 1993 and was promoted to associate professor in 1994 and professor in 1997. His discoveries in the genetics of hypertension may lay the groundwork for safer, more effective medications for a disease affecting more than 50 million people in the United States alone.

The department was established at Yale in 1972 as the Department of Human Genetics with Leon E. Rosenberg, M.D., as chair. Its focus is unusually broad, with strength in a wide range of disciplines including studies of simple model organisms, inherited metabolic disorders, and the genetics of common human diseases, increasingly believed to have a complex genetic component.

When Dr. Rosenberg became dean of the School of Medicine in 1984, Sterling Professor Carolyn W. Slayman, Ph.D., was appointed to lead the department. After Dr. Slayman's selection as deputy dean for academic and scientific affairs in 1995, faculty member David C. Ward, Ph.D., inventor of the gene-mapping technique known as fluorescence in situ hybridization, served for two years as acting chair. Daniel DiMaio, M.D., Ph.D., led the department as interim chair last year as a national search was conducted.

Dr. DiMaio said Dr. Lifton's selection as chair "was an outstanding choice. He's someone who is interested in the genetics of common disease, which most people agree is the future of human genetics. He knows his way around Yale," he added, "and his work is superb."

Faculty honored with endowed professorships

Joan A. Steitz

Paul B. Sigler

Joan A. Steitz, Ph.D.

Joan A. Steitz, Ph.D., internationally renowned for her contributions to the field of molecular genetics, has been named Sterling Professor of Molecular Biophysics and Biochemistry by vote of the Yale Corporation.

Dr. Steitz's studies have defined the roles of small nuclear ribonucleoprotein particles in RNA processing in mammals. She has focused her research on the structure and function of these cellular complexes, which play a key role in some of the most basic biological processes that convert information in the DNA to the active protein molecules of the living cell. She discovered the important roles that cellular particles known as small nuclear ribonucleoproteins, or snurps, play in the activity of cells. In addition to providing new understandings of the mechanics of gene expression, Dr. Steitz's research also has implications for improved diagnosis and treatment of autoimmune diseases, particularly rheumatic diseases that occur when a person's own antibodies attack snurps.

A member of the Yale faculty since 1970 and chair of her department, Dr. Steitz has led the molecular genetics program in the Boyer Center for Molecular Medicine and is also an investigator with the Howard Hughes Medical Institute. Prior to her Yale appointment, she did postdoctoral work at the Medical Research Council Laboratory of Molecular Biology in Cambridge, England, where she worked with Nobel laureate Francis Crick. She earned her B.S. in chemistry from Antioch College and her Ph.D. from Harvard University, where she worked with another Nobel laureate, James D. Watson. Drs. Watson and Crick elucidated the structure of DNA, the genetic material of living organisms.

Dr. Steitz was appointed a full professor at Yale in 1978 and became the Henry Ford II Professor of Molecular Biophysics and Biochemistry in 1992. At Yale, she established a laboratory dedicated to the study of RNA structure and function. Dr. Steitz's achievements have earned her many honors, including the National Medal of Science and the Christopher Columbus Discovery Award in Biomedical Research. She was the first woman to win the Warren Triennial Prize, which is often described as the "Nobel Prize predictor" because so many of its recipients have gone on to win the latter award, and was also the first woman to be presented Israel's Weizmann Women & Science Award. Steitz is a member of the American Academy of Arts and Sciences and the National Academy of Sciences.

Paul B. Sigler, M.D., Ph.D.

Paul B. Sigler, M.D., Ph.D., a specialist on the chemical mechanisms in cell regulatory processes, has been named the Henry Ford II Professor of Molecular Biophysics and Biochemistry by vote of the Yale Corporation.

Dr. Sigler is engaged in the study of two cell regulatory processes, controlled gene expression and transmembrane signaling. Specifically, he has investigated the interactions of proteins and nucleic acids and how genetic code is transcribed through selective binding of regulatory proteins to target DNA sequences. In addition, he recently led a team that received national attention for visualizing in atomic detail (three-dimensional computerized "snapshots") how two female sex hormones, progesterone and estrogen, bind to their receptors. The team was also the first to solve the structure of progesterone bound to the human receptor.

In his research, Dr. Sigler uses X-ray crystallography to determine the three-dimensional structure of molecules and how they link together. His work has also revealed for the first time how genes in cells throughout the body respond to a large family of hormones that include the adrenal and sex steroids, vitamin D, thyroid hormone and retinoic acid, which is crucial in embryonic development. Among his current projects is an analysis of the structure and function of chaperonin-assisted protein folding.

Dr. Sigler, who is also an investigator at the Howard Hughes Medical Institute, joined the Yale faculty in 1989. Prior to coming to Yale, he was a professor of molecular and theoretical biology, biophysics and biochemistry for 21 years at the University of Chicago.

A graduate of Princeton University, Dr. Sigler earned his medical degree from Columbia University in 1959 and was an intern and resident in medicine at the Columbia-Presbyterian Medical Center in New York. He received a Ph.D. in biochemistry in 1968 from the University of Cambridge's Medical Research Council Laboratory of Molecular Biology, where he was a Helen Hay Whitney Fellow.

Dr. Sigler is the recipient of numerous honors, including a Guggenheim Fellowship, a U.S. Public Health Service Research Career Development Award and a Merit Award from the National Institute of General Medical Sciences. He is a member of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences.

FACULTY NOTES

Stephan Ariyan, M.D., clinical professor of surgery (plastic), was honored by the Armenian-American Professionals Organization in September at its Third Annual Ball in Teaneck, N.J., for his efforts following the December 1988 earthquake in Armenia.

Robert S. Baltimore, M.D., professor of pediatrics and epidemiology, participated in the Consensus Development Conference on Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder (ADHD) in November at the National Institutes of Health in Bethesda, Md. The consensus panel concluded that children with ADHD often receive an inconsistent level of care from a fragmented system that consumes a large share of health care dollars.

Walter F. Boron, M.D., Ph.D., HS '78-80, professor of cellular and molecular physiology, has been elected president of the American Physiological Society (APS), effective April 1999. The APS, made up of nearly 10,000 professionals in science and medicine, is a nonprofit society devoted to fostering education, scientific research and the dissemination of knowledge in the physiological sciences.

Michael J. Caplan, M.D., Ph.D. '87, professor of cellular and molecular physiology, was presented the 1998 Young Investigator Award by the American Society for Nephrology in October. The award, which recognizes excellence and creativity in nephrologic research, includes a grant to the winner's laboratory. Dr. Caplan presented a talk at the award ceremonies entitled *Playing in Traffic: Sorting of Ion Transport Proteins in Polarized Cells.* He is also the recipient of the 1998 Bowditch Young Investigator Award from the American Physiological Society.

Michael D. Ezekowitz, M.B.Ch.B., Ph.D., professor of medicine (cardiology), was an invited speaker for the North American Society of Pacing

Two from faculty join Institute of Medicine

Eric J. Nestler, M.D. '83, Ph.D. '82, HS '83-87, the Elizabeth Mears and House Jameson Professor of Psychiatry, Pharmacology and Neurobiology, and **Sally E. Shaywitz**, M.D., professor of pediatrics and co-director of the Yale Center for the Study of Learning and Attention, have been elected to the Institute of Medicine. Both were chosen for their major contributions to health and medicine and for the significant amount of volunteer time they devote on committees engaged in a broad range of studies on health policy issues.

Eric J. Nestler

Sally E. Shaywitz

Dr. Nestler, who directs the division of molecular psychiatry and Abraham Ribicoff Research Facilities in the Department of Psychiatry, has conducted groundbreaking studies in the biology of addiction, unraveling the function of certain genes in the mesolimbic dopamine system.

Dr. Shaywitz and her husband, pediatric neurologist Bennett A. Shaywitz, M.D., lead a team that has conducted groundbreaking studies in the neurobiology of reading and dyslexia, identifying the neural circuitry of reading, its functional disruption in dyslexia, and gender differences in brain organization for reading.

and Electrophysiology in May in San Diego, 11th International Congress Cardiostim 1998 Meeting in June in France, and the XXth Congress of the European Society of Cardiology in August in Vienna. He was also a participant in the Fifth American College of Chest Physicians Antithrombotic Therapy Consensus Conference in June in Tucson, Ariz.

Alvan R. Feinstein, M.D., HS '52-54, Sterling Professor of Medicine and Epidemiology, received the Oscar B. Hunter Award from the American Society for Clinical Pharmacology and Therapeutics at its annual meeting last March for his contributions to the field. Past recipients include Jonas E. Salk, M.D., and Albert B. Sabin, M.D., and former Yale faculty members **Paul Calabresi**, M.D. '55, and **Louis S. Goodman**, M.D.


Rosemarie L. Fisher

Rosemarie L. Fisher, M.D., HS '74-75, professor of medicine, has been appointed director of graduate medical education (GME) for both the School of Medicine and Yale-New Haven Hospital. The new joint position was created to oversee the medical center's 68 residency and fellowship programs, which may fall under the aegis of either the hospital or medical school. The medical center currently has 599 residents and 182 fellows participating in training programs.

Dr. Fisher, who directed the residency program in the Department of Internal Medicine from 1987 to 1998, also was selected to participate in the fourth class of the *Hedwig van Ameringen* Executive Leadership in Academic Medicine Program for Women, based at Allegheny University of the Health Sciences.

Ralph E. Hoffman, M.D., associate professor of psychiatry, was among investigators at 22 U.S. and five international universities to receive a total of 40 prestigious, two-year grants of $50,000 per year from the National Alliance for Research on Schizophrenia and Depression. The grant will support his research on transcranial magnetic stimulation in patients reporting auditory hallucinations.


Margaret K. Hostetter

Margaret K. Hostetter, M.D., has been named professor of pediatrics and chief of the section of pediatric immunology and director of the Yale Child Health Research Center. Dr. Hostetter received her medical degree from Baylor College of Medicine and was a resident and fellow in infectious diseases at Boston Children's Hospital. She comes to Yale from the University of Minnesota, where she held the American Legion Heart Research Chair in Pediatrics. Her 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. Twelve years ago in Minnesota, Dr. Hostetter co-founded the first clinic specializing in the medical and developmental evaluation of internationally adopted children and has transplanted this model to Yale. Dr. Hostetter holds three R-01 awards from the National Institutes of Health and is a new appointee to the Council of the National Institute for Child Health and Human Development.

Charles A. Janeway Jr., M.D., professor of immunobiology and biology, was presented the Irvington Institute's Leadership Award for outstanding scientific leadership in immunology in October in New York City. Dr. Janeway also recently completed a one-year term as president of the American Association of Immunologists.

Michael Kashgarian, M.D. '58, HS '59-63, professor of pathology and biology, was lauded by the Gesellshaft für Nephrologie (the German Society of Nephrology) for his outstanding contributions to the fields of renal pathology and physiology. He was made an honorary member of the society at its meeting in September. He is the second Yale faculty member to receive this honor; Robert W. Berliner, M.D., received the award in 1986.


Ilona S. Kickbusch

Ilona S. Kickbusch, Ph.D., has joined the faculty of Epidemiology and Public Health as professor of public health and head of the division of international health. She succeeds Lowell Levin, M.P.H. '60, who retired in June. Dr. Kickbusch comes to Yale from the World Health Organization, where for the past four years she was director of the Division of Health Promotion, Education and Communication. She began her work at WHO as a consultant in 1980 and previously held a Yale appointment as lecturer in public health, in 1985. Her research interests focus on the effects of globalization of health, global health governance and strategies for health promotion.

John A. Kirchner, M.D., professor emeritus of otolaryngology, was conferred an honorary membership in the European Laryngological Society in Rome in September. Dr. Kirchner is the first American member of the organization.

Kathryn E. McGoldrick, M.D., professor of anesthesiology and medical director of ambulatory surgery, was elected in June to a two-year term as president of the Connecticut State Society of Anesthesiologists. She also was recently elected vice president of the board of trustees of the Wood Library-Museum of Anesthesiology in Park Ridge, Ill., and was appointed chair of the American Society of Anesthesiologists subcommittee on ambulatory and geriatric anesthesia.

Irvin M. Modlin

Irvin M. Modlin, M.D., Ph.D., professor of surgery, was awarded the Huntarian Professorship in Surgery in September by the Royal College of Surgeons of England. This award, named for John Hunter, provides a fellowship and the delivery of the Huntarian lecture at the College. John Hunter was the original great surgical scientist and doyen of the scientific evolution of the discipline. Three years ago, Dr. Modlin was awarded the Arris and Gale Lecture by the Royal College. In the 250-year period that these lectures have been given, only six individuals have received both.

Linda Z. Mowad, R.N., director of the Cancer Information Service for New England at the Yale Comprehensive Cancer Center, has been chosen to receive the American Cancer Society's National Divisional Award, the prestigious St. George Medal.

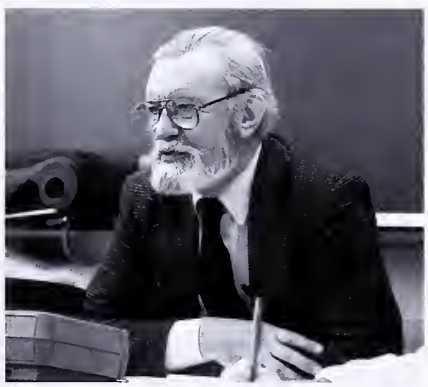
Joseph M. Piepmeier, M.D., HS '76-82, professor of neurosurgery and vice chair for clinical affairs, has been selected as editor-in-chief of the *Journal of NeuroOncology*. His five-year term began in January.

Shachar Tauber, M.D., director of the Yale School of Medicine's new Laser Vision Correction Service and assistant clinical professor of ophthalmology and visual science, was invited to teach laser skills at the Global Chinese Ophthalmology Congress in August to a special symposium of 150 refractive surgeons in Beijing.

Joseph B. Warshaw, M.D., deputy dean for clinical affairs and chair of the Department of Pediatrics, received special recognition for lifetime career accomplishment from ConnectiCare, Inc., as part of the health insurer's 1998 Children's Health and Well-Being Awards program.

Bruce E. Wexler, M.D., associate professor of psychiatry, participated in the consensus development conference on rehabilitation of persons with traumatic brain injury in October at the National Institutes of Health in Bethesda, Md.

William D. White, Ph.D., associate professor of epidemiology and public health (health policy and administration) and head of the Health Management Program, was awarded the National Institute for Health Care Management's Fifth Annual Research Award in November for a paper he co-authored, *Medicaid Dependent Hospitals and Their Patients: How Have They Fared?* Dr. White joined the faculty this year. Previously he taught at the University of Illinois at Chicago. His research focuses on the impact of managed care on health care markets. Other areas of research include the design of payment systems for health care services and the regulation of health care professionals.



***Indoor Air Quality: Sources, Exposures and Health and Comfort Effects,* a one-day symposium planned for April 19, will honor Jan A.J. Stolwijk, Ph.D., the Susan Dwight Bliss Professor Emeritus of Epidemiology.**

International fellows travel the globe to learn by doing

JOHN CURTIS

Damani Piggott, who traveled to Mali on a grant from the Fogarty International Center at NIH, discusses his research into infectious diseases.

Each year, students come from around the world to study medicine, nursing and public health at Yale. Over the past three decades, many have traveled far and wide from New Haven to increase their understanding of international health and to make contributions to a number of fields of study.

Last summer 17 students worked abroad on projects in Africa, China, Russia, Latin America and Malaysia, among other locations. In October, they presented their findings during the 30th annual fall symposium of the Committee on International Health. The majority of presenters were supported by the Wilbur Downs International Health Travel Fellowship Program at Yale.

In Armenia, George Melikian, M.P.H. '99, studied the prevalence of HIV infection among women engaged in prostitution. Seth Goldbarg and Frederick Cobey, both of the School of Medicine's Class of 2001, traced the causes of cryptosporidium infections in a village in the highlands of southwestern Ethiopia. And in Romania, Michelle Davis, M.S.N. '99, made an assessment of the conditions in which orphaned children live.

Other students described studies of HIV transmission among pregnant women in Puerto Rico and HIV counseling and testing in Uganda. Projects displayed on posters in the Laboratory of Epidemiology in Public Health building reported on organ transplants in Armenia, pregnancy outcomes and cardiovascular risk factors in Cameroon, hantavirus in Malaysia, hookworm in China, HIV in Russia, the availability of contraceptives among Cambodian refugees in Thailand, and gene therapy research in St. Kitts and Nevis.

The program, founded in the 1960s, began to receive regular funding in the 1980s, when it was renamed in honor of Wilbur Downs, M.D., an expert on tropical and infectious diseases and a Yale professor who believed students should learn by doing. One of the major lessons students learned was that logistical barriers are often the most formidable.

In Uganda, for example, Mr. Cobey and Mr. Goldbarg studied a highlands village of 3,000 people where the distance to a government-run clinic and cost of treatment limited access to health care. The Ugandan government's refusal to let Mr. Cobey take blood samples stymied his efforts in a second project to gauge the prevalence of malaria.

Students whose proposals are accepted by a committee of about two dozen representatives of various disciplines receive round-trip airfare, emergency medical evacuation insurance and a $500 stipend. In addition, the program pays for any immunizations they might need. Sponsors on the faculty help students arrange contacts in the host country. Acceptance into the program also allows students to seek a $2,500 grant from the office of student research. About 24 students apply each year and grants are awarded based on the amount of funding available and the quality of the applications.

A reunion of past Downs Fellows is planned for June 4 during Alumni Reunion Weekend at the medical school.

Deputy dean Joseph Warshaw helps Nduka Amankulor begin his medical career during the White Coat Ceremony. Below: **Members of the class of 2002 smile at the prospects that await.**

PETER CASOLINO (2)

Donning plain white coats, 102 students are welcomed to a lifetime of medicine

Six years ago, alumnus Nicholas P.R. Spinelli, M.D. '44, donated 100 starched white coats to the School of Medicine, beginning a tradition at Yale shared by medical schools around the country.

In late August, during their orientation as first-year medical students, members of the Class of 2002 picked up the threads of that rite of passage. Under a tent on Harkness lawn the 102 entering students joined in a ceremony that welcomed them to medicine and underscored the responsibility that accompanies the donning of the white coat. One by one, faculty members helped them into a garment laden with significance—both for their families in the audience and for the patients they will encounter in the coming four years and beyond.

"The white coat that you will be given this afternoon represents a way of life," said Dean David A. Kessler, M.D. "You will confront real challenges—life and death—in that coat. In essence, from today forward, you will always be wearing it, even if it's just hanging in the closet. It is a symbol of what you do."

Among those joining Dean Kessler in presenting the coats were newly appointed associate dean of students Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '90-93, and Joseph Warshaw, M.D., deputy dean for clinical affairs. Chaplain Alan C. Mermann, M.D., and associate dean Merle Waxman described the school's code of conduct and urged students to seek companionship and encouragement from their classmates. More than a dozen alumni were in attendance.

"For the next four years you will be immersed in learning the science and art of medicine," said Dr. Warshaw. "The Yale tradition is one in which the students take a large part of the responsibility for their education. The goal of education at Yale is to provide the broadest scientific and medical foundation possible to prepare you for whatever area you choose."

Deputy Dean for Education Robert H. Gifford, M.D., HS '67, called the ceremony "an occasion to underscore the significance of your entry into a profession where dedication, compassion and caring for others must be at the core of your very existence. Each of you possesses those qualities because that is what caught our eye."

Institute of Medicine elects two alumni to its ranks


Willard Cates


Joseph S. Pagano

Willard Cates, M.D. '71, Ph.D. '71, president of Family Health International in Research Triangle Park, N.C., and **Joseph S. Pagano**, M.D. '57, Lineberger Professor of Cancer Research and professor of medicine, microbiology and immunology at the University of North Carolina School of Medicine, Chapel Hill, have been elected to the Institute of Medicine. They were chosen for their major contributions to health and medicine and for the significant amount of volunteer time they devote on committees engaged in a broad range of studies on health policy.

CLASS NOTES

'30s

Albert W. Diddle, M.D. '30, recently retired from the University of Tennessee Medical Center in Knoxville, where he was the first professor of obstetrics and gynecology.

'40s

Philip B. Chase, M.D. '43, retired in 1996. During his career he served as director of university medicine at Tufts University in Medford, Mass., from 1963 to 1980, and as an associate in medicine from 1980 until retirement.

Richard C. Thompson, M.D., HS '44, developer of the Thompson Surgical Retractor System, is at Stanford, where he is researching proof that a new treatment for poisonous snakebite, proposed and published in *Emergency Medicine*, October 1995, will prove its usefulness.


Vincent J. Longo

Vincent J. Longo, M.D. '46, H.S. '47, participated in the development of Viagra as a clinical investigator for Pfizer Inc., the manufacturer of the impotence drug. Working out of Pfizer's Groton, Conn., office, he recruited 20 men with erectile dysfunction and their sexual partners for a double-blind, randomized, placebo-controlled study. Pfizer's clinical trials would include hundreds of investigators and more than 4,000 human subjects.

Lawrence E. Shulman, Ph.D. '45, M.D. '49, retired director of the National Institute of Arthritis and Musculoskeletal and Skin Disease was elected to the rank of fellow by the American Association for the Advancement of Science (AAAS) in September. The award was presented in January during the AAAS Fellows Forum at the association's annual meeting in Anaheim, Calif.

'50s

Robert L. Hill, M.D. '56, is semi-retired and working part time as a psychiatric consultant for local federal courts and Santa Barbara County, Calif. He attends the Continuing Medical Education Psychiatric Congress every year.

Melville P. Roberts Jr., M.D. '57, retired in June and is now a professor emeritus at the University of Connecticut School of Medicine. He lives on Guernsey in the Channel Islands in the U.K.

Alan A. Stone, M.D. '55, HS '55-56, the Jouroff-Glveck Professor of Law and Psychiatry at Harvard, writes to say that he was delighted to see his former student David Kessler, M.D., chosen as dean.

'60s

Malcolm A. Martin, M.D. '62, of Chevy Chase, Md., was elected in April to the National Academy of Science.

'70s

Edward C. Halperin, M.D. '79, is the L.R. Prosnitz Professor and Chairman of the Department of Radiation Oncology at Duke University Medical Center in Durham, N.C.

Jesse B. Jupiter, M.D. '72, director of orthopaedic hand surgery service at Massachusetts General Hospital, where he has been practicing since 1975, has been promoted to professor of orthopaedic surgery at Harvard Medical School.

'80s


Jeffrey C. Faig

Jeffrey C. Faig, M.D. '80, is presently chief resident in obstetrics and gynecology at Kaiser Medical Center in San Francisco. He also completed an endocrinology fellowship at Stanford and an internal medicine residency at the University of California, San Francisco. Dr. Faig plans to practice obstetrics and gynecology in Northern California next year.

Ina S. Cusman, PA-C '86, of Weymouth, Mass., has been elected

vice president and speaker of the house of delegates of the American Academy of Physician Assistants (AAPA). Ms. Cushman is a senior physician assistant at Harvard Vanguard Medical Associates in surgical specialities.

Thomas D. Fogel, M.D., HS '82-85, vice president of the Coastal Radiation Oncology Medical Group in Orange and Monterey counties, Calif., was elected president of the 1998-99 Board of Directors of the American Cancer Society's California Division. His appointment was announced in September at the organization's 52nd Annual Meeting in Sacramento. Dr. Fogel has been actively involved with the American Cancer Society for 12 years.

'90s


Alan S. Hilibrand

Alan S. Hilibrand, M.D. '90, formerly assistant professor of orthopaedic surgery at Vanderbilt University School of Medicine and at Vanderbilt University Spine Center, has joined the Rothman Institute at Thomas Jefferson University Hospital in Philadelphia. Dr. Hilibrand serves on the editorial board of the *Journal of Spinal Disorders* and on the board of directors of the National Spine Network.

Timothy A. Jacobs, M.P.H. '91, of Tampa, Fla., is a consultant, epidemiologist and international health specialist for South East Asia (Vietnam). He is listed in the 1999 editions of *Who's Who in the World, Who's Who in America, Who's Who in Medicine,* and *Who's Who in the South and Southwest.*

Steven C. Herber, M.D., HS '90-92, was recently named medical director of St. Helena Institute for Plastic Surgery in the Napa Valley. Dr. Herber was also appointed to the residency review committee for plastic surgery by the American Medical Association on Medical Education.

ALUMNI ON CAMPUS


M. David Tilson

M. David Tilson, M.D. '67, a vascular surgeon also noted for his expertise in country blues music, presented a lecture titled *Call for the Doctor: A History of Country Blues Piano* on Thursday, Nov. 19, in the Beaumont Room at the School of Medicine. His talk was part of a series sponsored by the Program for Humanities in Medicine. Dr. Tilson served his internship and residency training at Yale from 1968 until 1972. After a two-year military tour as major in the U.S. Air Force Medical Corps at Regional Hospital, Westover AFB, Mass., he returned to teach at the medical school until 1989 as a professor of surgery (tenured). Dr. Tilson also was chief of the division of vascular surgery at Yale-New Haven Hospital from 1983 to 1989. He left Yale to become the Ailsa Mellon Bruce Professor of Surgery at Columbia University.

His talk addressed how physicians and illness are treated in the folk blues tradition, and explored the origins of early piano and guitar blues and recent trends in the preservation, issues and conservation of piano blues music.

NEW BOOKS

A Time to Die: The Place for Physician Assistance by Charles F. McKhann, M.D., professor of surgery, Yale University Press 1999.

The Anatomy of a Lie: The Truth About Lies and Why Good People Tell Them by Diane M. Komp, M.D., professor of pediatrics, Zondervan (Grand Rapids, Mich.) 1998.

Little Clam by Lynn W. Reiser, M.D. '70, clinical professor of psychiatry, William Morrow & Company Inc. (N.Y.) 1998.

Continued from page 48

challenged me most was learning to work within the social and professional environment of clinical medicine. All our energy was devoted to mastering the vast body of medical knowledge. We rarely took the time to reflect on what we were doing. Morning rounds were business only. Mealtimes were filled with didactic lectures in darkened amphitheaters. We discussed facts—hard data verifiable by experiment. We spent great energy on rounds to present an impenetrable facade which succeeded if it anticipated and answered all the questions of the senior physician.

There was no place for vulnerability, exposure, uncertainty or the admission of incomplete knowledge. As a result, there was no place to address the ambiguous forces that would make us reluctant to convey a diagnosis such as cancer. We were never able to expose our frustration with a system that does not always succeed in listening to the suffering of patients.

As I spoke with fellow students, I found that they shared my sense of isolation in their own struggle to interpret the experience of clinical medicine. To address this need, I met with seven other fourth-year students to organize a series of dinner-discussions that we hoped would provide a forum for the type of open and honest reflection missing from our own third-year experience. So far, attendance has been sparse. Students explain that they are too busy. However, one-on-one discussions confirm that many students recognize the need to reflect together on our own development as physicians. We are still feeling our way, but in the next months we will meet with faculty and students to redesign the forum. With a little luck, we just might find a way to catalyze a new type of conversation that is both compelling for our growth and convenient for our schedules.

Daniel E. Hall, B.A. '91, M.Div. '96, is a fourth-year medical student scheduled to graduate in May. He will be ordained in the Episcopal Church in June, and he plans a career in surgical oncology.

PHILLIP G. COUCHMAN

Phillip G. Couchman, M.D., died of cancer at his home in Rockport, Mass., on Aug. 15. He was 73.

Dr. Couchman, born in Iowa, was a 1949 graduate of the School of Medicine and later obtained an EDS degree from the University of Iowa. He did his undergraduate pre-medical studies at Harvard University in an Army Specialized Training Program. A veteran of World War II and the Korean War, he practiced medicine in Mount Pleasant, Iowa, for more than 20 years. He was founding faculty member of the Department of Family Practice at the College of Medicine of the University of Iowa, and served as an associate professor for 17 years. During that time, Dr. Couchman maintained a clinical practice and trained physicians in the art and science of medicine. He was a contributing editor of the *Yearbook of Family Medicine.*

In 1987 he moved to Rockport, where he was a member of the Sandy Bay Historical Society.

PHILIP M. LECOMPTE

Philip M. LeCompte, M.D., formerly of Newton Centre, N.Y., died Sept. 15, in Lexington, Mass. He was 90.

Dr. LeCompte graduated from the University of Minnesota and received his medical degree from Yale in 1936. He then worked at the Harvard Physiology Laboratory and in 1940 returned to teach at Yale. Dr. LeCompte was chief of pathology at Faulkner Hospital in Boston for more than 30 years until he retired in 1974. In 1966 he co-authored the medical textbook *The Pathology of Diabetes Mellitus.*

JOHN R. LINCOLN

John R. Lincoln, M.D., died Aug. 16, in Sarasota, Fla. He was 80.

Born in Hartford, Conn., Dr. Lincoln graduated from the School of Medicine in 1942, where he was a member of Alpha Omega Alpha honorary medical society. He served his internship and residency at Hartford Hospital. He served with the Marine Corps as a Naval Reserve officer during World War II.

From 1948 until his retirement in 1973, Dr. Lincoln was chief of the Department of Anesthesiology at the Maine Medical Center in Portland. There he established a residency training program in anesthesiology and served as its first full-time anesthesiologist. He was the first chair of the center's Patient Care Committee and vice president of the medical staff. Dr. Lincoln was also an associate professor at Tufts University School of Medicine and a consultant to several Maine hospitals at the time of his retirement. Dr. Lincoln lived in Casey Key and Sarasota, Fla., for the last several decades.

LINCOLN OPPER

Lincoln Opper, M.D., a former longtime forensic pathologist for the Connecticut State Police, died Sept. 1 at home in Rockport, Maine.

Dr. Opper received his bachelor's degree from Yale in 1927 and his medical degree from the University of Munich in 1933. He did his internship at Yale-New Haven Hospital, where he was the first resident in neuropathology, and was an instructor in pathology at the School of Medicine.

During his career, he held positions at the University of Arkansas and at Norwich State, Backus and Charlotte Hungerford hospitals in Connecticut, and at Camden Community and Knox County hospitals in Maine.

DONALD A. PIOUS

Donald A. Pious, M.D., a University of Washington immunologist, died on Sept. 6 at his home in Seattle. He was 68.

Born in Bridgeport, Conn., Dr. Pious received his bachelor's degree in 1952 and his medical degree in 1956 from the University of Pennsylvania.

He served his residency in pediatrics at Yale in 1956 and continued his career at the University of California at San Diego and the University of Washington.

According to his obituary in the *New York Times*, Dr. Pious made important contributions to immunology by producing cell mutations that revealed how the body's killer T-cells distinguish between foreign substances, or antigens, and the body's own cells. His work led to the discovery of how particular molecules appear on protein markers, like flagpoles, that protrude through the cell's membrane and can identify a cell containing a virus as foreign tissue to be rejected. Dr. Pious's advances were central to later research on autoimmune diseases, like rheumatoid arthritis and multiple sclerosis, as well as on the entire system of histocompatibility, which involves the body's response to transplants.

EDWARD F. RABE

Edward F. Rabe, M.D., died Oct. 3 at his home in Whitefield, Maine. He was 79.

Born in Watsontown, Pa., Dr. Rabe was a graduate of Bucknell University and received his medical degree from Yale in 1943. He served two years in the Army Medical Corps in Europe as epidemiologist in the Theatre Chief Surgeon's Office. He returned to Yale as an instructor in pediatrics.

In 1951 Dr. Rabe became head of the department of pediatrics at Geisinger Memorial Hospital in Danville, Pa., and in 1958 he was one of the first National Institutes of Health Fellows in Pediatric Neurology at Massachusetts General Hospital. Dr. Rabe then became chief of pediatric neurology at Boston Floating Hospital and professor of pediatric neurology at Tufts University School of Medicine. He also established the department of pediatric neurology at King Faisal Specialist Hospital and Research Center in Riyadh, Saudi Arabia.

In 1989 Dr. Rabe moved to Maine where he was active in Literacy Volunteers of America and was chairman of its Greater Augusta affiliate.

JOHN K. ROSE

John Keith Rose, M.D., died July 11 in Cambridge, England, where he had lived for the past 37 years. He was 72.

Born in Amboy, Minn., Dr. Rose served in the U.S. Army Air Corps during World War II. He earned a bachelor's degree from Macalester College in 1950 and his medical degree from Yale in 1954. Dr. Rose trained at Johns Hopkins Hospital in Baltimore and then joined the staff at the Rockefeller Institute for Medical Research in New York. He studied at Sweden's Karolinska Institut in the academic year 1960-61 and then joined the Cambridge University faculty where he was a senior lecturer in the department of pathology. He was a fellow of Emmanuel and Pembroke Colleges. He retired in 1995 but continued limited supervision of his department thereafter. He also pursued research in kidney transplantation at the Hennepin County Medical Center in Minneapolis.

CHARLES F. SCHOLHAMER, SR.

Charles F. Scholhamer, Sr., died Oct. 2 in Guilford, Conn. He was 81.

Born in New Haven, Dr. Scholhamer graduated in 1939 from Yale University and in 1942 from the School of Medicine. He served his residency at Grace-New Haven Hospital.

Dr. Scholhamer was a New Haven pediatrician for 25 years and, before his retirement, was assistant medical director for Aetna Life and Casualty Inc.

KENNETH W. THOMPSON

Kenneth Wade Thompson, M.D., of California, died July 14 after a progression of disabling strokes. He was 93.

Dr. Thompson received his medical degree from Harvard in 1930. He came to Yale in 1935 as a fellow in experimental endocrinology and, from 1937 to 1938, was the Alexander Brown Cox Memorial Fellow. From 1938 to 1944, Dr. Thompson was an assistant professor of surgery.

In 1944, he returned to Boston to develop a private surgical practice. During this time he was also editor of the *New England Journal of Endocrinology*. In 1948 he was appointed vice president of Organon, a New Jersey pharmaceutical firm, where he worked as director of research for almost 20 years. Dr. Thompson then served as a professor of obstetrics and gynecology at the University of Wisconsin Medical School. He later moved to New York and was elected to the presidency of the New York Academy of Sciences, where he served until his retirement in 1973.

IN MEMORIAM

The School of Medicine has received notification of the death of the following persons:

Frank R. Allen, M.D. '51
July 17, 1998

Albert S. Atwood, M.D. '45
August 8, 1998

Isreal E. Kirsh, M.D. '30
May 8, 1998

Philip M. LeCompte, M.D. '36
September 15, 1998

Robert R. McDonnell, M.D., HS '50-51
December 11, 1997

Phong Tuan Nguyen, M.P.H. '58
November 15, 1995

Trudee C. Parenteau, M.P.H. '78
January 10, 1997

Kenneth C. Steele, M.D. '45
July 11, 1998

Herbert Allan Wenner, M.D., HS '41-45
April 21, 1998

John H. Wentworth, M.D. '39
June 21, 1998

Can't talk now

A student reflects upon life on the wards
and looks for ways to improve communication.

By
Daniel E. Hall

I met him in the emergency room. As a third-year student, I now performed many basic procedures on a daily basis but this case was a first for me. The physical examination was unremarkable until I discovered a large, bleeding, irregular mass where his prostate should have been. From that moment, I knew the man had cancer.

Subsequent work-up confirmed diagnosis, metastatic rectal carcinoma, but what disturbed me most was that, as far as I could tell, nobody informed the patient for over 36 hours. Yet in that time he was subjected to a series of rectal exams by grave-faced physicians. A biopsy and CT scan were performed to confirm suspicions. Within 10 minutes of my discovery, we were already detailing his poor prognosis—but only outside the room and among ourselves. The hard work of informing the patient was deferred, and I cringe to think how the gravity of our countenance and the flurry of our activity tortured his imagination.

◆ ◆ ◆

It happened every morning during "lightning rounds." Sheepishly we stood by as the resident hurled questions at the case in the bed while jabbing her fingers into its abdomen in a cruelly ritualized abstraction that passed for a physical exam. It did not matter that the case could not understand the questions. The case had pancreatitis and the resident already knew the story. It did not matter that the case told a different story when the resident rushed away. It did not matter that we all averted our eyes, afraid to confront the fear, confusion and suffering in the case's face. It did not matter that I was guilty by association each time the resident transformed our "team" into a pack of marauding wolves.

◆ ◆ ◆

The anger was palpable. It was 2 a.m.—and they all knew what was coming. Starting with me, they would spend the rest of the night answering the same questions repeatedly as they made their way through the emergency room, medical admitting and finally up to the cancer unit. They were tired of rehearsing the story of their father's nine-month decline into disseminated lymphoma with the first incorrect diagnosis, the second correct and devastating diagnosis, the three less-than-perfect surgeries, and the unexplainable complications. They could not understand why they had to rehearse the details already contained in his chart. They were fed up with doctors who seemed not to listen. They were exhausted by the disease. They were angry at me before I even entered the room.

As a medical student, I had the luxury to dedicate 60 minutes to this family. As they vented their frustration, the anger started to cool, and they left the emergency room satisfied that at least one person had listened. I worry that the structure of post-graduate training will not permit me this luxury when I am a house officer.

◆ ◆ ◆

It puzzled me at first. It seemed odd and a little annoying that a fellow medical student would publically grill me with detailed questions after my presentation. After inquiring about my topic the day before, she had apparently done some homework. I concluded she must be a very diligent, if slightly over-eager, student.

Two weeks later I inquired about the subject of her impending presentation. I was dumbstruck when she said, "You made the mistake of telling me your topic. I'm not that stupid."

Disturbing stories such as these are rare in my experience, but I suspect most physicians and medical students would have similar vignettes to share. Medical education is full of dedicated people with the best of intentions, but with regrettable frequency the system grows larger than the individuals within it, and the human touch is all too easily lost—if only temporarily. Each of these four stories is just a snapshot of many days and nights, but I think each illustrates a breakdown in communication. As a medical student, I was disturbed by my own role in this broken communication, but more disturbing to me was that the medical team rarely discussed these troubling experiences.

I never expected the third year to be easy. I was prepared for the long hours and the intellectual demands, but what

Continued on page 45

Continuing Medical Education *at Yale*

Feb. 26-27
Friday-Saturday
Workshop on Positron Coincidence Imaging
Course Directors: Chin Ng, Ph.D., and Holly Dey, M.D.
New Haven Hotel, New Haven

Feb. 27-28
Saturday-Sunday
Spinal Canal Endoscopy Supercourse
Course Director: Lloyd Saberski, M.D.;
Co-director: James Rosser, M.D.
Temple Medical Center, 40 Temple St., New Haven

March 3
Wednesday
Intensive Workshop on the Difficult Airway
Course Director: William Rosenblatt, M.D.
State University of New York, Stony Brook, N.Y.

March 6
Saturday
New Diagnostic, Therapeutic & Assessment Approaches to Epilepsy in Children and Adults
Course Director: Susan Spencer, M.D.
Foxwoods Resort & Conference Center,
Ledyard, Conn.

March 10-14
Wednesday-Sunday
Homelessness in the Elm City
Course Director: Michael Rowe
Harkness Auditorium, New Haven

March 12-13
Friday-Saturday
Autism, Asperger's Syndrome and Related Conditions
Course Directors: Fred Volkmar, M.D., and
Ami Klin, Ph.D.
Omni Hotel, New Haven

March 19
Friday
Child & Adolescent Affective and Anxiety Disorders
Course Director: Joan Kaufman, Ph.D.
CMHC Auditorium, New Haven

March 19
Friday
Medical and Surgical Retina Symposium for the Specialist and the Generalist
Yale Eye Center, Boardman Building, Room 307,
New Haven

April 9-10
Friday-Saturday
NIA Conference on Aging
Course Director: Joanne McGloin
Doubletree Islander Hotel, Newport, R.I.

April 30
Friday
New Developments in Endocrine Disease with Surgical Import
Course Director: Barbara Kinder, M.D.
Omni Hotel, New Haven

May 8-9
Saturday-Sunday
Spinal Canal Endoscopy Supercourse
Course Director: Lloyd Saberski, M.D.;
Co-director: James Rosser, M.D.
Temple Medical Center, 40 Temple St., New Haven

For information, contact the Office of Postgraduate and Continuing Education, Yale University School of Medicine, 333 Cedar Street, P.O. Box 208052, New Haven, CT 06520-8052; Tel: (203) 785-4578

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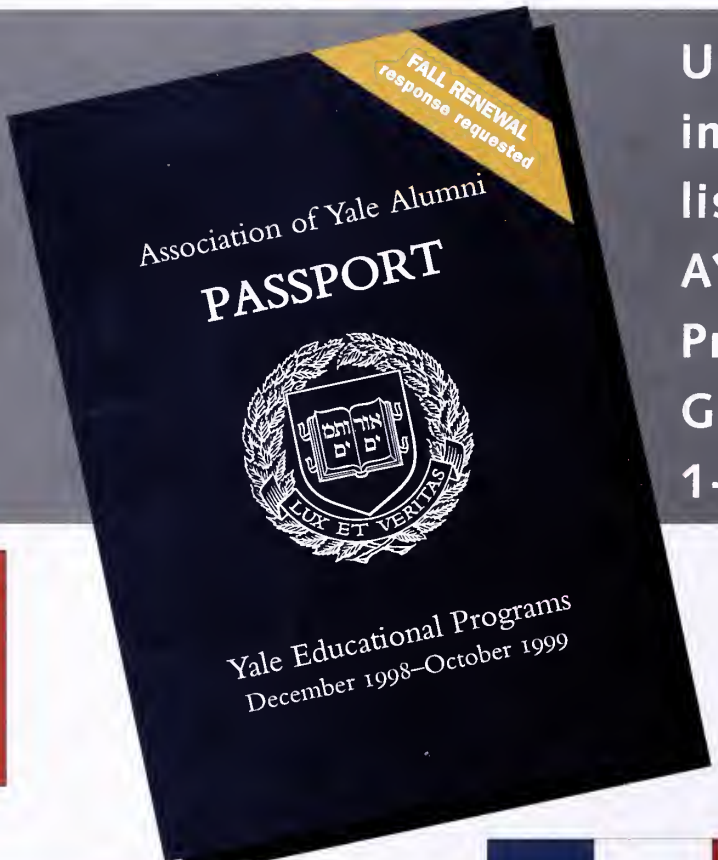

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July 7–17, 1999

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September 7–18, 1999

The Maritimes and the St. Lawrence
July 13–23, 1999

Voyage Around Italy
May 14–25, 1999

Elbe River: Berlin and Prague
June 16–28, 1999

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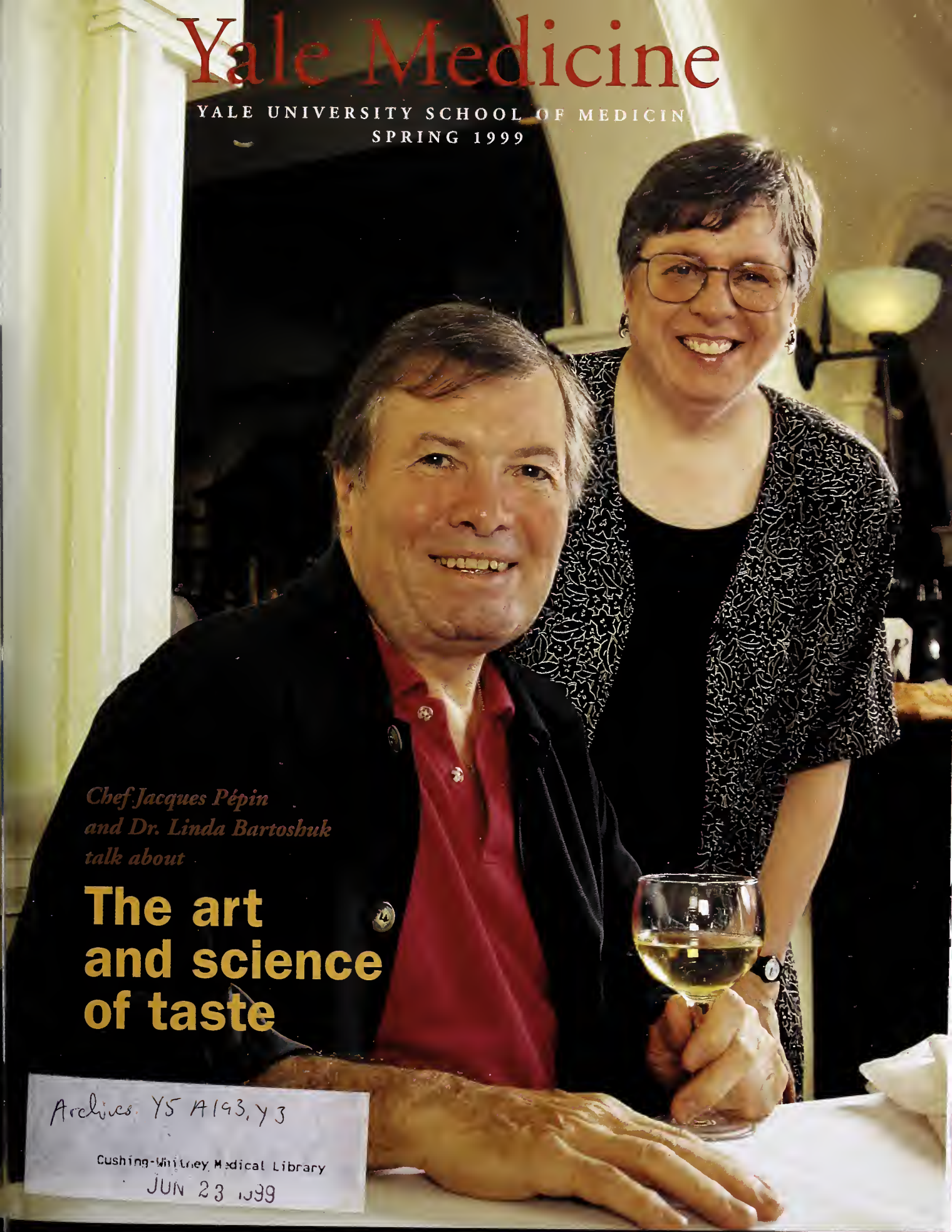

Chef Jacques Pépin and Dr. Linda Bartoshuk talk about

The art and science of taste

Expanded quarters for the Child Study Center

JOHN CURTIS (2)

Construction of the Irving and Neison Harris Building, a five-story addition to the Child Study Center facing Harkness lawn, is nearing completion and will be dedicated during a symposium in October. Designed by Centerbrook Architects, the building adds 22,000 square feet to the center's existing facilities in Sterling Hall of Medicine and the Winchester building.

The new structure includes space for programs in early child development, school development, community based interventions relating to children and trauma research into complex neuropsychiatric disorders (including autism, Tourette's syndrome an obsessive-compulsive disorder) and new teaching facilities (including a 160-seat auditorium). The Harris building completes the third phase of a spac plan for the Child Study Center that dates to 1974. The first two phases were the construction of the Provence-Harris Child Development Unit and the Child Psychiatry Inpatient Service at Yale-New Haven Hospital.

"The new facility will provide vital new space f all of the programs within the Center, and it will be special resource for the New Haven region," says center director Donald Cohen, M.D. The Harris buil ing will support the Center's missions of promotin the health of children and families, the education students and fellows, and the advancement of the science of child development.

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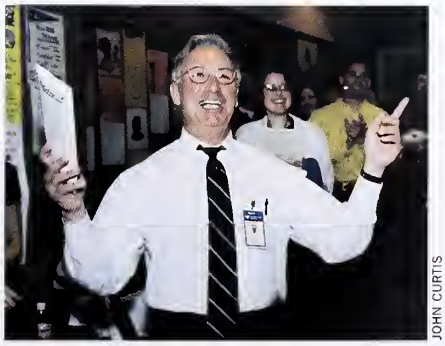
JOHN CURTIS

No item too odd at sixth annual student auction, Page 41.

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On the cover: Linda Bartoshuk, an experimental psychologist in the Department of Surgery's section of otolaryngology, talked about the varieties and subtleties of taste with French chef Jacques Pépin during lunch at the Union League Café in New Haven. Their conversation, edited for *Yale Medicine*, appears on Page 28.
Cover photograph by Gale Zucker.

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

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Please recycle

A little more candor in class profile

To the Editor:
I must comment that the article on the Yale medical school Class of 2002 [*First-Year Class Brings More than Smarts to School,* Winter 1999] does injury to the English language. How is it possible to write that the class represents "a broad cross section of backgrounds and interests" when more than a third were undergraduates at either Yale or Harvard? Or when "half the class is Hispanic, African American or Asian-American"? Without reference to census data, it seems to me that together those minorities constitute 25 percent or less of the American population.

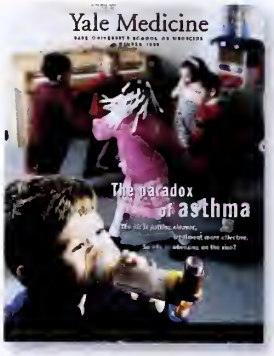
Now I could care less who you admit or why, but don't try to tell me that such a narrow admission policy is "broad." Come on, guys, this is Yale, not some bush-league operation. Tell it straight.

Michael W.R. Davis, B.A. '53
Royal Oak, Mich.

PETER CASOLINO

Asthma model was a group effort

To the Editor:
Your article on asthma [*Mapping the Landscape of Asthma,* Winter 1999] explained very nicely the ever-increasing problem this disease represents in the United States and worldwide, as well as the efforts at Yale to address this pressing problem. I wish, however, to point out that the inducible transgenic mouse that was described, in which genes can be turned on and off at will, was not prepared solely in my laboratory. It was a collaborative effort of a number of laboratories including that of Prabir Ray, Ph.D., associate professor of medicine in the Department of Internal Medicine.



Jack A. Elias, M.D.
Professor of medicine
Chief of pulmonary and critical care medicine

Corrections

The caption on page 25 of the Winter issue of Yale Medicine incorrectly described the device shown in the photograph. It is a peak flow meter, used to measure a patient's ability to move air through the lungs, one indicator of the activity of asthma.

Alan A. Stone, M.D. '65, HS '55-56, is the Touroff-Glueck Professor of Law and Psychiatry at Harvard. His title was incorrect in the Alumni Notes section of the Winter issue.

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.**

1998-99 Association of Yale Alumni in Medicine

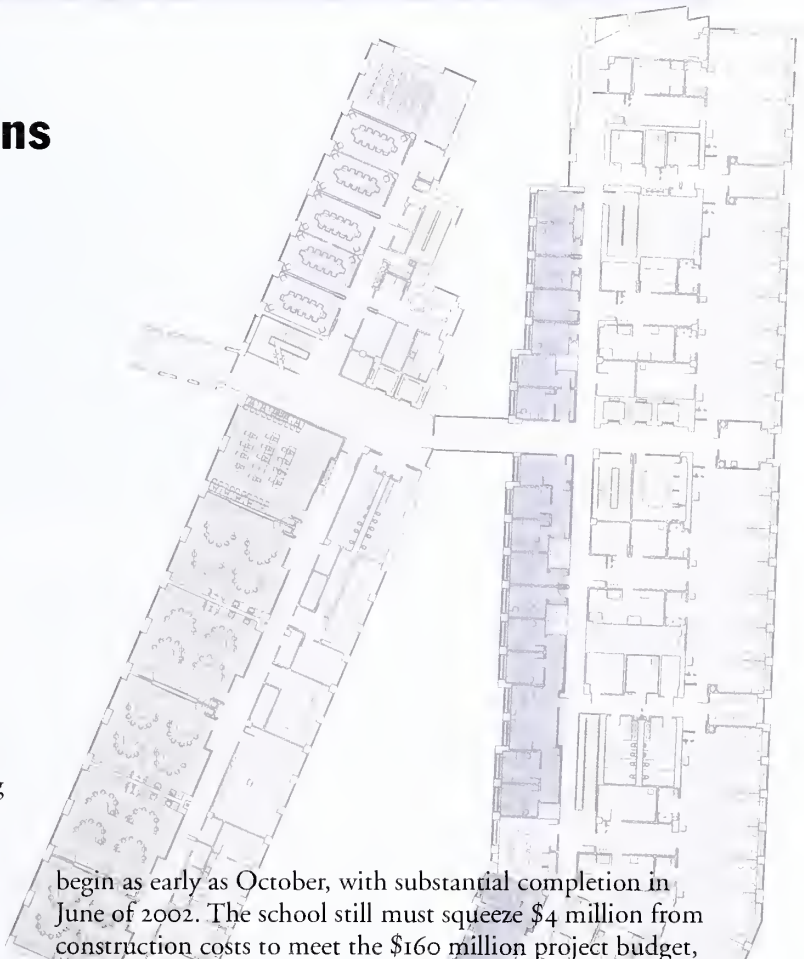
Congress Avenue project gains the backing of city officials

Plans for a new research and teaching complex on Congress Avenue took several large steps forward over the winter, bringing the planning process for the proposed 440,000-square-foot structure closer to completion.

New Haven's Board of Aldermen approved the plans on March 15, leaving a final review by the City Plan Commission in May. The Yale Corporation, which is reviewing the project in stages, endorsed the design development phase last fall. In early April, the Corporation authorized funding for construction documents for the building.

"This building is about more than bricks and mortar," Dean David A. Kessler, M.D., said at a press conference with city officials and community leaders in February. "It's about people and ideas and the creation of a favorable environment for making medical breakthroughs. By having a clear focus on disease, I think we will see real advances that impact both individuals and the health of the public. Our goal is to advance the scientific basis of the practice of medicine."

Demolition of two buildings on Congress Avenue will begin in August, and construction of the new facility is to begin as early as October, with substantial completion in June of 2002. The school still must squeeze $4 million from construction costs to meet the $160 million project budget, develop a parking plan and relocate offices from the buildings slated for demolition. Bruce Carmichael, who manages the myriad details of the process as executive director of major projects, admits it's not a simple task. "This is a three-dimensional checkers game in the dark on a rocking boat," he observed. "But we will find a way to make it work."



The new building will be about three times the size of the Boyer Center for Molecular Medicine, which opened in 1991 on a site diagonally across Congress Avenue. Much of the new space will be devoted to wet-bench laboratories and the school's Magnetic Resonance Center. The new building will also include histology and anatomy laboratories for medical education, meeting rooms, and a 140-seat auditorium and expanded laboratory support.

Laboratories will have a standard design, with no customized fittings, in order to maintain flexibility. "As research groups grow, as program needs change, we expect a great deal of assignment and reassignment. We want a generic quality that can accommodate that," Carmichael said.

Above right **The Congress Avenue building is Yale's largest project in several decades. The $160 million facility will be largely devoted to wet-bench laboratory space, a magnetic resonance center, new teaching facilities in anatomy and histology, an auditorium and expanded laboratory support.**
Below **Mayor John DeStefano joined Dean David Kessler in February for the unveiling of plans for the new 440,000-square-foot facility.**

JOHN CURTIS

Yale-created Lyme vaccine hits the market

LYMErix, a vaccine against Lyme disease based on Yale research licensed to SmithKline Beecham Pharmaceuticals, received Food and Drug Administration approval in December for prescription use. Yale served as a major study center during clinical trials of the compound, which is the first vaccine approved for the disease.

The vaccine, which became available to patients in January, was derived from basic research performed at the School of Medicine by a team including Richard A. Flavell, Ph.D., Fred S. Kantor, M.D., Erol Fikrig, M.D., and Stephen W. Barthold, D.V.M., Ph.D.

The FDA approval restricted its use to people between 15 and 70 years old pending the outcome of further testing. "There are currently studies in progress to evaluate the vaccine in children," said Robert T. Schoen, M.D., clinical professor of medicine and director of the Lyme Disease Clinic at the medical school. In addition, researchers will track the need for booster shots beyond the three initial injections. Given over the course of a year, the three doses of the vaccine were found in clinical trials to provide 78 percent protection against Lyme disease.

Schoen cautioned that other measures, such as protective clothing and insect repellent, should be taken with use of the vaccine. "The vaccine is not 100 percent protective," he said. "Other tick-transmitted infections could also occur. It is important that the vaccine be part of an overall prevention program."

Lecture series gives public an inside look at drug discovery

During the past 150 years, scientists and physicians first discovered that germs, bacteria and viruses caused disease, then found agents that could destroy, thwart and obstruct the pathogens. Disease and its treatments were the topic this winter of a five-part public lecture series sponsored by the Office of Postgraduate and Continuing Medical Education. This year's series was titled *What's In Your Medicine Cabinet?*

"The past few decades have seen remarkable advances in pharmacology and the management of a large number of common diseases," said James D. Kenney, M.D., associate dean for postgraduate and continuing medical education and the course organizer. "The effectiveness of frequently prescribed drugs, as well as their costs and interactions, are matters of public concern." The Patrick and Catherine Weldon Donaghue Medical Research Foundation, based in Hartford, Conn., provided support for the series, which attracted 44 people from New Haven and surrounding towns.

While scientists today explore the genetic and molecular underpinnings of disease and treatment, early chemists and physicians found medications in unlikely sources. Toxic waste generated in the manufacture of coke yielded synthetic indigo, from which German chemists derived sulfa drugs that stymie the production of bacterial DNA. Arsenic, a heavy metal, became a remedy for syphilis. Scientists developed gramicidin as they exploited bacteria found in soil to control other bacteria.

Speakers for the lecture series included Frank J. Bia, M.D., professor of medicine (infectious diseases), who discussed *How We Pick and Choose Antibiotics;* Silvio E. Inzucchi, M.D., assistant professor of medicine, *Diabetes Treatment in 1998: Something Old, Something New;* Karl L. Insogna, M.D., associate professor of medicine, *Osteoporosis and Paget's Disease of the Bone;* John F. Setaro, M.D., associate professor of medicine, *The Management of Hypertension;* and Elena Citkowitz, M.D., assistant clinical professor of medicine, *Treatment of Cholesterol and other Lipid Disorders.*

NCI renews Cancer Center's comprehensive designation

The Yale Cancer Center, which is marking its 25th year in 1999, has again earned designation from the National Cancer Institute as one of the nation's comprehensive cancer centers. It is one of 37 such centers in the United States and the only one in southern New England.

The center first received NCI designation in 1974. Last August the NCI renewed the center's five-year Cancer Center Support Grant, which supports research administration for the center's 14 research programs, shared resources and developmental activities. Redesignation as a comprehensive cancer center followed in December.

To attain comprehensive recognition, an institution must pass a peer review and perform basic research, clinical research and cancer prevention, control and population-based research. The NCI designation indicates that Yale is a center of unusual excellence in research and clinical care and an important community resource for education, information and outreach.

A "toxic mismatch" in Havana

PETER CASOLINO

JOHN CURTIS

Helena Hansen's research in Havana, left, on Cuban HIV policy showed the potential for higher rates of infection.

For years Cuba had the distinction of being the only country in the world to quarantine people who tested positive for HIV. One of a handful of remaining communist nations, Cuba took pride in comparing the success of its approach with the failures of capitalist nations to contain the disease. But all that is changing, reports Helena Hansen, an M.D./Ph.D. candidate at Yale who spent six weeks in Cuba in 1997, interviewing physicians, public health professionals and people with or at risk for HIV infection.

She found a growing recognition among health care professionals that a new strategy is needed as tourism becomes the leading industry and Cubans flock to the cities to become entrepreneurs in a new, dollar-based economy. "There are many social changes taking place because the economy has changed so much," Hansen said in January during a talk that was part of the Humanities in Medicine series.

Change in health strategy faces formidable obstacles in Cuba, where universal health care has been a cornerstone of social policy since the 1959 revolution that brought Fidel Castro to power, Hansen said. Cuba eradicated polio, diphtheria and other diseases endemic to other Latin American nations. The island has twice the number of doctors per capita as the United States and significantly lower infant mortality rates than its Caribbean neighbors. Even after Cuba lost its principal financial patron with the breakup of the Soviet Union, the government continued to invest in health care and promote a small biomedical industry. Although fuel, food, housing and consumer goods remain scarce, the government points to health care as a benefit of the revolution.

Cuba's centralized, authoritarian approach to public health allowed it to report one of the lowest incidences of HIV in the hemisphere. In 1997, Cuba had 1,609 cases of HIV and 600 cases of AIDS in a population of 11 million—compared to more than 21,000 cases of AIDS in Puerto Rico, which has a third the population. Cuba banned foreign blood products and monitored its population for diseases that indicated the presence of HIV. Surveillance was so precise that health officials could say with certainty that AIDS came to Cuba in 1985, carried by a bisexual theater worker who had traveled to New York and several soldiers returning from Africa.

"The decision to quarantine HIV-infected citizens reflected a classic approach to public health that Cuba had exercised with success," Hansen said. But, by 1996, despite the containment strategy, HIV infection was increasing. Popular tourist spots in Havana and elsewhere in Cuba, Hansen said, are witnessing a phenomenon unseen since the days of dictator Fulgencio Batista—the emergence of street hustlers called *jineteros*. Today's sex workers come from diverse backgrounds and can be college students, doctors or lawyers who occasionally turn to prostitution to obtain U.S. dollars and access to scarce consumer goods, Hansen said.

In response to pressure from international human rights organizations, Cuban health officials have relaxed their quarantine. People with HIV are advised, rather than required, to spend six months in a sanatorium to learn, among other things, safe sex and behavior modification, but the country has not yet embarked on a comprehensive AIDS education program. Monitoring of HIV-positive people and the tracing of their sexual contacts remain the mainstays of current policy. Scarcity of condoms and a culture of aversion to condoms limit their use. The simple possession of a condom, Hansen said, can label a woman as a prostitute plying the tourist trade. And the illegality of prostitution and strong stigma of homosexuality drive underground two groups at risk for infection. Although the government supports one official AIDS prevention group run by HIV-positive Cubans, it is illegal for other groups to organize without official sanction. Nevertheless, Hansen said, gay men report that recent government promotion of tourism has created a more liberal atmosphere that allows gay clubs and hotels to operate.

"A toxic mismatch may be occurring in Cuba," she said, referring to the high social and geographical mobility of Cubans in the face of inadequate HIV prevention programs. She notes that when it comes to AIDS, revolutionary ideas and a centralized medical bureaucracy may be at odds with the realities of a changing society.

Raiding the reservoir

AIDS Researcher David Ho reports on "hidden HIV" and potential new avenues of attack.

In 1996, when *Time* magazine named David Ho, M.D., as its man of the year, people with AIDS were enjoying the first glimmers of hope for long-term survival, thanks to the combination therapies he and others helped develop. They were living longer, and the new treatments kept many with HIV from developing full-blown AIDS.

Three years later, however, that optimism has waned as the limitations of those therapies have become apparent. Although mortality due to AIDS has decreased five-fold over the last several years, the new treatments don't work for everyone. Strains of HIV are now resistant to the medications. And survival means a life ruled by rigorous adherence to an unforgiving schedule of foul-tasting pills.

Ho, director of the Aaron Diamond AIDS Research Center in New York City, described the next steps in the battle against AIDS at the first T.S. Lin Memorial Lecture, sponsored by the Department of Pharmacology.-In his talk, *Advances and Obstacles in HIV Therapy,* Ho said that studies have found that although some patients have apparently undetectable levels of HIV, pools of the virus remain, lodged in immune cells called memory Cd4 lymphocytes. "The level of replication of the virus, we think, is exceedingly low," Ho said. "One has to come up with a strategy that would facilitate the decay of the reservoir." His approach, still under study, is to activate the immune system's resting Cd4 cells to keep the pool of virus in check. "We think it would be very difficult to drive this pool to zero," he said. "We could drive it sufficiently low that we could ask the immune system to clean it up and keep it under control."

The lecture series honors Lin, a pharmacology research scientist who died in 1992 and collaborated with William H. Prusoff, Ph.D., professor emeritus of pharmacology, to develop the anti-retroviral compound d4T as a treatment for AIDS. Marketed as Zerit, d4T has helped to prolong many thousands of AIDS patients' lives. Ho was introduced by Yung-Chi Cheng, Ph.D., the Henry Bronson Professor of Pharmacology and Medicine, who helped develop 3TC, another AIDS treatment.

JOHN CURTIS

David Ho, center, director of the Aaron Diamond AIDS Research Center in New York, gave the first T.S. Lin Memorial Lecture at the Department of Pharmacology. Here, he is joined by Yung-Chi Cheng and William Prusoff.

Graduate students celebrate common ground at research symposium

Toiling away in a highly specialized branch of scientific research, a graduate student may feel isolated at times, however well the work is going. But across the University, there is a larger community of scholars, many working on similar problems. To enhance communication, some 200 Yale graduate students in the biological and biomedical sciences gathered in early February to exchange ideas across department lines.

The fourth annual Graduate Student Research Symposium brought together students from the 12 core bioscience departments at Yale to discuss their work. "We are all in related fields," said Helen A. Seow, a doctoral candidate in pharmacology and one of the symposium organizers, "but once you get into a department you are very separate. There are people who do things very similar to what I do, but they're across campus."

During the conference, 11 students presented talks on their research in progress. In addition, representatives of pharmaceutical and biotechnology firms were present at a career forum and on panels discussing topics such as *Where Do You Go After Yale?* and *What Else Can You Do With Your Ph.D.?* Other speakers included Susan Hockfield, Ph.D., dean of the Graduate School of Arts and Sciences and professor of neurobiology at the medical school, and Eric S. Lander, D.Phil., professor of biology at the Massachusetts Institute of Technology and director of the Whitehead Institute/MIT Center for Genome Research. A panel on careers in science communications included Douglas Starr, co-director of the science journalism program at Boston University, and Peter Brown, Ph.D., editor of *The Sciences* magazine, published by the New York Academy of Sciences.

Since the first conference in 1996, graduate students have found many new vehicles for communication, including the Combined Program in the Biological and Biomedical Sci-

ences, which this year met its goal of linking all the relevant Yale departments. The greater sense of community has been noticeable, said Elizabeth Doherty, a Ph.D. candidate in the Department of Molecular Biophysics and Biochemistry and chair of this year's gathering. "Students find there has been a lot more integration around campus," she said.

In Macedonia refugee camp, students serve as volunteers

As the exodus of ethnic Albanians from Kosovo continued this spring, a team of student emissaries left for neighboring Macedonia on April 22 to work in a refugee camp served by the medical relief organization Doctors of the World. Margaret Bourdeaux, Seth Goldbarg, Vivian Lombillo, Sharon Chekijian, Aaron Covey and Anya Szeglin were accompanied by their preceptor, Pamela Perry, M.D., assistant professor of surgery (emergency medicine), and by Emine Alijaj, R.N., P.A.-C., a physician associate in the Emergency Department at Yale-New Haven Hospital who was born in Kosovo and speaks Albanian.

The students traveled as volunteers and made themselves available to distribute blankets and oral rehydration fluids, set up tents, dig ditches and change bandages. Before their departure, the group consulted with faculty on medical and psychological issues, as well as the culture shock they can expect to encounter in the camp and upon their return. The students planned to stay in Macedonia for four weeks before returning to New Haven.

Elective C-sections found to reduce HIV transmission to infants

An international study has found that elective caesarean sections, coupled with anti-retroviral therapy, can reduce the incidence of HIV transmission from mother to infant to 2 percent, a nearly 10-fold decrease compared to mothers who received neither treatment. The study, in which a team from Yale participated, was published in April in the *New England Journal of Medicine*. The principal investigator for the Yale team, Warren A. Andiman, M.D., professor of pediatrics and epidemiology, said the study by the International Perinatal HIV Group could change approaches to delivery of infants of HIV-positive mothers.

"My feeling is that the usual practice in the United States will be to do a C-section," Andiman said. "Obstetricians will have to think of compelling reasons not to provide caesarean sections for their patients with HIV."

Physicians were already using elective C-sections to prevent transmission of other infectious diseases, such as herpes simplex. "It has been long held that being born vaginally poses a risk," said B. Joyce Simpson, R.N., M.P.H., pediatric HIV coordinator at the Pediatric AIDS Care Program, and co-leader of the Yale study. But when it came to vertical transmission of HIV, no single study, either in the United States or in Europe, included a sample large enough to provide statistically significant results. Moreover, most data did not distinguish between controlled, elective C-sections and emergency C-sections, which are almost as likely as vaginal delivery to result in HIV infection in the infant. To prevent transmission of HIV, the C-section must be done before labor has begun and membranes have ruptured, Andiman said.

The National Institute of Child Health and Human Development organized the international study, which included mother-child pairs who were studied prospectively, some beginning in 1982. It was comprised of 15 study sites in the United States and Western Europe, including Yale's Prospective Longitudinal Cohort Study. More than 8,500 cases were reviewed to ensure that all data conformed to the study's strict guidelines. They found that elective C-section, without anti-retroviral therapy, reduced the incidence of HIV transmission from 19 percent to 10 percent. Elective C-sections combined with anti-retroviral therapy, including AZT given during pregnancy and at delivery, reduced the rate of transmission to 2 percent.

Outlook for Y2K: partly cloudy but no hurricanes in sight

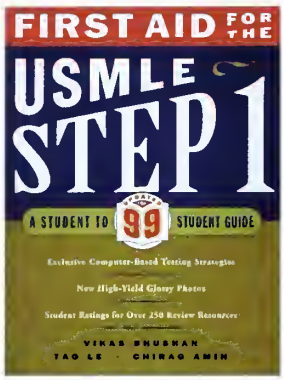
The medical school's computer infrastructure and processor-controlled medical devices are largely in good shape for the turn of the millennium, according to an analysis by the school's Year 2000 Steering Committee. While the school's Information Technology Services division (ITS-Med) has overseen the inventory and risk assessment phase of planning for problems that could occur on January 1, 2000, the individual owners of equipment and systems are primarily responsible for their own testing and troubleshooting. An extensive web site [http://info.med.yale.edu/computing/year2000/] contains up-to-the-minute information as well as tools that allow users to test their own hardware and software. Testing experts for biomedical equipment and other Y2K resources are also available through ITS-Med. The school has hired PricewaterhouseCoopers to assist with business continuity planning. The dire predictions associated with the millennium bug are for the most part exaggerated, said the division's associate director, Susan Grajek. "The impact will be neither a big nothing nor a catastrophe, but more likely a number of localized breakdowns," she said. "That's why it's important for people to assess and plan ahead now."

"First aid" for medical students

Yale's student editors weigh in with advice for the boards.

Every spring second-year medical students across the country prepare for the first of three exams collectively known as "the boards," with a great deal riding on the outcome. At most medical schools, students must pass Step 1, the first of the three tests that comprise the United States Medical Licensing Exam, before they can proceed to their clinical training in the third and fourth years. And board scores are a yardstick by which applications to residencies are measured. "If you do poorly on this exam, it can make it difficult to get into the residency program you want," said Antony Chu, one of several Yale medical students who played a role in publishing this year's edition of the leading guidebook to the exam. "Basically, it can have a major impact on your career."

Chu, a senior student co-editor of the book, spent hundreds of hours last year shaping and writing *First Aid for the USMLE Step 1*. Published in January by Appleton and Lange, it is a student-written guide that helps medical students focus their preparation for the boards. Divided into three parts, it offers a description of the exam, "high-yield" facts that apply to a variety of exam topics and a guide to resources for study. "Essentially every medical student in the country who is taking the exam will have this book," said Chu.



Students at Yale reviewed, revised and edited the latest edition of *First Aid for the USMLE Step 1*, the leading guide to board exams.

The 1999 edition counted on the work not only of Chu, but several other writers, editors and reviewers affiliated with Yale. Medical student co-editor Esther Choo revised sections of the book and contributors included M. Vaughn Emerson, Ronald Yap and Amy Nuernberg. William Stewart, Ph.D., associate professor of surgery, was one of several faculty reviewers. Tao T. Le, M.D., a third-year resident in internal medicine at Yale, was one of the book's three primary authors.

Because the exam this year is being offered via computer at educational testing centers instead of lecture halls, the book has changed some of its advice, said Le. "The exam is no longer a pencil and paper exam," Le said. "The guide is now computer-oriented; students need to know what buttons to push, how to navigate in Windows."

When the guide emerged in 1990 as a 100-page book that sold for $12, it was written and self-published by students at the University of California at San Francisco. In 1992, Appleton and Lange picked it up, expecting to sell 12,000 copies over three years. It sold 9,000 in its first year alone, said Jessica Hirshon, an associate editor at Appleton and Lange, adding that the book now sells about 30,000 copies a year.

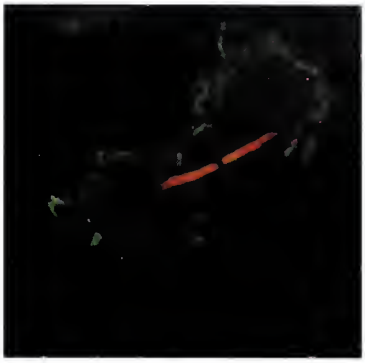
For the Step 1 guide, Chu and Choo supervised the work of seven student contributors and seven other students who reviewed material. The students' incentive, Chu said, was not money. "They got a small stipend, but in terms of the hours they put in, it's nothing," he said. "The spirit of this book is a reflection of the Yale System. It's about students helping each other grow."

Digital imaging center comes to library

Students, residents and faculty members can now create presentation graphics, put videotapes of lectures online and design their own web sites at a new Digital Imaging Center located in the medical library. Judy Spak, instructional technology coordinator at the library, said students are also using the equipment to prepare graphics for their theses. The new center, comprised of three state-of-the-art computers in the Computer Resource Laboratory, a digital camera, color printer, color scanner, and a full suite of imaging and graphics software, was the gift of Martin E. Gordon, M.D. '46, and his wife, Evelyn Gordon. Gordon, who heads the Associates of the Cushing/Whitney Medical Library, demonstrated the new equipment at a reception in November.

JOHN CURTIS

Apoptosis gene suggests new target for chemotherapy

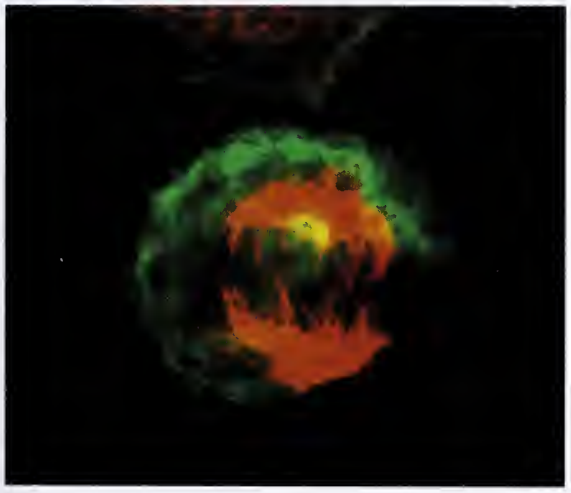


PIER C. MARCHISIO (2)

Survivin, a gene that inhibits the programmed death of cells, can be seen in red on the actin cytoskeleton of a tumor cell, in green.

Yale scientists who identified a gene that enables cancer cells to evade one of the body's mechanisms for weeding out mutations have refined their understanding of the gene and suggested potential new avenues for cancer treatment.

Their findings, published in a December cover story in the journal *Nature,* show that the gene, called survivin, is concentrated on the mitotic spindle, a cell component that is central to the process of cell division. "Survivin was absolutely undetectable in normal tissues, but we found it over-expressed in all the most common human cancers," said Dario C. Altieri, M.D., associate professor of pathology and leader of the study. Survivin inhibits apoptosis, the programmed death of cells, thereby allowing mutated cells to survive.



Because it is present at mitosis, the gene may also be the link between two processes researchers have long believed were connected, apoptosis and cell cycle regulation. In normal tissue, survivin is expressed only during embryogenesis and fetal development, where it is believed to play a role in controlling apoptosis to maintain homeostasis and organ and tissue development.

In its recent findings the team built on its 1997 discovery and cloning of survivin. "We are providing some mechanistic implications for why cancer cells might have selected this particular gene for survival," said Altieri, who collaborated on the project with Pier C. Marchisio, M.D., Ph.D., of the S. Raffaele Scientific Institute in Milan. The next step, Altieri said, is to identify survivin antagonists that would increase the effectiveness of chemotherapy by removing survivin's protective function on the mitotic apparatus.

Unveiling of protein structure could yield tumor-starving drugs

In a finding that could result in more effective angiogenesis blockers, biochemists at Yale and Cornell have discovered the three-dimensional structure of a protein linked to blood vessel growth. Researchers believe the protein, MetAP-2, enables endothelial cells in the lining of blood vessels to respond to growth factors. When the drug TNP-470 blocked the activity of the protein in tumor-bearing mice, new blood vessels failed to grow, thereby starving the tumor.

In the Nov. 13 issue of *Science,* Craig M. Crews, Ph.D., assistant professor of molecular, cellular, and developmental biology, and his colleagues published a "snapshot" of human MetAP-2, both alone and bound to fumagillin, the parent compound of TNP-470. "If we can get a snapshot of how one drug binds to a particular protein, we will know to what part of a protein a drug must bind," said Crews. With such knowledge, he adds, pharmaceutical companies can more easily find drugs that might inhibit MetAP-2 by a similar mechanism. "Knowing how the drug binds to its target is an important step in tweaking the chemical structure, like carving a key to mesh with a lock, in order to make future versions of fumagillin-based drugs even more effective."

Salmonella vector overcomes an obstacle

A year ago, scientists at Yale and Vion Pharmaceuticals reported success in experiments that used a modified salmonella bacterium as a vector to attack tumors in mice. Now the researchers have found a way to reduce the risk of potentially fatal septic shock in humans, making the mutated salmonella a candidate for cancer therapy. "You can eliminate the main culprit that induces septic shock from bacteria," said David Bermudes, Ph.D., assistant professor (adjunct) of medicine and associate director of biology at Vion, which is funding the research. Bermudes, K. Brooks Low, Ph.D., and John M. Pawelek, Ph.D., who have collaborated on the salmonella experiments, removed

FINDINGS

from the bacterium a gene essential to the biosynthesis of lipid A, or endotoxin, which induces septic shock. Their findings were published in the January issue of *Nature Biotechnology.*

The mutated salmonella, tested in mice and pigs for safety, has been shown to reduce tumor growth in mice by more than 90 percent. Injected directly into the blood stream, the bacterium suppresses, but does not completely eliminate, tumors through a process the scientists have yet to decipher. Phase I clinical trials are expected to begin this year.

A simple test to predict presence of Alzheimer's

Dementia often goes unrecognized in elderly people because tests for it are difficult and time-consuming. Yale geriatricians have devised a fast and simple screening method to identify those at risk for dementia who might be candidates for more elaborate testing.

In the "time and change" test, developed by a team led by Sharon Inouye, M.D., associate professor of medicine, patients have two tries in 60 seconds to tell the time on a clock face set to 11:10 and two tries in three minutes to extract one dollar in change from a selection of three quarters, seven dimes and seven nickels. "The test is not designed to replace standard tests," said Inouye, "but to be used as an initial screening to identify people who should be evaluated more thoroughly with more sensitive tests." A study of the test was published in the *Journal of the American Geriatrics Society* in December. "Based on our results, the test could reduce the percentage of patients with unrecognized dementia from 44 to 19 percent," said Inouye.

Researchers discover odor receptor genes in fruit flies

In a finding with profound implications for controlling insect pests that spread disease and cause crop blights, scientists at Yale have identified 16 odor receptor genes in fruit flies. Although researchers had searched for at least 15 years, this is the first time anyone identified those genes in insects. "The reason people have looked so long is that insect olfaction is tremendously important in the real world," said John R. Carlson, Ph.D., associate professor of molecular, cellular, and developmental biology at Yale, and leader of the study. The finding, reported in the February issue of *Neuron,* could help scientists develop agents that would disrupt insects' ability to smell, making it harder for them to mate or target human, animal or plant hosts.

Carlson's laboratory is further exploring its discovery by breeding fruit flies with the odor receptor genes either missing or misexpressed.

Also important, Carlson said, was the method used to search for the genes. Junhyong Kim, Ph.D., assistant professor of ecology and evolutionary biology, developed a computer program that used a search algorithm to scour the Berkeley Drosophila Genome Project for putative odor receptor genes. "It identified a large number of candidate genes that were likely to encode proteins with transmembrane domains," Carlson said. Previous research had led them to believe odor receptor genes would contain seven transmembrane domains. The algorithm, which can be adapted to identify channels, transporters and other membrane proteins needed for the normal function of a cell, can be used for other projects, Carlson said.

NEW BOOKS

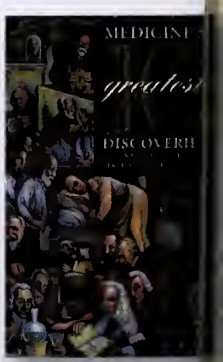
A Dream of the Heart: The Life of John H. Gibson, Jr., Father of the Heart-Lung Machine by Harris B. Shumacker Jr., M.D., associate professor of surgery ('46-48), Fithian Press, 1999.

Care of the Psyche: A History of Psychological Healing by Stanley W. Jackson, M.D., professor emeritus of psychiatry, Yale University Press, 1999.

Felix d'Herelle and the Origins of Molecular Biology by William C. Summers, M.D., professor of therapeutic radiology and molecular biophysics and biochemistry, Yale University Press, 1999.

Hitler: Diagnosis of a Destructive Prophet by Frederick C. Redlich, M.D., professor emeritus of psychiatry, Oxford University Press, N.Y., 1999.

Medicine's 10 Greatest Discoveries by Meyer Friedman, M.D., B.A. '31 and Gerald W. Friedland, M.D., Yale University Press, 1998.



Pediatric Radiation Oncology by Edward C. Halperin, M.D. '79, Lippincott Williams & Wilkins, Philadelphia. The third edition was printed in English in 1998 and the first edition in Russian in 1999.

Proteins, Enzymes, Genes: The Interplay of Chemistry and Biology by Joseph S. Fruton, Ph.D., Eugene Higgins Professor Emeritus of Molecular Biophysics and Biochemistry, Yale University Press, 1999.

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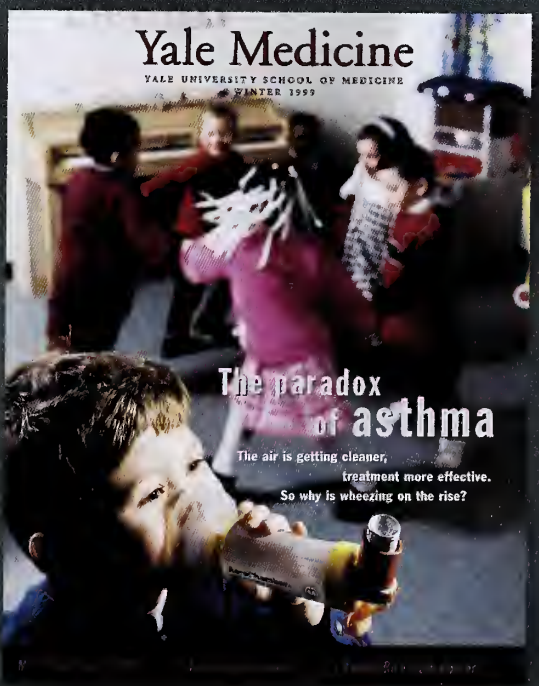

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A running conversation abou

Forty-two years ago, a group of Yale pediatricians and child psychiatrists began meeting to discuss medical cases that crossed into the psychological realm. Both disciplines are still learning from this unique collaboration.

By John Curtis

Harold Bornstein knew the woman he called Mary from her birth until her death almost 30 years later, first as a pediatrician, then as a friend and adviser to her family. A difficult adolescence led her to drink and drugs, and in 1986, when she had a child, she and her son tested positive for HIV. Her family turned to Bornstein for help in handling the resulting medical and social problems.

He, in turn, sought advice from a group of colleagues with whom he had long discussed complex cases. The group, which calls itself the Compleat Pediatricians, was founded in 1957 on the notion that its members would benefit from a better understanding of the psychological and social aspects of their young patients' lives. The patients, too, they believed, would benefit from their increased knowledge of psychology. In the beginning, eight pediatricians and a child psychiatrist/psychoanalyst met weekly to discuss cases involving a range of issues, from sleep disturbance and toilet train-

John Curtis is a staff writer.

Group members gather twice a month over coffee and donuts to discuss challenging cases that involve issues such as moodiness, self-esteem, puberty and divorce.

Left **John Schowalter, a psychiatrist and professor in the Child Study Center, usually leads the Thursday morning discussion group.**

Center **William Stableford, a psychologist, presents a case to Harold Bornstein, Carter Stilson and Albert Solnit.**

Right **Carter Stilson listens as John Scholwalter discusses a case.**

children

ing to the management of wild behavior, anxiety and depression. Before each conference, the child psychiatrist and pediatrician on the case often would have met with the patient and family and worked together on a treatment plan; later, they would report on the case to their colleagues.

Last October, Bornstein, M.D. '53, H.S. '56, and several of his colleagues illustrated the model they devised by describing Mary's case at grand rounds in Fitkin Amphitheater. Breaking from the familiar norm of a lecturer disseminating knowledge with notes and slides, they engaged in a bit of collective remembering, approaching the lectern one by one to reconstruct the case. As the story unfolded, the physicians and nurses who had participated joined in the discussion from around the amphitheater. By the end of the hour, grand rounds closely resembled one of the conferences this group of physicians holds twice a month.

Pediatrician and child psychiatrist working together was a model quite different from the usual course of treatment, in which the pediatrician would refer a case to a psychiatrist, who would then resolve it independently. "It is rare that a pediatrician and a child psychiatrist sit down together and discuss patients," says Robert LaCamera, M.D., who trained at Yale in the 1950s and is one of the group's founders.

This meeting of the minds can be traced to a paper published in 1954 in the journal *Pediatrics*. The authors were Albert J. Solnit, M.D., now commissioner of Connecticut's Department of Mental Health and Addiction Services, and the late Milton J.E. Senn, M.D., who was then chair of the Department of Pediatrics and director of the Yale Child Study Center. Together, Solnit and Senn argued that knowledge of human behavior and society should be incorporated formally into the teaching of pediatrics. The patient, they wrote, "should be considered as a human being in a family setting, not a diseased organ or system." Senn established the Child Study Center in 1948 as the successor organization to Arnold Gesell's Child Development Clinic and was succeeded as director in 1966 by Solnit, who remains on the faculty and is a regular participant in the Compleat

LEFT TO RIGHT: JOHN CURTIS, GALE ZUCKER, JOHN CURTIS

"Their accomplishment has been to stress what should seem obvious, but is very often overlooked. Anyone taking care of children has to deal with issues relating to the family and to the child's social environment."

Pediatricians. Donald J. Cohen, M.D., is the current director of the Child Study Center.

Over the years, the group has influenced the practice of pediatrics at Yale by integrating the theoretical and clinical insights from psychoanalysis and child psychiatry as Senn envisioned. "I think there's a much broader concern today about psychosocial issues relating to children and the importance of behavioral health," says pediatrics chair Joseph B. Warshaw, M.D. "Their accomplishment has been to stress what should seem obvious, but is very often overlooked. Anyone taking care of children has to deal with issues relating to the family and to the child's social environment." The model developed at Yale has been replicated at medical schools and community practices in 14 states.

The group now numbers 18 and includes nurses and a psychologist. They meet two mornings a month over coffee in a conference room named in Senn's honor, beneath the gaze of distinguished psychiatrists whose portraits line the walls. The meeting resembles less a formal presentation than a casual, but enthusiastic, conversation among old friends.

LARGE PROBLEMS AND SMALL

Assessing the collaboration in a 1968 article for *The International Journal of Psycho-Analysis,* Solnit noted that members were better prepared both for the handful of complex cases that came their way as well as more routine matters touching on psychology: Is a child's moodiness part of his personality or a cause for concern? How do parents talk with their children about death, or sex? How do they adjust to the changes surrounding puberty?

About 15 years ago, LaCamera recalled, he sought his colleagues' advice on how to respond to a situation that had not arisen before in his practice. The divorced mother of two adolescent girls felt uncomfortable with their father's request that his daughters visit him in his new home, which he shared with his male partner. The discussion with his colleagues reinforced

Although the group first included only pediatricians and psychiatrists, a psychologist and a nurse have joined its ranks.

Left **Jane Milberg, a nurse at the Yale Health Plan, checks her notes while presenting a case.**

Right **Robert LaCamera, one of the group's founding members, makes a point as Robert Kramer listens.**

LaCamera's own feeling that the girls would benefit from seeing, rather than imagining, their father in his new lifestyle. "The mother still had some reservations," LaCamera said, "but it turned out well and the kids had a good time."

In other instances, discussion makes it clear that a case from the clinic is clearly beyond the purview of either pediatrics or child psychiatry. Jane Milberg, M.S.N., looked to the group for suggestions that would help a 10-year-old boy with abdominal problems that seemed to have no medical basis. She recommended a high-fiber diet to address his physical condition, but over time it emerged that his difficulty was very likely related to a wrenching family situation and a dispute over custody. "This is really law and Jane is a nurse, not an attorney," said John E. Schowalter, M.D., a psychiatrist in the Child Study Center who frequently moderates the discussions. The group concurred with Milberg's decision to refer the case to a social worker with expertise in custody matters and advise the boy's father to obtain legal advice.

The tale of Mary and her son also required psychological and social insights. She would live only six and a half years after her son was born and she could provide no stable home for him. "Mary was in and out of institutions, jails and hospitals with great regularity," Bornstein told the audience at grand rounds. Meanwhile, difficult decisions had to be made about the boy's future. Although he no longer presented traces of HIV, the stigma of AIDS had ruled out the family's plan to place the baby for adoption. Mary's older sister, who had another son, took him into her home. The next step was explaining the topsy-turvy social structure to the boy. "The decision was made that he should know that his mother was indeed his mother, but that functionally, his aunt and uncle were his parents," said Bornstein. The boy has fit into his new family, which has legally adopted him.

GALE ZUCKER

The Compleat Pediatricians now includes a mix of original members and others who have joined since the group was founded in 1957. At a recent meeting were Harold Bornstein, Albert Solnit and William Stableford, seated, and Dennis Bekeny, Robert Kramer, Robert LaCamera and Carter Stilson, standing.

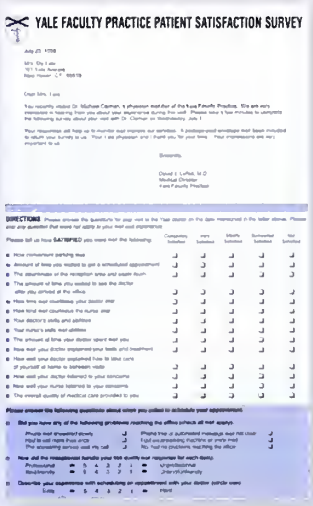
JOHN CURTIS (2)

At grand rounds, the discussion bounced around the room, drawing in members of the group and others involved in the case, including Warren A. Andiman, M.D., professor of pediatrics and epidemiology who specializes in pediatric AIDS, and Joyce Simpson, R.N., pediatric HIV coordinator in the AIDS care program. Warshaw summed up the discussion with a question. "How," he asked Bornstein, "did this end up helping you be a more effective pediatrician?"

"It was very helpful to have experienced colleagues expressing their feelings," Bornstein responded. "In 1986 AIDS was a very fearsome disease. HIV-positive children were not allowed to go to school. They were isolated. With support from our group, I was much more comfortable in dealing with the baby who was thought to be infected at that time."

Schowalter added that the collaboration is more than a typical consultation. "It's a synergy when the group really gets to know each other," he said. "A lot of the support comes from pediatricians who bring in their decades of experience. Because we have all been together so long, it really is a collaboration where both sides give to each other." YM

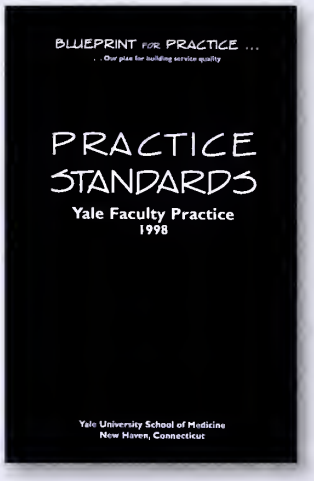
A visitors guide and other materials have been introduced to emphasize service in the Yale Faculty Practice.



A survey sent to every patient treated is used to gauge satisfaction and identify potential problems.

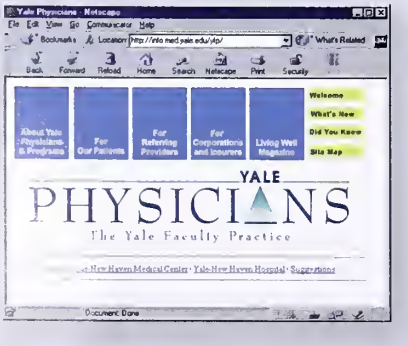
A new computer system has improved billing services and the collection of fees.

Keeping physicians and staff informed about developments within the practice and beyond has also been a priority.

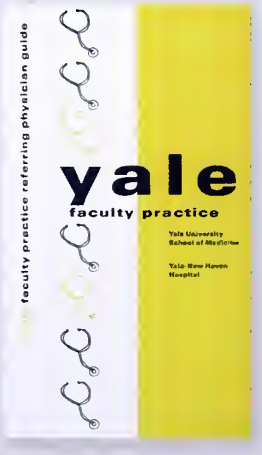


A manual prepared last year sets standards for use by all clinicians and staff.

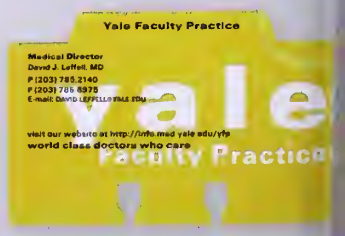
A newsletter keeps physicians up to date w the complex federal requirements governin billing and payments.



Patients can visit a website to find their way among the 650 physicians and 200 clinical programs of the Yale Faculty Practice.



Good communication with referring physicians is vital to the practice and is facilitated by a directory of Yale physicians.



Rolodex cards reinforce the connection, linking referring physicians to more than 200 clinical programs.

Doctors, patients and the bottom line

Once, a Yale doctor could comfortably juggle clinical care, teaching and research without worrying too much about the business of medicine. Those days are gone.

By John Curtis

On a Monday evening in February, two dozen Yale physicians are clustered around tables, puzzling over a series of management problems. They range from the ordinary to life-threatening: How can parking spaces at a new building be allocated most fairly among the staff? How can a search-and-rescue operation be completed without squandering scarce resources? Management professor Victor Vroom, Ph.D., has led the group through the processes those in charge might use to resolve these and other issues, then broken the class into small groups for discussion.

All of the participants in the course—junior faculty, service chiefs and department chairs included—have given up one evening a week from January to early April with the goal of honing their leadership skills and helping colleagues, as well as themselves, adjust to the changing requirements of academic medicine in the late 1990s. None of the problems raised at this evening's session is specific to medicine, but that is precisely the point, says Stephen Rimar, M.D., HS '83-87, the course director and medical director of the Yale Faculty Practice. Answers to many administrative issues facing doctors, he adds, can be found in the experience of other organizations. "What medicine is going through," Rimar says, "is not unique."

The idea of training physicians in management is just one indication of a culture shift under way within the Faculty Practice, which represents more than 650 faculty physicians and provides care to thousands of patients throughout the region. When it was established in 1981, it was essentially a billing office that provided service to the school's clinical departments. But as the health care environment has grown more complex, the Faculty Practice has evolved into something quite different from its original incarnation. Now it coordinates the clinical activities of 17 medical school departments, negotiates contracts with insurers and managed care organizations, ensures compliance with a host of government requirements and has become the focal point for ensuring that patients are well served. And while it clearly is a

John Curtis is a staff writer.

"In the absence of a system that treats patients efficiently, courteously and with compassion, there will be fewer and fewer patients coming our way."

business and must be run like one, it is a business that exists for a larger purpose. "The clinical activity of our faculty is an essential part of both teaching and research," says Dean David A. Kessler, M.D. "How that clinical enterprise is managed has a very large impact on the school as a whole."

Students in the Yale Management Program for Physicians, which graduated its first class of 21 in April, used management tools for clinical problem-solving. Topics ranged from the feasibility of opening a satellite office to organizing the necessary resources to provide crucial intervention for stroke patients around the clock.

SUPPORTING THE CORE MISSIONS

While managed care, with its eye firmly on the bottom line and a thirst for measurable results, is perhaps the most visible influence affecting faculty practices at the nation's 125 medical schools, it is by no means the only one. It's true that insurers have cut reimbursement rates and thrust themselves into the medical decision-making process to the dismay of physicians. But the federal government has added complexity as well, imposing regulatory requirements highlighted by several well-publicized audits of medical school billing operations around the country. Perhaps more importantly, patients have better access than ever before to the latest information and treatments, and increasingly regard medicine from the viewpoint of consumers. As a result, physicians are being urged to pay closer attention to the details of their practices and to regard patients not only as people in need of care, but as people who deserve a level of service taken for granted in the for-profit sector.

How do these trends affect the academic environment in which medicine is practiced at Yale? "Since medieval times, the purpose of a university has always been clear—to teach and to expand knowledge," says David Leffell, M.D., HS '86, a dermatologic surgeon who became director of the Faculty Practice and associate dean for clinical affairs on Jan. 1. "Our challenge is to develop a plan that allows us to support those missions effectively when there are enormous pressures. The overhead costs and the realities of medical billing compliance no longer make it possible to see a few patients in morning clinic and talk at length with medical students about those interesting cases. We have to be more creative about how clinical teaching is done."

Several initiatives reflect the changing nature of the practice. Last year, it drew up a book of practice standards that address administrative issues ranging from relationships with referring physicians to telephone and waiting-room etiquette. It introduced a newsletter for physicians and staff that reinforces the customer-service ethos with such articles as *Chopping Down the Phone Tree* and *Practice Checkup*. And it has engaged in a number of bridge-building activities, such as a retreat in March for managers from the clinical departments and their counterparts in the Faculty Practice.

Leffell, who set the stage for these efforts as the practice's medical director over the past three years, has spent the winter and early spring holding strategy sessions, setting goals with fellow administrators and faculty, and monitoring the implementation of a new computer billing system. He and his colleagues argued for and won the right for the Faculty Practice's board of governors to approve its own budget, which previously had been determined by the central administration. "It's an important step forward," he says, "because it allows us to set priorities and focus resources on improving clinical services."

PUTTING PATIENTS FIRST

Those improvements, Leffell contends, are essential not only to the success of the practice but to the school as a whole. "In the absence of a system that treats patients efficiently, courteously and with compassion, there will

be fewer and fewer patients coming our way," he says. "And without patients, there is no medical school. They're critical to both teaching and research."

The school also has had to recognize long-standing traditions that at times may run counter to the new culture. University professors the world over are typically valued more for their individualism and academic talent than for their ability to function as institutional players. In academic medicine, success in research is often a quicker path to promotion than a good bedside manner and skill with patients. And at Yale, as elsewhere, individual departments that generate much of their own income have become accustomed to their own ways of doing things. "We are moving from a primarily entrepreneurial, department-based practice to something that will end up being more cohesive," says Joseph B. Warshaw, M.D., deputy dean for clinical affairs and chair of the Department of Pediatrics.

GALE ZUCKER

"Since medieval times, the purpose of a university has always been clear—to teach and to expand knowledge," says practice director David Leffell. "Our challenge is to develop a plan that allows us to support those missions effectively when there are enormous pressures."

Yale's clinical operation is important to the educational and research missions of the school in a number of ways. Clinical income provides close to 25 percent of the medical school's annual operating revenue of approximately $500 million, and, with its constant flow of patients, the practice serves as a primary learning environment for medical students. Because medical school departments were flush for so many years with fee-for-service clinical revenue, physicians could leave administrative and financial details to others while they concentrated on medicine and teaching.

A CHANGED WORLD

Those days are gone. In the new world of health care, physicians are seeing more patients and collecting smaller fees. The arithmetic is simple. "Under managed care the reimbursements have gone down, but our overhead at Yale has not," says Jean L. Bolognia, M.D. '80, HS '80-85, professor of dermatology and a leading expert in the management of melanoma and pigmented lesions. Six months ago, she began seeing patients an hour earlier each morning to add time to her clinical schedule. But, she adds, "there are only so many ways you can expand. Spending less time per patient was a less acceptable option."

While there has been a steady increase in new patient volume at Yale over the years, managed care does have the potential to limit patient access to Yale providers in the future. "In the old days," says Leffell, "patients could go to the doctor they chose and physicians could refer patients to physicians at Yale for tertiary care without limitation. That has changed, and we have to be prepared for the possibility that contracting limitations will affect our patient flow."

Five years ago, the practice appointed Ellen Skinner as its first director of managed care and marketing. "My role was to come in and organize a system for managed care contracting on behalf of the physicians that are full-time faculty," she says, adding that the practice participates in 50 insurance plans. "When I first started in this position, less than 5 percent of our business was managed care and almost 35 percent was commercial indemnity, where you send in a bill and get paid that amount," Skinner says. "Today we are down to about

25 percent commercial and 46 percent of our business is managed care."

But more than simple participation in plans was needed. Of the 650 physicians in the faculty plan, all but three full-time and 10 part-time doctors are specialists providing tertiary care. About 90 percent of their patients come as referrals from other physicians, and Yale's ability to contract with the greatest number of insurers is important for patient flow. The school has benefited in these negotiations from an expanding network of relationships developed by the Faculty Practice and from its participation in the 1,100-member Yale Independent Physicians Association, which represents all the physicians with attending privileges at Yale-New Haven Hospital.

Along with the economic landscape, the regulatory environment has also changed. Physicians not only are seeing more patients, but are spending more time documenting those patient visits, says Judy Harris, the practice's compliance officer. "When I audit one of those services," she says, "I am looking for 98 different components to one office visit or consultation. The basis for this documentation is very valid. It has just been taken overboard."

Harris created a billing-compliance newsletter and an online tutorial to keep physicians informed, and faculty who wish to bill for clinical services must pass a quiz. "When they see what the documentation requirements are for them," she says, "they complain that it adds a tremendous amount of time to their work every day." This extra effort could cut into teaching time if other solutions aren't found.

As part of the move towards centralization, the Faculty Practice hopes to shift billing-compliance review from the individual departments to an expanded unit within the Faculty Practice. If all goes as planned, its staff of auditors will increase from one to six as of July 1. Compliance is paramount, given the fines levied against medical schools for inadequate physician documentation as part of the Physicians at Teaching Hospitals audits. The federal Department of Health and Human Services scrutinized millions of documents at Penn, Dartmouth, Yale and other schools, and imposed fines and restitution as high as $30 million. Yale came through its audit without penalty.

STANDARDIZING BILLING AND SERVICES

Not every aspect of its billing operation has fared so well in recent years. Over the past two decades, as the details of reimbursement and regulation have become vastly more complex, the practice's billing and collection systems found it difficult to keep up. Last year, the federal government contended that the school had failed to return overpayments from insurers promptly. The school acknowledged problems with its administrative systems and resolved the matter in a settlement. It also installed a new computer system last October to handle the complex requirements of the practice's administrative, billing and collection functions. "The implementation was on time and under budget, and all the early indications are that we're ahead of where we expected to be," says Leffell. "But this is an area of administration we have to watch closely."

Fixing these problems was a major step forward, says Irwin Birnbaum, who became chief operating officer in July 1997. "To pursue our mission, we have to have a professional business operation supporting our clinical activities," he says. "Accurate billing and timely collection are critical to the health of the school."

The operation's success hinges on a number of factors. Each payment to the school depends on correct documentation of the service performed by the physician, a daunting task given the more than 10,000 possible billing codes. "It's imperative that the coding is correct and that services are properly documented," says Marianne Dess-Santoro, the executive director of patient financial services and the person in charge of implementing the new system. "There is a lot of activity that goes into collecting those dollars."

In the midst of constantly changing claim submission rules, the new system keeps tabs on which insurance plan or plans are providing coverage for each patient, whether the patient has a referral from a physician, and whether the insurer has paid the right amount. "For the first time," says Dess-Santoro, "we can see right away if a reimbursement from an insurance carrier is

"No one has questioned the quality of medical treatment. The question is how long are patients kept waiting in the waiting room? How hard is it to get an appointment? Does the doctor call the referring doctor back?"

GALE ZUCKER (4)

The Faculty Practice management team includes Marianne Dess-Santoro, executive director of patient financial services; Ellen Skinner, director of managed care and marketing; Judy Harris, medical billing compliance officer; and Diana Rogers, associate director of managed care and marketing.

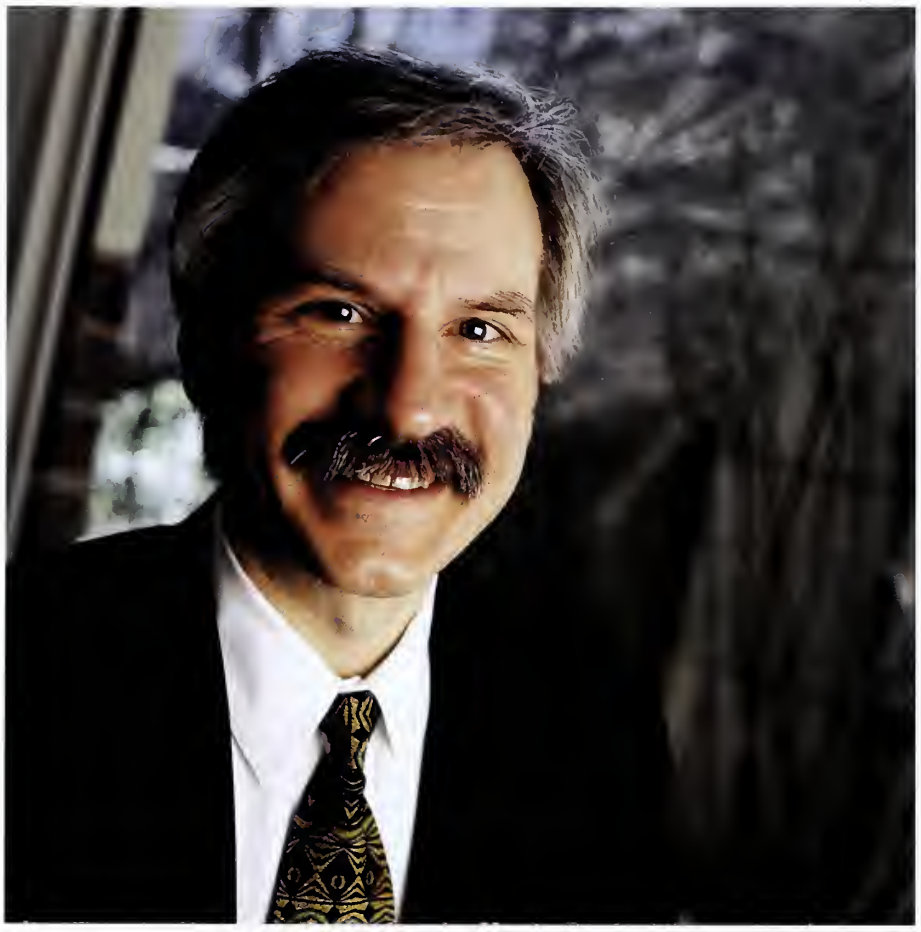
below what our contract with the carrier allows." The system can also provide information on the clinical productivity of faculty. And, it has helped make the basis for physician charges more rational by standardizing fees for similar services that are provided by different departments throughout the practice. "It is much better from a patient perspective because there is uniformity," Dess-Santoro says, "and it is much easier to negotiate managed care contracts now because we have a common fee schedule."

That uniformity is also transferring to other areas. No matter where they receive their care at Yale, patients must be treated with equal efficiency and courtesy, Leffell believes. Clinical care, more than research or teaching, is the face the public sees. "No one has questioned the quality of medical treatment," he says. "The question is how long are patients kept waiting in the waiting room? How hard is it to get an appointment? Does the doctor call the referring doctor back?" In addition to the practice standards book and the newsletter, the practice publishes a referral guide that is distributed to physicians across Connecticut and in parts of Rhode Island, New York and Massachusetts. The practice's extensive web site (http://info.med.yale.edu/yfp) includes these resources and other useful information for physicians, staff and patients.

The practice standards, while they may seem focused on administrative minutiae, ultimately will lead to better medicine. "The more we can improve access for patients and ensure that the visit runs smoothly, the more it will improve patient-doctor communication," says Katherine C. McKenzie, M.D., assistant professor of medicine and one of three full-time general practitioners in the Faculty Practice. "Patients who feel well cared for, at every level of their experience, will benefit."

Medical director Rimar, who is responsible for leading the implementation of the new standards, is convinced they will help recruit new patients to the practice as well as retain them. "Most of our patients come to us as referrals from other physicians, and communication with the patient and the referring physician is very important," he says. Working with doctors in the school's 17 departments and more than 200 clinical programs, the practice is identifying areas where communication may in fact break down. There has been some resistance, Rimar notes, among doctors who interpret marketing as advertising and business as a preoccupation with the bottom line. "Patients don't want their doctors to be business people and doctors don't want to be business people," he says. But the issue, he adds, is not business but management—understanding what resources are available, how to obtain them and how to keep the practice moving towards its goal.

The managers themselves, chairs of the departments facing centralized governance, recognize the need to change. "The environment is changing in health care," says Gary E. Friedlaender, M.D., chair of the Department of Orthopaedics and Rehabilitation, "and the way in which we work together requires enhanced organization in the departments. I am convinced we are going to be a better and more nurturing environment for our patients, our faculty and the students." Explicit, however, in the move towards centralization is a loss of autonomy in certain administrative areas, says Benjamin S. Bunney, M.D., chair of the Department of Psychiatry. "If the practice is going to be able to compete in the open marketplace for a contract, we can't have each department trying separately to get its oar in the water. We have to be able to trust people to contract for us in a way that allows us to all pull together."



GALE ZUCKER

"Patients don't want their doctors to be business people and doctors don't want to be business people," says Stephen Rimar. As medical director for the Yale Faculty Practice, Rimar's goal is to help physicians learn how to apply management tools to their practices.

BACK TO BASICS

What happens to medical education in the midst of all these changes? Within the practice, Leffell says, teaching continues much as it always has. "The majority of the teaching that goes on in medical school in the second two years happens at the bedside, not in the classroom," he says, noting that he is always accompanied in his practice by a resident, and often by a student. "To teach the science and art of medicine is really why we are here," he says.

"You can make the case," says deputy dean Warshaw, "that by teaching students and house staff to consider cost-benefit issues, we are teaching them how to practice better medicine. If we can teach them that this test for $10 is better than a CT scan, or that a pediatrician measuring someone's head with a tape measure can provide as much information as $1,000 worth of testing, that's better medicine."

Back at the Yale Management Program for Physicians, the faculty members enrolled in the evening class are working toward solutions that, in addition to advancing their abilities as managers, may be of immediate benefit to Yale's clinical operations. A department chair is developing an incentive plan for clinicians that will help balance the budget. A lab director is thinking through a process to identify and correct problems in a range of areas, from technology implementation to employee relations. A clinic chief is looking at the feasibility of opening a satellite office outside New Haven.

One of the most interesting problems—and one that demonstrates how important management is to the well-being of patients—has been raised by Pierre B. Fayad, M.D., a neurologist who treats stroke patients. Getting the right medication to stroke patients within a six-hour window makes an enormous difference in their recovery, but it also requires an expensive allocation and coordination of services, staff and other resources. How can Yale's cerebrovascular center direct an adequate number of patients to its services to make the investment practical? "The management tools I will be acquiring here," Fayad says, "will be helpful in developing a program to achieve those goals." That is Rimar's hope, and one that he sees as realistic as physicians acquire the management skills they will need to survive and provide better patient care. "You can be an outstanding clinician—the greatest doctor in the world—and still go out of business," he says.

As Leffell observes, the reconfiguration of the practice is a work in progress. Behind the plans, however, is a vision of the practice as a teaching center that also provides the best in clinical care and research. "Our identity as one of the world's great medical schools defines a niche for us that no one else in our region has. It helps us focus on our competencies and our strengths. It allows us to make decisions about growth in a strategic fashion. Recognizing that we can't be all things clinical to all people, we have to identify where we have the greatest critical mass of talent, research ability, educational skill and clinical expertise. That's where we focus." YM

'We have a remarkable community here'

Susan Hockfield, the new dean of the Graduate School, talks about the collegial and interdisciplinary nature of Yale, the direction of teaching and scholarship in a changing world, and her own research as a neurobiologist.

A year after leaving Georgetown with a Ph.D. in anatomy, Susan Hockfield experienced a moment that would delight any young scientist. She interviewed at a prestigious research institute and impressed its Nobel Prize-winning director well enough to land a job as a staff investigator. The year was 1980, the institute was the Cold Spring Harbor Laboratory, and the director wasn't just any Nobel Prize winner, but James D. Watson, Ph.D., who discovered the structure of DNA in 1953 along with Francis Crick and Maurice Wilkins.

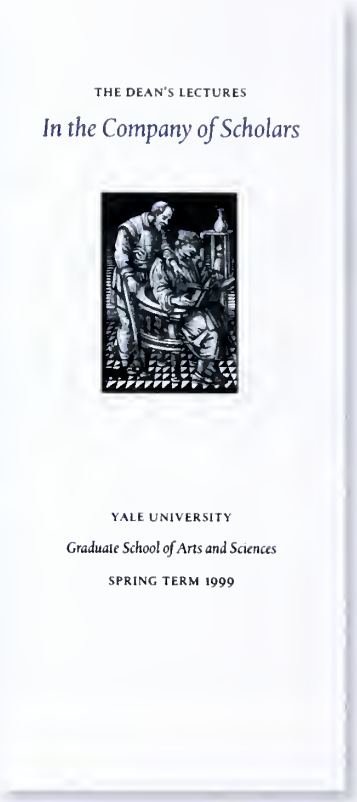
Hockfield spent five years at Cold Spring Harbor pursuing research in the biology of the nervous system before joining Yale's neurobiology faculty in 1985. Last July 1, she became the 17th dean of the Yale Graduate School of Arts and Sciences. She is the first Graduate School dean to come from the medical school faculty, and her appointment is emblematic of a growing connection between Cedar Street and the central campus. At the School of Medicine, doctoral students in neurobiology, genetics, cell biology, physiology, pharmacology, pathology, immunobiology and microbial pathogenesis receive their degrees from the Graduate School, which recently created a program in the biological and biomedical sciences to enhance recruiting of students and better coordinate training and scholarship.

MICHAEL MARSLAND

Neurobiologist Susan Hockfield became dean of the Yale Graduate School of Arts and Sciences last July. "When you run a lab, it's a small-scale organizational challenge. I honestly didn't know how that kind of close cooperation would translate to the larger scale of the Graduate School," she says. "I found that it does."

Hockfield, 47, was director of graduate studies for her department between 1986 and 1994 and remains engaged in research. Her recent work has delved into the molecular mechanisms that allow brain tumors known as gliomas to spread through the brain, making effective treatment exceedingly difficult, and often impossible. Last spring she and colleagues published findings in *The Journal of Neuroscience* that suggested for the first time how one molecule may facilitate the unimpeded movement of glioma cells throughout the brain.

As dean, Hockfield oversees a community of 2,300 students and 760 faculty members, taking the reins at a time of intense discussion about graduate education. She manages 65 Yale departments and programs, oversees faculty appointments and promotions in the natural and social sciences, and spends one day a week in her own laboratory on the fourth floor of Sterling Hall of Medicine. She spoke to *Yale Medicine*'s editor, Michael Fitzsousa, for this article in late February.



You became dean of the Graduate School last July, after more than a dozen years as a medical school faculty member in neurobiology. What did you find when you arrived in the new job?

I had been closely involved with the Graduate School for eight years when I was director of graduate studies, then not quite so closely from 1994 until last spring. I was delighted to see that it had undergone a substantial transformation. Until just a few years ago, the school's functions were almost purely administrative. Under [previous dean] Tom Appelquist, a number of programmatic initiatives were begun, and when I took office three new programs were already in place. One was the McDougal Center, which serves as a place for students to gather for academic and non-academic affairs. The second was the Office of Teaching Fellow Preparation and Development. We also have a new Office of Graduate Career Services, which had been in existence less than a year when I took over. These initiatives really mark a change in how the Graduate School provides service to the graduate students and our faculty.

What are the overriding issues in graduate education today, both here and outside of Yale?

The career paths that our graduates follow today are more diverse than they have ever been. I see this as a wonderful opportunity, but it also challenges the way in which we think about graduate education. In all fields, it's no longer the case that someone with a Ph.D., even from Yale, will necessarily become a professor at an institution of higher learning. Because of this, we need to re-examine our programs continually to make sure that we are equipping our students optimally for the work they will do.

What has been responsible for this broadening of career interest outside of academia?

In the life sciences, there has been an explosion in interest, and an explosion of possibility, in what science can actually do. We've seen a lot of growth in biotech and the pharmaceutical industry, and it's wonderful that our Ph.D.s are participating in that new direction. In the humanities and social sciences, university expansions in the 1960s and early '70s produced more opportunities for Ph.D.s in the academy than today. What is increasingly appreciated, however, is that the skills our students develop en route to a Ph.D. are in high demand elsewhere.

To get a Ph.D., a student has to have learned the skills of focused creativity—not just being creative, but putting that creativity to a purpose. It requires high levels of critical analysis and the ability to communicate extremely well. The scholarship component of the Ph.D.

involves compiling huge amounts of data that no one before has put into any kind of order. And the challenge of the doctoral student is to organize that data so that it tells a story that makes sense and answers questions that have not been answered before. In an age when the economy is increasingly information-based—when we are simply awash in data—people with these skills are invaluable in the interpretation of information and the communication of that new knowledge to other parts of the society.

Several years ago, Yale created the Combined Program in the Biological and Biomedical Sciences, or BBS, to streamline its programs and enhance the recruitment of top students. What has been the impact of this?
The effect has been enormous. The idea wasn't so much to streamline programs, but to provide an umbrella organization for research and education. The revolutions in molecular biology and other technologies have broken down the walls between departments and disciplines in the life sciences, and students increasingly want to avail themselves of all of the information that is out there. They also want the opportunity to work with faculty who may be in different departments. So the BBS was an obvious solution to the needs of graduate education.

What exactly did it do? What was the new structure that it brought in?
A student who is interested in pursuing graduate education in the biological or biomedical sciences now enters one program. There are different tracks, so the student will identify the area of greatest interest—neuroscience, for example, or genetics and development. But even after entering in a track, the student can still move from one track to another, so there is flexibility. The BBS permits graduate students to fully participate in an extremely rich educational enterprise that involves all the biological and biomedical scientists at Yale. In addition to serving the graduate students well, it has had the secondary consequence of bringing together faculty, who are very collegial and collaborative to begin with. The BBS provides yet another way for them to interact. Applications to this program are up about 20 percent over last year.

What is your view of the efforts at Yale and other universities to unionize graduate students who serve as teaching assistants?
This is a national effort fueled by unions interested in increasing their support base, both in health care and education. We here at Yale feel very strongly that a labor relationship is not the relationship best suited to the education of our graduate students.

Since becoming dean, you've announced several initiatives to improve graduate student life in general. What has been done?
We want to recruit the very best graduate students to Yale, and we want to be sure that Yale can make competitive offers. Last summer we improved health coverage for students. Another change we made was in the structure of our stipends. In many departments, the stipend that a student was offered upon entering remained the stipend for that student throughout four years. What that meant was that each year's entering class had a higher stipend than the class that entered the year before. Now all students receive at least the same base stipend, which is at a higher level than we've offered before.

Building a sense of community in the Graduate School is very important. We began a number of programs last fall to that end, starting with one called *Take a Faculty Member to Lunch.* Then we added *Take a Student to Lunch.* We provide a free lunch when a student brings a faculty member (or vice versa) to eat at the Hall of Graduate Studies dining hall. That has turned into a successful program. We now call it *FEAST,* for *Free Eating Attracts Students and Teachers.*

We also initiated a series of multidisciplinary lectures, called *In the Company of Scholars.* At least once a month we have a lecture from one of our faculty members, with a format that is designed to be accessible to graduate students and faculty throughout the University. Jonathan Spence, Sterling Professor of History, gave the first lecture. There were people in the audience from physics, math, psychology and the medical school, because in our community there is a tremendous desire to learn.

We really are, as George Pierson said, a company of scholars. We are interested in learning, and in learning from one another. This is the tradition of Yale, which is fostered by our commitment to teaching. It requires us always to be learning and creates an environment where curiosity can dominate over competition.

One of the first things I did when I became dean was to start an e-mail list so that I can communicate with all the graduate students. And I do so with some regularity. Hopefully not so much as to be a pest, but enough so that students feel that they know what's going on in the graduate school. We also initiated a monthly newsletter that highlights activities throughout the University and the town that are of particular interest to graduate students.

Since the 1970s, you have pursued research in the nervous system and its molecular underpinnings. What questions are you trying to answer?
As the brain develops, there are some intriguing processes

that occur. There's a time in brain development, called the critical period, when the connections between nerve cells are refined based on how those nerve cells are actually working. The period of plasticity when those connections can be rearranged is circumscribed, and, for reasons that are very poorly understood, a plastic brain becomes nonplastic at a particular stage in development, after which the connections are much harder to modify.

One of the main questions in my lab has been, What are the molecular substrates that change the plastic brain to a nonplastic brain? We've identified a family of proteins in the extracellular matrix, the space around the cells, that are first expressed at the end of these periods of plasticity and appear to play a role in their closure. In looking at the brain as it changes during this process, we identified a protein expressed early in development that, we think, facilitates the movement of glial cells. We also discovered that this protein is re-expressed at very high levels in brain tumors. One of the hallmarks of primary brain tumors is that the tumor cells can move around the brain with great facility, and that's the reason why these tumors are so fatal. We're now working to understand how this particular protein increases the motility of glioma cells, with the idea that if we could somehow stop tumor cells from moving around, we might be able to reduce the lethality of these devastating tumors.

Did you ever imagine such a practical application for your research when you began working in that area?
No, I didn't. And I think this is really one of the great wonders of biological science today. The tools are so powerful; they allow you to look into basic biological processes and search relatively quickly for possible relevance in clinical processes.

Are you still active in the lab?
I set aside Fridays to work there. I have a strong and mature group of graduate students, post-docs and research technicians, and they are continuing their work on our projects. They know that they can talk to me at any time, and we e-mail back and forth and talk on the phone.

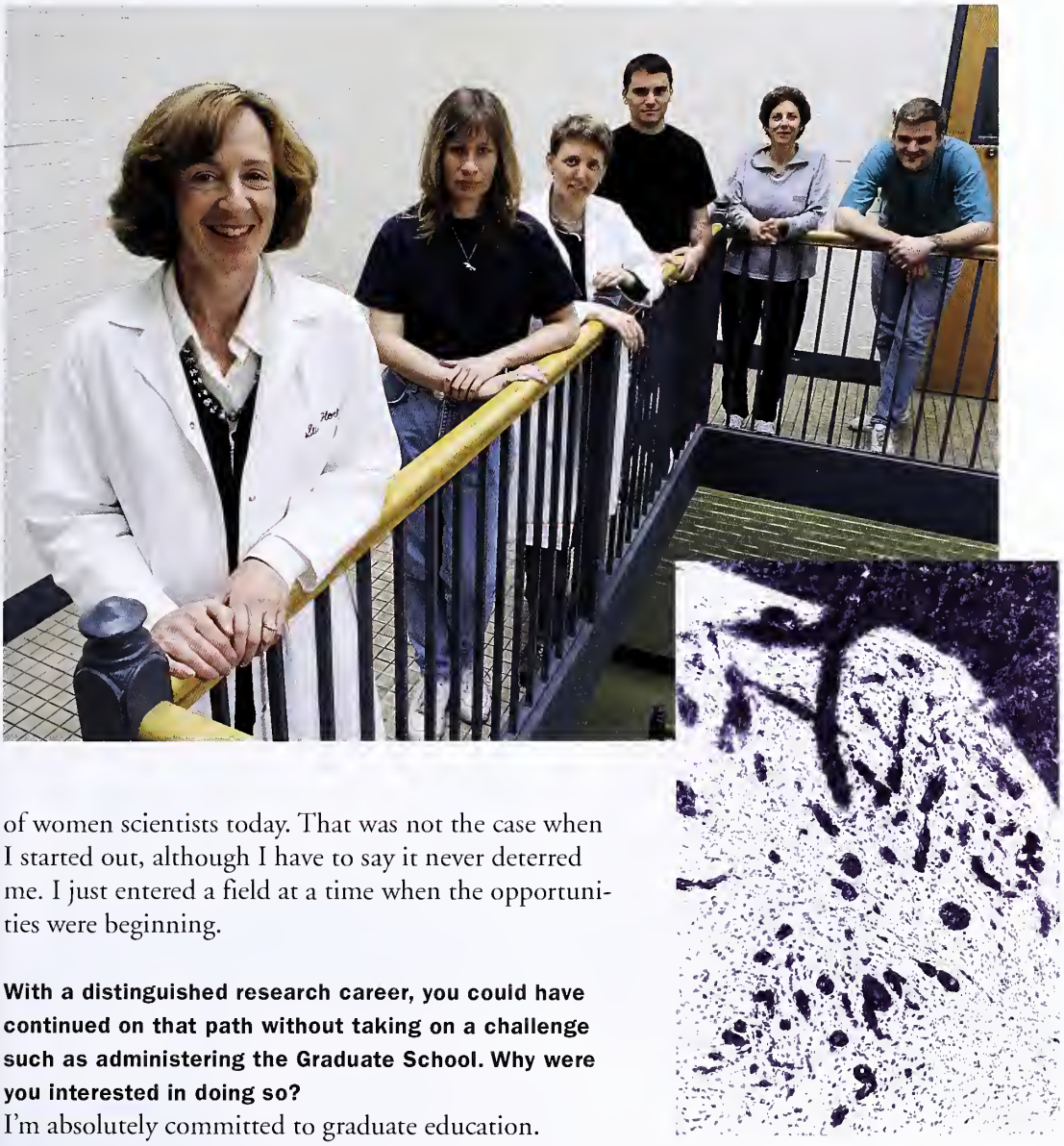
What excites you most in the field, both in your area of research and other areas of neurobiology?
In 1980, when I first started my own lab at the Cold Spring Harbor Laboratory, there weren't many people who seriously considered that there would be a clinical application of the work we did. We were all pretty much resigned—and perfectly happy—to be carrying on with something that was very basic science. I remember suggesting in conversation that the things I was studying then might not be relevant clinically for another 20 years, and that's not the case for work being undertaken today. The number of rational therapies that are available now in neurology and the number of diagnostic tools that we have compared to where we were 20 years ago are really quite fantastic. We can discover things that we never imagined being able to approach.

When I received my Ph.D. in 1979, there was a criticism that there wasn't any biology in neurobiology. And by and large it was true—the things that people studied in neurobiology were pretty much divorced from the rest of biology. Since 1980, that has changed dramatically. The techniques of molecular biology that were in their infancy in the 1970s have become extremely sophisticated and now allow us to look at multicellular organisms, complex tissues, and to make very precise evaluations of what's happening over different periods of time. There are so many things that I learned as facts in graduate school that have proved to be wrong in the last 20 years. It's a remarkable privilege to be working in a field where the pace of discovery is breathtaking.

Tell us about your life outside of Yale. What do you do when you're not at work?
My husband, Thomas Byrne, is a clinical neurologist. We have a seven-year-old daughter. Our lives are an interwoven mixture of Yale and non-Yale. My husband's interest in neuroscience and neurobiology is an important piece of our lives. His subspecialty is neuro-oncology, and it was our conversations about glioma that led to my last discovery of a protein expressed in glioma. It wouldn't have happened if I hadn't been talking to a clinician during the course of the experiments.

Otherwise, our life revolves around the life of a seven-year-old. These are pretty demanding things we've taken on. I play tennis, my husband swims, my daughter does ballet. They join me every Thursday night for dinner in the Hall of Graduate Studies dining room. My daughter spends time here in my office sometimes, and with my husband in his office. So we see these activities as family activities and not isolated from our lives.

What is the environment for women now in graduate education?
I can address it best from my experience in the biological sciences, where I have enjoyed a richly interesting career. There are many kinds of job opportunities that afford increasing levels of flexibility for women. There are a lot



MICHAEL MARSLAND

Hockfield with members of her lab team, which investigates the factors that influence brain development. Their recent discovery of a protein that facilitates the movement of glial cells (inset) has implications for the treatment of brain tumors known as gliomas.

of women scientists today. That was not the case when I started out, although I have to say it never deterred me. I just entered a field at a time when the opportunities were beginning.

With a distinguished research career, you could have continued on that path without taking on a challenge such as administering the Graduate School. Why were you interested in doing so?

I'm absolutely committed to graduate education. I think it's enormously important. I think that excellence in higher education in the United States is what has driven the United States' leadership both in economics and in intellectual property. We have seen remarkable growth in many areas, and I think that graduate education has played an important role in that. Being able to serve Yale and help guide graduate education is a wonderful opportunity.

I also feel it was a privilege to be able to get a Ph.D. and enter into this company of scholars, this intellectual life of the mind. I think it's important that people who believe in it strongly support it.

What is the most important lesson you've learned so far as a dean?

Well, I've learned a heartening lesson. When you run a lab, it's a small-scale organizational challenge in that you have some scientific problems that you want to address and you have to get people to think together about those problems and their potential solutions. I honestly didn't know how that kind of close cooperation would translate to the larger scale of the Graduate School. I found out that it does. The most gratifying experience I've had as dean is seeing how willing people are to put their efforts to the cause of making graduate education better at Yale. Nothing has given me greater pleasure than seeing students, faculty, administrators all come together to work toward the good. We have a remarkable community here. YM

An education in taste

A conversation with Linda Bartoshuk, an expert on the physiology of taste, and Jacques Pépin, celebrity chef and cookbook author, explores the many facets of taste.

"You have to change the recipe each time to get the same taste," says Pépin, "because nothing is ever the same."

Taste is one of the most fundamental yet most complex of all human experiences. It of course begins on the tongue, but it also embraces all of the other senses as well as each individual's genetic makeup and life experience. In many ways, taste is as unique as the individual. Nonetheless, there are certain universally appreciated tastes. But what does taste mean for two people who have devoted their professional lives to studying it from very different perspectives? On behalf of *Yale Medicine*, contributing editor Marc Wortman invited renowned chef and author Jacques Pépin and Linda Bartoshuk, a leading authority on the biology of taste and on the treatment of oral pain, to share their views on taste over lunch at the Union League Café, one of Connecticut's most noted French restaurants.

Born in France, Jacques Pépin, M.A., was raised around fine food at his parents' restaurant near Lyon. He was the personal chef to three French heads of state, including Charles de Gaulle. He is the author of a number of groundbreaking books on French culinary technique, as well as cookbooks published in conjunction with the cooking shows he has hosted on public television over the past 10 years. Holder of a master's degree in 18th-century French literature, he is a faculty member at Boston University. He lives near New Haven and has provided the School of Medicine and Yale-New Haven Hospital with frequent fund-raising and other assistance.

Born in South Dakota, Linda Bartoshuk, Ph.D., has been a member of the faculty since 1971. Her research has opened up broad new avenues in the study of the physiology and genetics of taste. Her more than 100 articles on the subject have established the importance of the genetic basis of taste preference and its impact on health in many areas. She has demonstrated the significant anatomical differences, most importantly taste bud density, underlying taste preferences. Her work with taste has also improved the treatment of oral pain in cancer patients and people with neurological damage resulting in loss of taste. Bartoshuk was a contributor to *The Yale Guide to Children's Nutrition* [Yale University Press, 1997].

The following excerpt from their two-hour conversation begins with a discussion of the artistry that goes into exceptional cooking and its parallels in the realm of science.

NOT ON THE MENU

LB: Part of being a great chef is obviously learning and experiencing and repeating dishes over and over.

JP: Exactly. It's never using the recipe. That's why a chef must understand the food. If you're able to taste a dish somewhere, and you say, "Gee, that's a really good idea," that's all you need to know. But if I do a recipe for the *New York Times* or a new cookbook, then I have to say how long it stays in the oven and how hot the oven should be, because the editors ask. They'll say, "How long was it in the oven?" "Well, 35 minutes," I answer. Now I am stuck with those 35 minutes, and it will probably never happen to be 35 minutes for someone else. The fact of writing the recipe down destroys the recipe by definition. Because as you write it down, you tell people, "This is the way it has to be done." It's never the way it has to be done. It just happened to be the way I did it this time because the chicken looked a certain way and I reacted to its look. And then I increased or reduced the heat or I added a cup of water because the situation demanded it. And yet the chicken will never react exactly this way the next time, and the adjustments will be different. The important thing is the taste at the end of cooking.

It is hard to get someone to understand that this is what professional chefs do. You have to change the recipe each time to get to the same taste, because nothing is ever the same. You have to go beyond the recipe to understand how the food works.

LB: That's why it's an apprenticeship to learn to be a good cook.

JP: Sure. In the laboratory, how could you give somebody the formula for science? I mean, could you provide a recipe for thinking through a problem?

LB: In a sense, it's the same thing. The difficulty with doing basic research is you tend to want to purify the experience to the point where you can study it in a laboratory under great control. And that's all well and good. But you then take the richness out of it, and it's

no longer like real experience. On the other hand, the expert uses judgment at every step in order to make certain that you get to something at the end. For example, suppose I am testing a group of patients and I want to learn something about them. The nature of the patient determines how I'm going to interact with the patient. I might have someone who's extremely anxious or cognitively impaired and really can't follow what I'm trying to do. And I'm going to change the whole way I behave. Some of my students will get upset because I'm not rigidly doing it the same every time. They've learned in books that to do science you have to be rigidly the same. And I say, "No, you have to make sure that people comprehend at essentially the same level."

JP: To understand, you have to interpret. You have to recognize an innate pattern in the making of each recipe. And I suppose, to a certain extent, what you do is the same—because even after you've tested a group of patients, you have some data that applies directly to each person on that particular day, but will not be the same on another day with the same person, and it will be different with someone else. So to a certain extent, the result of those tests has to be looked at with an open mind and as a guideline.

LB: That's right. What makes one expert better than another is the ability to have insight about what variables are going to really matter, and to control the ones that are really going to matter. And that's one of the reasons why you get inferior science. Genuinely inferior science occurs because people don't have a feel for what needs to be controlled.

JP: That's why you get inferior dishes, also, because cooks believe too much in a structured recipe. It's never the way it *has* to be done.

THE VARIETIES OF TASTE

LB: Can you imagine a particular flavor in your mind? That is a rare gift. Most people cannot do that.

JP: As a professional chef, I believe I can do that. I can formulate a recipe in my head and "taste" it on my tongue. I know it's going to taste this way. After 50 years of cooking professionally, I am technically good enough to control the food, although you never control it entirely. I did three recipes at home last night. And I knew more or less what they would taste like. After a bit of a correction here and there, I got pretty close to what I imagined.

Shall we order? I think I'm going to have that tuna. It looks great.

LB: I'm having what you're having. Can I suggest since the artichoke induces a taste effect in some people, that we have that artichoke bisque? Some people are genetically sensitive, so that after they eat artichokes things taste intensely sweetened for a period of time. I get it incredibly, which is why I started working on it.

JP: It's interesting, because we shouldn't serve wine with artichoke, likewise we shouldn't serve it with asparagus.

LB: The same compound is found in asparagus; it's an isomer of chlorogenic acid. There is tremendous genetic variation in our ability to taste. One thing that we've learned in the last few years is that these genetic variations are much greater than we suspected before. For example, a supertaster has many times the number of taste buds and is tasting two or three times the intensity of sweetness from ordinary sugar as a nontaster, like me. The supertaster can find broccoli too bitter and hot peppers too spicy. The nontaster won't react to these tastes nearly as much.

You also have some genetic variation in olfaction. But even more important than the genetic variation, you have life-span variation. Olfaction begins to decline at about 40 years of age, and it declines quite steadily. We don't know if that's a true age effect or if it's due to pathology, because your olfactory system is so exposed to viral illness.

In any case, as you age, your ability to smell is lessening steadily. And your ability to taste is not, not nearly so much. The main effect of aging on taste, we think, happens to women at menopause. The ability to taste bitter is a poison detection system. And it looks as if the body has arranged it so that women vary in their ability to taste bitter, depending on whether they are protecting a fetus. There's variation with the menstrual cycle, and it appears to make women heightened responders to bitter early in pregnancy so that they become very good poison detectors. Once you've been pregnant, you're always a little more sensitive to bitter than you were before. At menopause, it falls off a cliff, and women become much less sensitive to bitter than they were.

JP: Would that be what they call species adaptive behavior?

LB: Yes. It is very adaptive for the species. Then you might ask, "Why would you want genetically different groups of bitter tasters?" As a nontaster, I can barely taste some bitters, and a supertaster, as I suspect you are—we'll find out—is exquisitely sensitive to bitters. The answer appears to be that there's a selective advantage to either group, depending on the environment you find yourself in. If you're in a really dangerous

To taste or not to taste

How individuals experience taste varies greatly, which explains why some people like broccoli and others flee at its very mention. An industrial chemist named Arthur Fox documented one basis for taste preference in 1931 while working with a compound called phenylthiocarbamide (PTC) for the DuPont Co. After the chemical was released accidentally into the air one day, a colleague remarked how bitter it tasted. Fox had noticed nothing.

Investigating further, the two scientists concluded that people fell into one of two groups: tasters and nontasters of PTC. Fox reported the findings later the same year in *Science News*. "The geneticists jumped right in," says Linda Bartoshuk, Ph.D., "and by the next year, two family studies had been done dividing the world between tasters and nontasters. The research showed that the nontasters had two recessive genes."

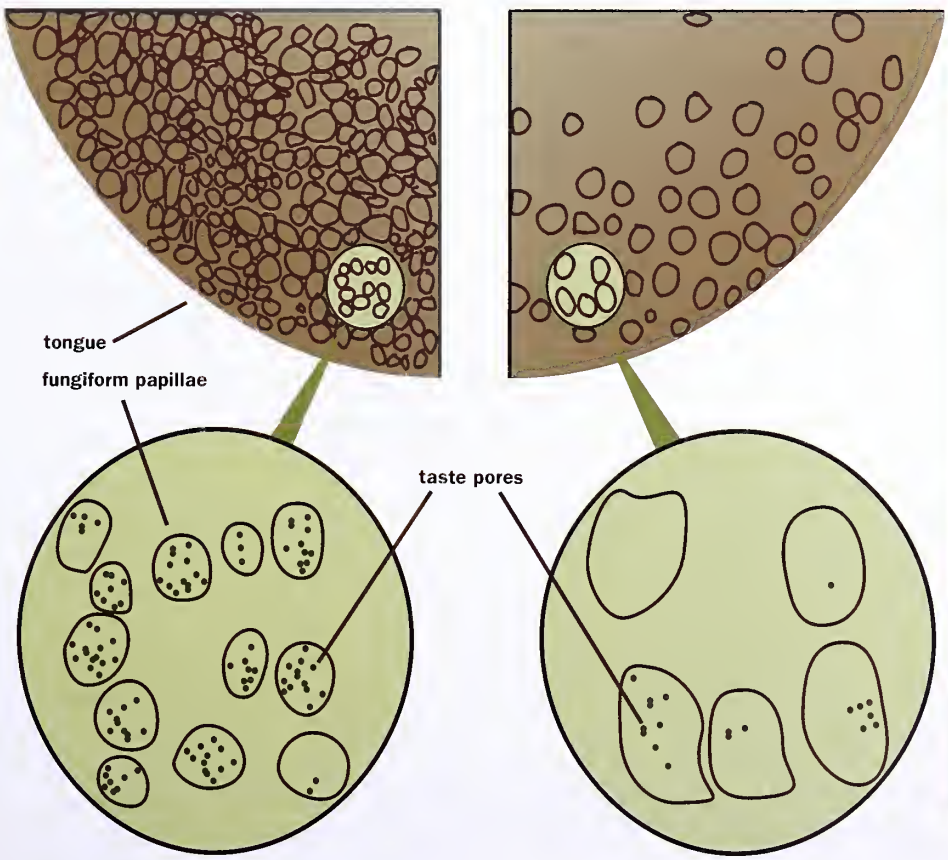
Bartoshuk began exploring the subtleties of taste in the 1970s as a Yale faculty member and investigator at the John B. Pierce Laboratory. She took Fox's notion one step further, coining the term "supertaster" after identifying a third group of subjects whose taste buds were so numerous and so densely packed that foods such as grapefruit, coffee and dark green vegetables were overwhelmingly bitter. According to Bartoshuk, who uses a compound known as PROP (a thyroid medication) in her studies, the world falls into three groups: 25 percent nontasters, 50 percent medium tasters and 25 percent supertasters.

What's the significance of her results? "The taste world you live in affects your food preferences," she says. "The foods you choose to eat are associated with risk factors, and there are consequences to eating a high-sweet, high-salt, low-fiber diet. Being a supertaster also predisposes you to oral pain, another area we're investigating." Bartoshuk and her colleagues developed a taffy containing capsaicin, the substance that gives jalapeño peppers their fire, and proved it effective in relieving oral pain in cancer patients.

Long-standing research by taste scientists has established links between taste and sexual maturation (girls who are tasters mature six months earlier, on average, while boys are delayed six months), depression (tasters are more prone) and alcoholism (nontasters are more at risk). But those studies predate the discovery of the supertaster. "There's work to be redone," says Bartoshuk, "and there are many other avenues still not explored." A colleague is working out the molecular biology of PROP sensitivity, a step forward that may lead to new pain therapies and a better understanding of taste disorders, diet and nutrition.

How we taste

Taste buds in the fungiform papillae contain pores that direct taste stimuli to the nervous system and brain. They are capable of distinguishing among four categories: salty, sweet, bitter and sour. The other components of flavor are delivered to the brain by olfactory and tactile stimuli.



SOURCE: LINDA BARTOSHUK

Supertaster

Supertasters have many more fungiform papillae than the rest of the population. The papillae are smaller and more densely packed.

Nontaster

Nontasters—the label refers to the inability to taste a chemical known as PROP—have many fewer papillae and are less sensitive to bitter.

GALE ZUCKER

"Affective memories are more important for us than the memories of the brain," says Pépin.

environment with a lot of poisons, the supertaster has the advantage. The supertasters will survive and the nontasters are likely to die off. But in a safe environment, where you have a lot of plants that are actually safe, but taste bitter, like certain mushrooms, the nontaster has the advantage, because the nontaster will eat that mushroom and have a bigger food world. The supertaster will avoid it. In the modern world, we suspect that this might be a health risk. For example, right now, one of my colleagues, Adam Drewnowsky, believes that women are at greater risk for breast cancer if they're supertasters because they avoid certain bitter-tasting fruits and vegetables that protect them from cancer. We think the same thing might be true in colon cancer. In the modern era, we have to reassess.

EATING THROUGH THE NOSE

LB: This soup is wonderful.

JP: As a nontaster, are you missing something that a supertaster might be experiencing when tasting this soup?

LB: No. This is primarily olfactory. There's very little genuine taste here. Maybe a little salt. But for the most part, this is entirely olfactory. Notice that as you swallow, you get the bouquet. This is the second biological function of the nose. It's called retronasal olfaction. You swallow and chew, and the air, with all the odors in it, is pumped up into your nose. Your nose is perceiving the odor the entire time you're eating. The brain uses smell and taste together to create flavor. Perceptually, you believe the olfactory experience is coming from your mouth, because taste and smell are both perceptually localized by touch. If your mouth is feeling the food, the olfactory sensation will seem to be localized in the mouth.

JP: I see the world of smell affecting memory. That's very important, because the effect of memory improves the taste of a glass of wine or a soup. It's much more powerful when the memory of an event comes through the senses, particularly smell. If you asked me, "Where were you on such and such a date in 1978?" my brain may be able to recall the details, but the recall will be dry and unemotional. On the other hand, the memory of the senses has the element of surprise; it affects you deeply in an intimate way, when you don't expect it at all. You walk through a room, and all of a sudden you smell something and you're 5 years old again. That smell enables you to relive something through your senses in a much deeper and clearer way than something that is brought about deliberately by your brain. For a chef, and certainly for food critics, this memory of taste and smell is important. Affective memories are more important for us than the memories of the brain.

LB: Let me step back for a minute, because there are many things going on there. Taste is very different. The emotional effect of taste is not acquired at all. It's all present at birth. In fact, it's present before birth. You're born loving sweet and hating bitter. And your experience has very little to do with that. Taste is first of all sweet, salty, bitter and sour. These are what we perceive through the taste buds. The taste buds also have another sensory role. They're surrounded by nerve fibers responding to pain, temperature and touch.

If you're a supertaster you are born with a different anatomy. You have fungiform papillae, which are the little structures that hold taste buds. You have many, many more of them if you are a supertaster. It is like reaching up and feeling something with 500 fingers as opposed to 50. The texture that a supertaster feels is quite different.

Then there's smell. Smell is iced tea, lemon, roast beef—much more complex and subtle than taste. The way we learn smells is particularly interesting in the light of what you've been talking about. When you're born,

you have the capacity to smell a tremendous number of different molecules, but they don't mean anything to you. Perhaps the mother wears a certain perfume, and so the baby learns to recognize that particular mixture of odors, because the perfume is complex, as many things are. The baby recognizes it after repeated pairings, and now that perfume takes on tremendous positive valence, because it's associated with comfort, with the mother.

That memory, once learned, will stay in your brain for your lifetime. If you were to walk into a room years after you ever smelled it and smell it again, you'd be flooded with the feelings associated with that memory of when you were young. And with your exquisite experience as a chef, you've built up a library of experiences far more complex and subtle than I have. You learn those things when you're very young, and they're very powerful. They control your pleasure.

JP: Taste can be experienced in different ways. I always say that food critics should be blind, so they can tell you what's good or not good. But, unfortunately, very often they are influenced by many other things: the presentation of the food, the setting and so on, which make it so subjective. On the other hand, the food can be many things. It can be something simple, straightforward and tasty, or it can be a symphony of different tastes. For example, when you do a pork chop, you want it to taste like pork, and it's good. Now if I take that pork and grind it and put cognac, white wine and shallots with it and different types of seasonings, too, I do a paté. The paté now is delicious. But it does not taste like pork any longer. It's more of a mixture of different tastes, culminating in the taste that we call paté.

If, as they do in France, you cook apple with butter and sugar on top of a dough, you have an apple *tarte*. If you make an apple pie in the American style, with cinnamon, nutmeg, mace and butter, you have lost the taste of apple but have created another taste with this combination. So you have transcended the taste of apple and created a symphony by combining different ingredients.

LB: We know a lot about the pleasure that is associated with those experiences, believe it or not. One of the amazing things about olfaction is it has this ability to take components and relearn them in combination. An apple, cinnamon. Your brain learns a template that's a holistic sort of map of this, and you learn it as a new whole. The apple pie is a new template. It's not the same as the apple template mixed with the spice template.

Here's the important property of olfaction: Those templates acquire pleasure. The more templates you have, the more pleasure you can acquire. Because of the way olfaction works, as soon as you can identify an odor, you acquire the emotional valence—that is, it's either good or bad—based on your experience. The acquisition of affect to olfaction is very vivid, very powerful and very hard to lose.

THE LOVE OF CALORIES

JP: One way of learning about food is to go to have the real McCoy—a dish the way it is supposed to be prepared—so that you can put that in your taste memory and draw from it eventually. You learn that's the way it should taste. I remember going to China many, many years ago. I knew a fair amount of Chinese cooking at that time, but when I was in China I was exposed to ingredients and tastes that I had never experienced, and some of these tastes were pretty weird. So I asked, "Is it supposed to taste this way? Is this for real?" I tasted these dishes several times, trying to put them somewhere in my taste memory so I could draw from them at a later time. Often, tastes that are not pleasant to start with eventually grow on you.

LB: But see, that taste to the Chinese has been paired with all kinds of reinforcing experiences, including calories. One of the main ways to make something loved is to pair it with calories. It's a survival mechanism. And that's why we all love high-fat food. The problem is that, in the short term, eating calories, salt and sugar is very good for you. In the long term, it leads to chronic disease. We live in a culture that has learned they're bad for us, but our brains are living in a world where they are good for us.

JP: And there's a paradox there.

LB: That's a paradox. And you can't solve it. There's no free lunch here. One of the problems our culture has to solve is, "Are we really going to ask people to eat foods that they were not evolved to love and tell them they are healthy?" That's not easy. So how do you do it? How do you trick people into learning to like things that have less fat, less sugar, less salt? Part of it has to be social conditioning.

JP: I feel that the conditioning is extremely important when you are small, because it will stay with you for the rest of your life. I like asparagus fresh and lightly steamed. My wife was born in New York City, and as a child she was served canned asparagus by her mother. She now loves fresh asparagus, too, but she still has that taste for canned asparagus because that taste is associated with her youth.

Likewise for me, a Frenchman who's now an American, I learned how to make an apple pie with cinnamon,

nutmeg and mace, and I now like it. But it will never have the same resonance for me that it does for my wife, because it's something she had when she was a child. For me, a piece of crunchy baguette with dark chocolate, which is what I ate as a snack after school as a child, is still a true delight. While my wife likes bread and chocolate now, it will never mean the same thing for her as it does for me because she never had it as a child.

LB: You know, there's a name for that. It's called comfort food.

JP: Yes, of course.

LB: See, ordinarily I wouldn't try this type of food, a tuna tartare or an artichoke soup. But because you know it's interesting and you ordered it, it takes on very special positive characteristics for me. I look at it and say, oh, this is going to be interesting. I approach it with a completely different attitude.

JP: It's true. And it works both ways. When I had a restaurant, many people came because they knew me and liked me. For these people, even if I screwed up and the food was ordinary, they still loved it. They were conditioned; they liked me, and I could do no wrong. Then we had the reverse. We had a guest who would say, "Let's see what the big famous chef can do. Let's see what the big deal is." Each time he tasted something, regardless of how good it was, he would question it and find fault with it. There's nothing you can do.

THE PROP TEST

LB: We need to find out if you're a supertaster. Let's try this simple test we've devised. This piece of filter paper has 1.6 milligrams of a chemical called propylthiouracil, or PROP, on it. If you were being treated for thyroid disease, you would take 200 milligrams per day of this chemical, so this paper contains really a trivial amount. Let me demonstrate. What will happen when I taste it is absolutely nothing. I don't have enough taste buds. It will taste just like paper to me, and, if we photograph my tongue, we will see that my fungiform papillae are so widely spaced that they look like polka dots.

I am going to guess that you are going to taste this paper as bitter, and that, if we photograph your tongue, your fungiform papillae are going to be just side by side.

JP: You just put it on your tongue?

LB: Just put it in your mouth.

JP: Oh boy! Very bitter.

LB: See, I told you. You have all the earmarks of a supertaster.

JP: It's disgusting.

LB: Absolutely nothing for me.

JP: Oh boy, it was really bitter.

LB: No taste. It's genetic, purely genetic. You are probably carrying two dominant genes for this characteristic and I carry two recessive.

JP: There is also a recessive gene?

LB: Yes, yes. Not surprisingly, it seems to have a big effect on people's lives. For instance, we visited the culinary school at Johnson & Wales and tested students. They were virtually all supertasters. Men are more likely to be nontasters; it is women who are more likely to be supertasters—probably to protect the fetus. Yet most of the students were men. Finding all these male supertasters who are experts at food is extremely interesting, and this is not an accident. You were born to it.

JP: And learned to love the experience of taste.

LB: And to share that love. YM

GALE ZUCKER

With Union League Café Chef Jean-Michel Gammariello. "The meal," says Pépin, "was wonderful."

Yale School of Medicine
Alumni Reunion Weekend

Return to Yale for a reunion celebration June 4 and 5. Take a walk down College Street and memory lane, reconnect with old friends, enjoy a New England style clambake — revisit and reminisce. This year's event includes special programs on medical education, international health and the career of neurophysiologist and medical historian John Farquhar Fulton, as well as a preview of the Congress Avenue Building.

Programmatic Review of the New Congress Avenue Building Project

Yale Surgery: 1949 to 1999

Medical Education and Curriculum Review at Yale

Annual Meeting of the Association of Yale Alumni in Medicine

Dean's Reception

John Farquhar Fulton, M.D. Centennial Celebration/Symposium

Tours of the medical center and library, Fulton Estate, historic New Haven, and Yale Center for British Art

Association of Yale Alumni in Medicine
Office of Alumni Affairs
P.O. Box 7613, New Haven, CT 06519-0613
203. 785.4674 203. 737.5153 Fax

Yale University
Alumni Reunion Weekend
School of Medicine

Association of Yale Alumni in Public Health
Celebrating Shared Linkages to Global Health
Friday, June 4

The theme of this year's program provides an opportunity to reflect on what we currently know about the effects of globalization on the health field. Highlights include:

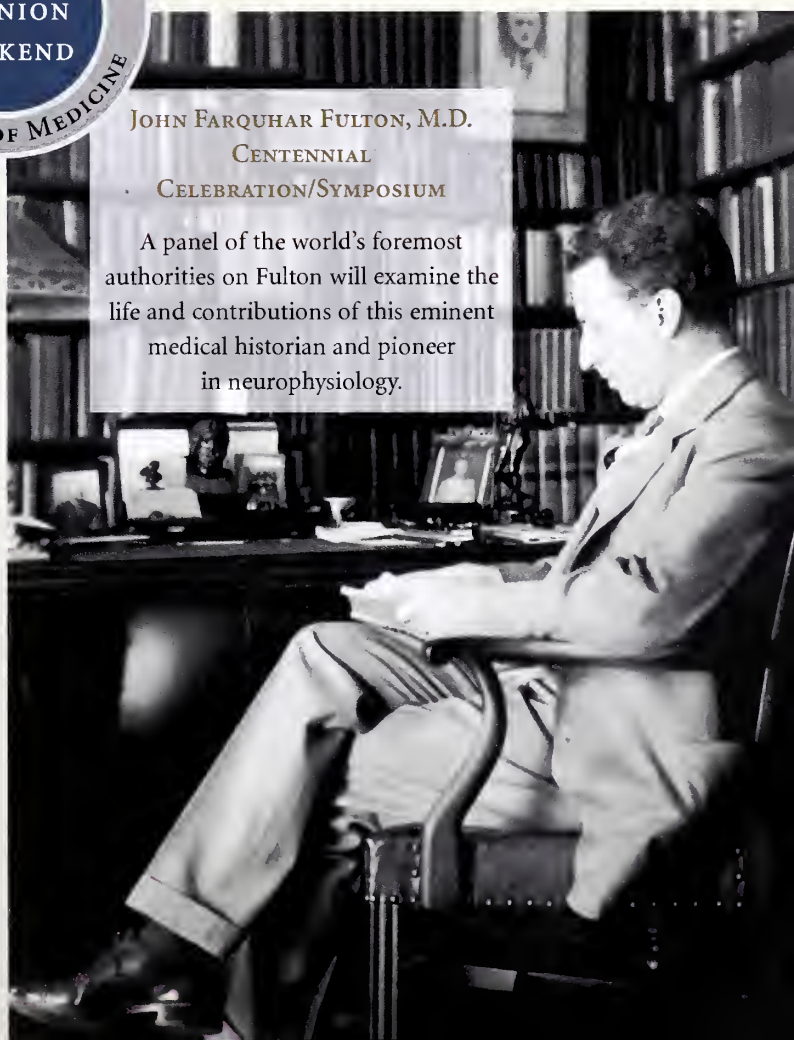
International Action *Can* Make a Difference
Joshua Cohen, M.D., MPH '59, *former Chief of Medical Care and Advisor on Health Policy of the World Health Organization*

Global Health as a Reflection of Challenges in the U.S. and Abroad
EPH Alumni/Downs Fellows Panel

Global Health and the Mission of PAHO
Keynote Speaker: Sir George Alleyne, M.D.,
Director, Pan American Health Organization

Gala Dinner and 30th Reunion of Downs Fellows

Contact: Carolyn Grantham-Millman, M.P.H. '84,
oordinator of Alumni Affairs, Epidemiology and Public Health,
60 College St., P.O. Box 208034, New Haven, CT 06520-0834



John Farquhar Fulton, M.D. Centennial Celebration/Symposium

A panel of the world's foremost authorities on Fulton will examine the life and contributions of this eminent medical historian and pioneer in neurophysiology.

Rimar appointed medical director of Yale Faculty Practice

Stephen Rimar, M.D., HS '83-87, vice chair for finance and administration in the Department of Anesthesiology, has been appointed medical director of the Yale Faculty Practice, the organization that manages the clinical activities of more than 650 Yale physicians.

Rimar, a 1977 graduate of Yale College who received his medical degree from George Washington University, is board certified in pediatrics and anesthesiology and was chief resident of the Pediatric Primary Care Center at Yale before joining the faculty in 1988. He founded the section of pediatric anesthesia and was the first medical director of the pediatric surgery center. He has taken an active leadership role in a range of Faculty Practice initiatives including credentialing, finance, marketing, compliance and telemedicine.

According to David J. Leffell, M.D., HS '84-87, director the Yale Faculty Practice and associate dean for clinical affairs, Rimar's appointment is a major step forward for the practice. "Dr. Rimar is a highly skilled administrator, clinically active physician, and strong leader who will help guide our academic physician organization," he said in making the appointment.

The Faculty Practice is the group practice of the faculty of the Yale School of Medicine, who provide care in a broad range of specialties. As medical director, Rimar hopes to make physicians more familiar with the business side of running a practice.

According to Leffell, Rimar is responsible for the implemention of the practice standards that were developed to ensure a uniformity of service in all Faculty Practice departments. He also directs the Management Course for Physicians, which was designed to cultivate physician leaders and managers within the school and practice, and recently graduated 21 students in its first class.

FACULTY NOTES


George Aghajanian

George K. Aghajanian, M.D., professor of psychiatry and pharmacology, received the 1998 Lieber Prize for Schizophrenia in October from the National Alliance for Research on Schizophrenia and Depression at a gala dinner in New York.


Vincent Andriole

Vincent A.T. Andriole, M.D., HS professor of medicine, received the 1998 Bristol Award in November at the Infectious Diseases Society of America's annual meeting in Denver. The award is granted in recognition of a career reflecting major accomplishments and contributions through teaching in an area of infectious diseases. Andriole also received the Lawrence Paul Garrod Award from the British Society of Antimicrobial Chemotherapy at its annual meeting in November in Manchester, England, at which time he delivered the Farrod Lecture.

Amy Arnsten, Ph.D., research scientist in neurobiology, **Ralph E. Hoffman,** M.D., associate professor of psychiatry, and **Scott W. Woods,** M.D., associate professor of psychiatry and diagnostic radiology, received 1998 Independent Investigator Awards from the National Alliance for Research on Schizophrenia and Depression. They each will receive $50,000 a year for two years for their research.

James L. Boyer, M.D. '78, professor of medicine, received the Distinguished Achievement Award in November from the American Association for the Study of Liver Diseases in honor of his ongoing scientific contributions to the field of liver diseases and to the scientific foundations of hepatology.


Yung-Chi Cheng

Yung-Chi Cheng, Ph.D., the Henry Bronson Professor of Pharmacology and medicine, received the American Society for Pharmacology and Experimental Therapeutics Award in Experimental Therapeutics for 1999. The award, funded by Hoffman-LaRoche Inc. is given annually for the purpose of recognizing and stimulating outstanding basic laboratory or clinical research that has had, or potentially will have, a major impact on the pharmacological treatment of disease. Past recipients from Yale are Alan C. Sartorelli, Ph.D. in 1986;

William H. Prusoff, Ph.D. in 1982; and Joseph R. Bertino, M.D. in 1970.

Jennifer A. Doudna, Ph.D., professor of molecular biophysics and biochemistry and assistant investigator at the Howard Hughes Medical Institute, was one of 17 researchers honored by the National Academy of Sciences. Doudna received a $15,000 Award for Initiative in Research for her pioneering studies, which have enabled the determination of complex RNA structures, especially those of ribozymes, through X-ray crystallography. The award, established in 1981 by AT&T Bell Laboratories in honor of William O. Baker, is supported currently by Lucent Technologies.

In October, **Stephen C. Edberg,** Ph.D., professor of laboratory medicine and medicine, was appointed United States delegate to the Codex Alimentarious Commission (CAC). Edberg was chosen for his internationally recognized work in the field of microbial health risk assessment. The CAC is the body of the United Nations that generates standards and regulations for the international movement of food, agriculture and drinking water.


John Elefteriades

John A. Elefteriades, M.D., professor of surgery and chief of the section of cardiothoracic surgery, delivered an invited address on *Surgical Revascularization for Failing Hearts* during the plenary sessions of the American Heart Assoc-iation's 71st Annual Meeting in Dallas in November. Elefteriades also spoke on this topic in October at the Post-Graduate Course of the American College of Surgeons in Orlando.


Gerald Friedland

Gerald H. Friedland, M.D., professor of medicine and epidemiology, was honored on World AIDS Day in December with the Connecticut Department of Public Health's 10th annual AIDS Leadership Award. Friedland was honored for his work in research, administration and policy development, as well as for providing exceptional patient care.

Siegfried J. Kra, M.D., associate clinical professor of medicine, conducted a symposium on hypertension in October in Windsor, Conn., sponsored by Zeneca Pharmaceuticals.

John M. Leventhal, M.D., professor of pediatrics and a member of the Child Study Center faculty, received the 1998 Research Award from the Ambulatory Pediatric Association, which represents almost 2,000 pediatric academic generalists in the United States. Leventhal received this award for his research on risk factors for child abuse and for his enthusiastic mentoring of medical students and fellows pursuing research on child abuse and developmental and behavioral pediatrics.

Donaghue Foundation selects five investigators for long-term support

Five researchers have been awarded $100,000-a-year, five-year grants from the Patrick and Catherine Weldon Donaghue Medical Research Foundation. The foundation's first awards through the Donaghue Investigator Program for Health-Related Research were announced in November. The researchers are:

Mark B. Gerstein, Ph.D., assistant professor of medicine, who will conduct a large-scale analysis of gene sequences and protein structures that will be relevant to understanding the molecular basis of diseases that have been genetically characterized.

Sharon K. Inouye, M.D., M.P.H., associate professor of medicine, who will study ways to reduce delirium and functional decline in hospitalized older persons with the goal of reducing the length of hospital stays and improving health outcomes.

Zeev Kain, M.D., associate professor of anesthesiology and pediatrics, who will identify children who are prone to preoperative anxiety and seek ways to decrease their stress and improve long-term outcomes.

David Rimm, M.D., Ph.D., assistant professor of pathology, who will study adhesion protein expression as a predictor of cancer metastasis. Discovery of new biological markers in breast or melanoma tumors can greatly enhance early treatment of cancer patients.

Stephen Strittmatter, M.D., Ph.D., associate professor of neurology, will investigate axonal regeneration after spinal cord injury. Results could have major positive implications for victims of spinal cord injury and stroke.

Richard P. Lifton, M.D., Ph.D., chair of the Department of Genetics and professor of medicine, genetics, and molecular biophysics and biochemistry, delivered two lectures as part of the 1998 Holiday Lectures on Science for high school students sponsored by the Howard Hughes Medical Institute. The lectures—*Telltale Genes: Charting Human Disease* and *The Kidney's Tale: of Salt and Hypertension*—were broadcast live via satellite throughout the United States and Canada and internationally via the Internet.


Stephen Malawista

Stephen E. Malawista, M.D., professor of medicine, was awarded an honorary doctorate (Docteur Honoris Causa) by the Université René Descartes in Paris in December. Malawista is known for his work on motile and killing functions of white blood cells in the context of the inflammatory response, the

With an eye for detail, an expert on the lung shares his life's work

By John Curtis

In a basement office in Brady Memorial Laboratory, the evidence of a half-century of lung cancer research clutters the shelves, pours from filing cabinets and covers the desk and nearly every flat surface. The remaining spaces are filled with a few unremarkable pieces of office furniture, several microscopes and drawers of slides, and a sign that thanks visitors for not smoking.

Although semi-retired at age 85, Raymond Yesner, M.D., continues to teach the craft and science of pathology while documenting the knowledge he has amassed during 53 years on the Yale medical faculty. In November 1997, Lippincott-Raven published his *Atlas of Lung Cancer,* a compendium of knowledge and insights gleaned from a life spent studying diseases of the lung, particularly cancer and tuberculosis. Yesner, professor emeritus and senior research scientist in pathology, is "the premier authority on the pathology of lung cancer," according to the book description; its pages contain some 450 photographs and conclusions based on his work with more than 25,000 cases.

Yesner's keen understanding of the lung and its vulnerabilities has won him praise in medical circles as well as the emnity of the tobacco industry that he has testified against in legal proceedings. Outside the courtroom, he recalled in an interview, industry agents followed his movements in a fruitless search for a way to discredit him. "If I had any skeletons in the closet," he said, "they were interested in uncovering them."

Last November, he was honored with a Yale professorship in his name. In announcing the news—and the appointment of pathology chair Jon S. Morrow, M.D., as the first incumbent—Dean David A. Kessler, M.D., praised Yesner for his accomplishments as a scientist and his skill with students. "Dr. Yesner," the dean said, "is particularly known for providing the kind of support and encouragement that comes with great teachers." Morrow also offered kind words for Yesner. "He has been a mainstay of the pathology program. He has taught legions of residents. He remains intellectually active," Morrow said in a recent interview. "I marvel at the remarkable contributions he has made over the years."

At a ceremony in November, Dean David Kessler announced the creation and endowment of the Raymond Yesner Professorship in Pathology. Yesner's wife, Bernice, and children Steven and Donna applaud the announcement.

Born in 1914, Yesner spent his youth mostly in New England. The family's travels took them from Georgia, where he was born, to Maine, where his father ran a general store catering to lumberjacks who arrived on skis, to New York City, where he excelled as a pupil and skipped two

grades. When the family settled in Massachusetts, Yesner attended Boston Latin School and proceeded on to Harvard on a scholarship, then to Tufts Medical School.

Through it all, he developed an interest in writing that persists. He has published hundreds of articles in medical journals, ranging from landmark studies of lung disease to an account of his visit to hospitals and clinics in Kenya. Resisting the computer age, he still writes by hand, although he is working on the CD-ROM edition of his lung cancer atlas. "I like to see things in long hand and let them marinate for a little bit," he said, "in case I want to change them."


JOHN CURTIS

Yesner came to Yale as an assistant professor in 1946, shortly after he mustered out of the Army and began a career at the Veterans Administration in West Haven. In 1974, he retired from government service and devoted himself to teaching at Yale, an activity he still enjoys. "This past weekend I supervised two autopsies and have just gone over them with a resident," he said during the interview several months ago. "This kind of teaching, which is done one-to-one over a microscope, is the best kind of teaching."

It is during these sessions that Yesner feels he can not only discuss what is being observed in the laboratory, but also shape the views of his students and the future practice of his discipline. He rallies energetically in favor of the autopsy, all too rarely performed in this day and age, he believes.

"In order to understand disease you have to be able to follow cases from biopsy to autopsy," he said, using a writer's analogy to make his point. "The autopsy is the last chapter of an individual's life. This is a very important thing."

mechanism of action of colchicine, the pathogenesis of gout, and the discovery and elucidation of Lyme disease.


Bruce McClennan

Bruce McClennan, M.D., professor of diagnostic radiology, was elected to the Board of Directors of the Academy of Radiology Research in November. The academy's focus is on radiology as a discipline committed to research and the translation of research advances into higher-quality and more cost-effective patient care. McClennan is secretary of the American Roentgen Ray Society.


Ira Mellman

Ira S. Mellman, Ph.D., professor of cell biology and immunobiology and director of the Program in Biological and Biomedical Sciences, was named editor-in-chief of the *Journal of Cell Biology* (JCB) in March by Arnold Levine, Ph.D., president of The Rockefeller University. Mellman replaces Norton B. Gilula, Ph.D., of the Scripps Research Institute, who had served as editor-in-chief since 1981. The journal was founded in 1955 by several of the field's pioneers, including former Yale professor and Nobel laureate George Palade, M.D. Yale faculty members currently serving on its editorial board include Pietro DeCamilli, M.D., Graham Warren, Ph.D., Keith Joiner, M.D. and Arthur Horwich, M.D. Mellman, a senior editor at JCB for the past year, says new initiatives are planned for the journal, including enhanced web access, video links and a unique system for online peer review.

James R. Merikangas, M.D., HS '71-72, lecturer in psychiatry, was elected president of the American Academy of Clinical Psychiatrists in October at its annual meeting in New Orleans.

Sara C. Rockwell, Ph.D., professor of therapeutic radiology and pharmacology, received the John Yuhas Award in October from the University of Pennsylvania in recognition of her outstanding research in radiation biology. The award was presented to Rockwell after she delivered the John Yuhas Memorial Lecture on Radioresistance and Drug Resistance: The Importance of the Cellular Environment.

Martin W. Sklaire, M.D., clinical professor of pediatrics, was presented the 1998 Milton J.E. Senn Award by the American Academy of Pediatrics in recognition of his achievement in the field of school health. Sklaire, also a school physician in the Madison, Clinton, Hamden and Saybrook school systems in Connecticut, has been in private practice in Madison for over 30 years.

Brian R. Smith, M.D., professor of laboratory medicine, pediatrics and medicine (bone marrow transplantation), has been appointed assistant chief of laboratory medicine at Yale-New Haven Hospital.

Frans J.Th. Wackers, M.D., professor of diagnostic radiology and medicine and director of cardiovascular nuclear imaging, was awarded the Eugene H. Drake Award in February by the American Heart Association's New England Affiliate. In March, he received the 1999 Distinguished Service Award from the American Society of Nuclear Cardiology.

Eiji Yanagisawa, M.D., clinical professor of surgery (otolaryngology), presented two video programs in October during the Motion Picture Session in Otorhinolaryngology at the Clinical Congress of the American College of Surgeons in Orlando. In November, he was an invited lecturer at the 50th Anniversary Congress of the Japan Bronco-Esophagological Society held in Kobe. Yanagisawa also presented a video program with Dewey A. Christmas, M.D., HS '70, last July at the 1998 European Rhinologic Society and International Symposium of Infection and Allergy of the Nose in Vienna, receiving a second place award in the international competition.

A vision realized

Student sees a need for AIDS education program in India and fills it.

When first-year medical student Vivek Murthy completes his medical training and begins his career as a physician, he plans to continue a philanthropic venture he started as a freshman in college. If he is successful, he may well become the Paul Newman of the health products world, channeling profits from commercial enterprises into a charitable foundation that supports health education and other initiatives in developing countries and underserved communities in the United States.

As an undergraduate at Harvard, Murthy launched VISIONS Worldwide Inc., a non-profit organization that has about 200 students working on AIDS prevention and community health projects. Its AIDS prevention program has sent American college students to India to help high school-age students organize local AIDS education and prevention efforts. Also in India, VISIONS has worked with a hospital to identify village women for training in nursing and community health. In the Boston area, VISIONS has linked student volunteers to HIV service agencies. VISIONS also publishes an annual journal and holds an annual conference.

JOHN CURTIS

Vivek Murthy

The organization's AIDS education project in India started with six student emissaries in the summer of 1995; this summer 22 students are expected to go abroad. While in India, student volunteers meet with groups of students and hold workshops that use performance and role-playing to underscore the message of AIDS prevention.

The concept of VISIONS grew from Murthy's experience as a student in Florida, where he started a peer education program in which high school students mentored middle school students. At Harvard he decided to address the growing problem of AIDS in India, the country with the highest number of HIV-positive people, 4.1 million, according to UNAIDS.

VISIONS Worldwide [P.O. Box 24-8315, Coral Gables, FL 33124] now has seven chapters in India and the United States, including three in the Boston area, at Tufts, MIT and Harvard. The students who travel to New Delhi, Bombay, Bangalore and Sringeri for peer education work must raise at least $2,000 towards their expenses. They train in Florida for two weeks, learning to teach and facilitate discussions while becoming more familiar with the culture of India.

MELANIE STENGEL

On Martin Luther King Day, an affirmation of ideals

In song, speeches and verse, students and faculty at the medical school honored the Rev. Martin Luther King Jr.'s life and beliefs as well as the new generation that will continue his struggle. "We can say humbly, honestly and without despair," said Forrester A. Lee, M.D., associate professor of medicine and assistant dean for multicultural affairs, "that so much remains to be done. It is time to pass on the legacy of Dr. King to the next generation." Speakers included the Rev. Frederick J. Streets, Yale University chaplain; Erin Armstead, a Yale College senior; Charles Warner, left, a senior at Hill Career High School; and Richard Lyn-Cook, right, a fourth-year medical student.

Murthy's goal in starting the organization, he said, was "to generate change in local communities that would be sustainable, involve local leadership and create a mutually beneficial partnership between students in the United States and India." He targeted high school-age students because, although HIV infection is spreading fastest among 15- to 24-year-olds, they seldom perceive themselves to be at significant risk. Said Murthy: "Young people don't always relate what they hear about HIV and AIDS to themselves. Our goal is to personalize HIV in a way that will make individual prevention more effective and that will motivate students to create and support community AIDS activities."

Three students recognized

At a ceremony in May, students received awards for writing and community service. Claire Stylianopoulos, a first-year student, accepted the Novartis Pharmaceuticals Corp. Award on behalf of COVS, the Committee on Volunteer Services, which she chairs. The prize, a 10-volume set of the Netter Atlas, recognizes community service by students. Third-year students Amy Nuernberg and Ryan Davies shared this year's Lerner Award for creative writing. Davies was honored for his essay on the marvels of the human body as seen by a student in the operating room. Nuernberg was recognized for a song she composed about end-of-life issues called *I Have to Go.* Professor Thomas Duffy and Associate Dean Nancy Angoff presented the awards at the final student-faculty tea of the year in the Beaumont Room.

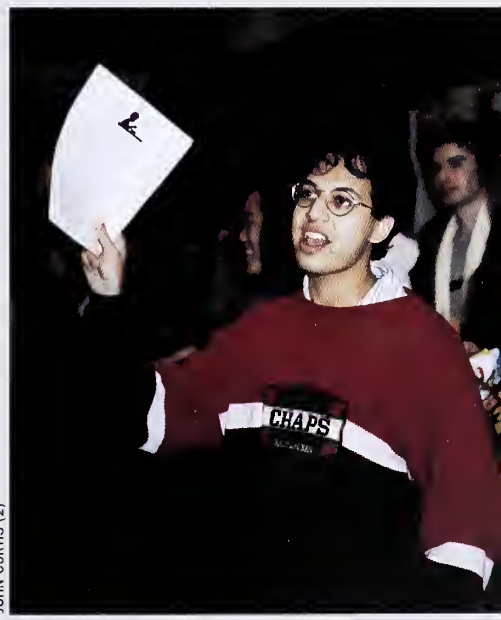
From left **Duffy, Davies, Nuernberg, Stylianopoulos and Angoff**

Auction raises $25,000 for the homeless and hungry

The sixth annual Hunger and Homeless Auction organized by students last November raised more than $25,000 for local charities, including soup kitchens, food delivery agencies and a homeless shelter for women and children.

Items on the block included lunch at the United Nations with Secretary-General Kofi Annan, a four-day sojourn at the Maine cottage of Deputy Dean Robert H. Gifford, M.D., H.S. '67, and a dessert a month for six months. Two associate deans, Ruth Katz, J.D., M.P.H., and Nancy R. Angoff, M.D. '90, H.S. '90-93, M.P.H. '81, successfully bid for roles in the second-year show presented in February.

A four-day stay for up to six people in the Martha's Vineyard home of Keith A. Joiner, M.D., professor of medicine and epidemiology, and Jo Ellen Schweinle, M.D., assistant clinical professor of medicine, fetched the highest price, $1,550. The design and construction of a tree house came in second at $1,400. Richard Donabedian, M.D., professor of laboratory medicine, hesitated not a second in bidding $500 for a promise of full attendance at a lecture from the Class of 2001. "I didn't know we were that bad," joked Kebba Jobarteh, a member of the class and one of the organizers of the auction. Other organizers were Michael Fehm and Kathy Witgert.



JOHN CURTIS (2)

Top **Richard Donabedian bid $500 for full attendance by the Class of 2001 at one of his lectures.**

Above **Dave Kharbanda made a successful bid on a tour of the United Nations and lunch with Secretary General Kofi Annan.**

"A transforming experience"

Internships guide public health students as they contemplate the road ahead.

Each summer, public health students abandon the classroom and enter the world of business, health, law or politics to blend practical experience with their textbook studies. Summer internships may take them down Interstate 95 to a health care firm in Norwalk, Conn., or to Washington, Geneva or China to work at federal or international agencies. Last summer, 74 students worked on projects at home and abroad.

One organized a database for a study of dementia among older Latino residents in California. Another wrote summaries of information on reproductive health for the World Health Organization in Geneva. A third student created financial models for health care companies at an investment banking firm on Wall Street.

"The internships allow students to gain practical experience and get an idea of balancing theory and practice. It makes their studies come alive," said Christy Bergheim, director of the EPH Office of Career Services, which helps place students in the program. "It is a transforming experience. They really come back professionals." Students must complete their internships between the first and second years of the two-year M.P.H. program. Students research their internships independently, then discuss their plans with an adviser, who must approve them.

Brooke Courtney worked for the Latino Council on Alcohol and Tobacco, one of about 50 public health organizations working for passage of tobacco legislation in Washington. Her job was to develop fact sheets, inform Senate staffers about issues and keep members of the Latino council up-to-date on developments on Capitol Hill. "It was an incredible experience," said Courtney, whose concentration is in health policy and international health. "It gave me a really good understanding of the policy process, how lawmaking works, and how interest groups affect policy."

Tobacco was also the topic for Sue Lin Yee, who went to China, where a third of the world's cigarettes are smoked. She studied anti-tobacco campaigns in China and assessed the attitudes of public health workers toward smoking. "Not all people in health were nonsmokers," Yee notes. Nevertheless, she found that health workers, as well as the general public, considered smoking a serious problem. She surveyed doctors, nurses and other health professionals, and found a majority preferred prevention programs aimed at adolescents over cessation programs for current smokers. They also favored student-generated smoking awareness pamphlets rather than after-school programs.

Sue Lin Yee and Mindy Perilla, with colleagues on the steps of the Chinese Academy of Preventative Medicine in Beijing, where they spent last summer in public health internships.

"I think the most important thing I learned from the internship was how to deal with the unexpected when working in a foreign environment," Yee said. "Often we go into the field with great expectations and very specific objectives, but we later discover that, for whatever reasons, we cannot meet our goals. Then it's important to keep trying and to be firm, but if this fails, try to make the most out of the situation and make the appropriate changes in future research."

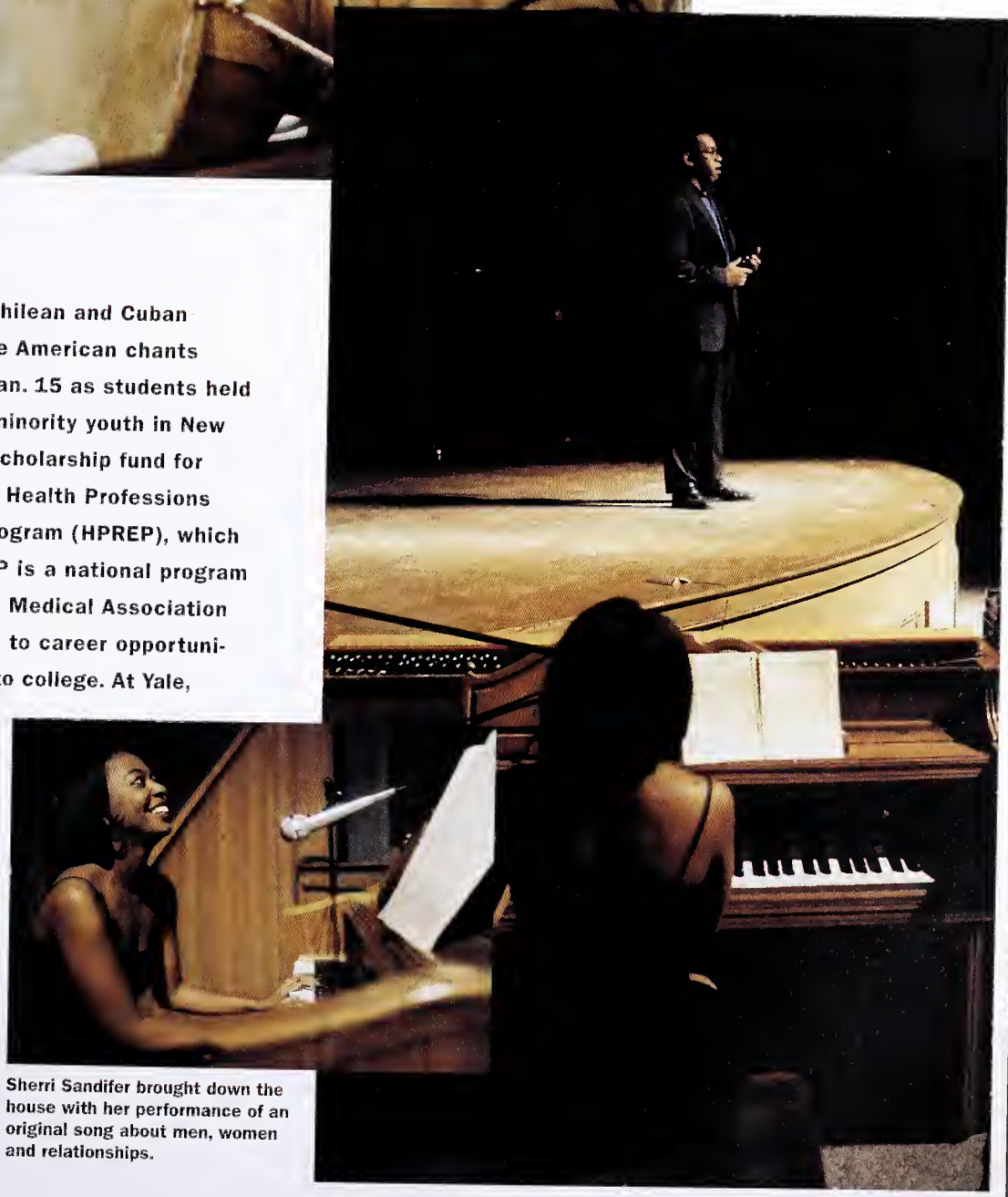
That was also the lesson for Mindy Perilla, who worked on several projects in China. One took her to Inner Mongolia where she investigated neonatal tetanus, a disease that can be prevented by hygienic birthing methods and immunization of prospective mothers. Perilla found her internship particularly challenging because she speaks no Chinese. "This is what international work is really like," her preceptor told her when they discussed the frustrations of research. "It's easy to overlook the impact that realities of life, resources, communication and culture can have when planning a project, even when doing so with experienced individuals 'in-country,'" Perilla said. "Expectations and outcomes can be quite different."

Unity, an undergraduate group of Korean drummers, performed at the Grannum Jamboree in January.

Sherri Sandifer accompanied Nduka Amankulor, a first-year medical student who sang spirituals at the jamboree.

A world of possibilities

The sounds of a gospel choir, Chilean and Cuban poetry, Korean drums and native American chants filled Harkness Auditorium on Jan. 15 as students held a jamboree to raise money for minority youth in New Haven. The money will go to a scholarship fund for students who participate in the Health Professions Recruitment and Enrichment Program (HPREP), which ran from January to April. HPREP is a national program created by the Student National Medical Association (SNMA) to expose young people to career opportunities and encourage them to go to college. At Yale, medical students taught classes on Saturday mornings on topics ranging from domestic violence to career opportunities in the health professions. "What is unique about Yale is that students are committed to this type of activity," said David LaBorde, a second-year medical student and vice president of the local chapter of the SNMA.



Sherri Sandifer brought down the house with her performance of an original song about men, women and relationships.

40's


Aaron Beck

Aaron T. Beck, M.D. '46, received the Lifetime Achievement Award from the Association for the Advancement of Behavior Therapy, (AABT), at its 32nd annual convention last November. Widely recognized as one of the founders of cognitive therapy, Beck has developed models for the treatment of depression, anxiety, panic and other disorders over a period of more than 50 years. The AABT cited his work for its "enormous impact on the methodology practiced by clinicians, far beyond the reach of those who adhere only to the tenets of cognitive and behavioral therapies," adding that his approach has been described as the fastest growing psychotherapy in the world.

David K. Geddes, M.D., HS '48-49, of Santa Ana, Calif., writes to say that he is still practicing psychiatry at age 78 and teaching residents and students at the University of California, Irvine College of Medicine.


Jack Strominger

Jack L. Strominger, M.D. '48, was one of two recipients of the 1999 Japan Prize, awarded in Tokyo by the Science and Technology Foundation of Japan in April. Strominger is the Higgins Professor of Biochemistry in the Department of Molecular and Cellular Biology at Harvard University and will share the $430,000 prize for deciphering the 3D structure of human histocompatibility molecules with Harvard colleague Don Wiley, Ph.D. The award underlines the rapid advances made in molecular immunology in the last three decades.

50's

George L. Becker Jr., M.D., HS '58-62, of Franklin Lakes, N.J., received the Honorary Distinguished Alumni Award from the Department of Neurological Surgery at Columbia University, College of Physicians and Surgeons, in the summer 1998.

In October, the Wharton Health Care Management alumni honored **William L. Kissick,** M.D. '57, HS '58-61, of Philadelphia, with a scholarship in his name.

Myron Lotz, M.D. '58, continues to work with charities and hospitals in San Miguel de Allende, Guanajuato, Mexico, that assist with family planning, hunger relief and medical care for needy children. Lotz writes, "This is a beautiful area with lots of arts and crafts and cultural events. Come on down. It's fun."

Leon G. Smith Jr., M.D., HS '59-62, director of medicine and chief of infectious diseases at Saint Michael's Medical Center in Newark, N.J., received the Jubilee Medal *Pro Meritis* for distinguished service within the Archdiocese of Newark Health Care Apostolate and was honored by the Archbishop of Newark at a special mass held in the Cathedral Basilica of the Sacred Heart. He has also been honored with the dedication of the Leon G. Smith Infectious Diseases Institute at Saint Michael's Medical Center. According to background information published by the medical center, Smith will lead the institute in its mission "to impact countless lives in the world–especially those of the impoverished and the neglected in the battle against infectious diseases."

60's

Malin R. Dollinger, M.D. '60, of Palos Verdes Estates, Calif., writes that after 24 years in a private practice of medical oncology and serving as vice president of medical affairs at the John Wayne Cancer Institute in Santa Monica, Calif., he is devoting time to

a second-opinion cancer practice and consulting. He also enjoys playing his Wurlitzer pipe organ.

Phillip Gorden, M.D., HS '61-64, director of the National Institute of Diabetes, Digestive and Kidney Diseases, has announced his intention to step down from the post when a successor is named. Gorden plans to rejoin the National Institutes of Health intramural program.

70's

Edward L. Marut, M.D. '74, of Winnetka, Ill., is the medical director of the Highland Park Hospital IVF Center, which ranks in the top 10 of all centers in the United States for pregnancy success rates, according to the data published by the Centers for Disease Control in February.

David B. Moyer Jr., M.D. '72, a Navy medical corps captain, has retired after 26 years in the service. He was the Navy Surgeon General's consultant for allergies, tobacco and health issues. Moyer is now at the Kaiser Hospital in Oakland, Calif.

80's


Jeffrey Faig

Jeffrey C. Faig, M.D. '80, is presently chief resident in obstetrics and gynecology at Kaiser Medical Center in San Francisco. He also completed an endocrinology fellowship at Stanford and an internal medicine residency at the University of California, San Francisco. Dr. Faig plans to practice obstetrics and gynecology in Northern California next year.

90's

Jill Fischer, M.D. '97 and **Michael Fischer,** M.D. '97, are proud parents of a son, Benjamin Jeremy, born Dec. 20. He has an older brother, Jacob. Jill is in her second year of pediatric residency at Massachusetts General Hospital and Michael in his second year of primary care/internal medicine residency at Brigham and Women's Hospital. The obstetrics resident on-call when they arrived at the hospital for the delivery was classmate **Wendy Kuohung,** M.D. '97.

Louluo Hong, M.P.H. '92, was named assistant director for Wellness Education at the Louisiana State University (LSU) Student Health Center in September. She also received her Ph.D. in educational leadership and research from LSU in December. A May wedding is planned with Christopher J. Aamadt, a paramedic with Acadian Ambulance.


Lauren Hyman

Lauren D. Hyman, M.D. '94, has joined the staff of The West Hills (Calif.) Hospital & Medical Center and the medical practice of Linda Katz, M.D., Ob/Gyn. Hyman also served as an instructor at a homeless shelter for pregnant women in Los Alamitos.

Elan D. Louis, M.D. '89 and **Vinita Sehgal,** M.D. '90, announce the birth of their son, Ravi Jonah Sehgal Louis, born Sept. 25. Louis and Sehgal are currently assistant professors of neurology and nephrology at the College of Physicians and Surgeons, Columbia University.

Scot Phelps, M.P.H. '95, received his juris doctor degree from Brooklyn Law School in May 1998, and passed both the New York and New Jersey bar exams. He has been appointed assistant professor of emergency medicine at George Washington University.

Stacy M. Susman, M.P.H. '91, a health-care management consultant at PricewaterhouseCoopers in New York, and Thomas J. Kuhn, senior vice president and general counsel of USA Networks Inc., were married on Jan. 31 at Cipriani Wall Street in New York.

ERICA PIFER BATE

Erica Pifer Bate, M.P.H. '82, died on Jan. 2 in London. She was 71.

Born in England, she graduated with honors from London University. In 1953, she married Alan Pifer, the American director of the newly established Fulbright Scholarship Program. They later moved to the United States where she returned to school and earned her master's degree in hospital administration from Yale. During her career she was employed as a senior administrator at Bridgeport Hospital. She also served as president of the Norwalk Hospital Volunteers and as a trustee of the hospital and the Educational Foundation of America. She divorced in 1994 and moved back to England where she married John Bate, a childhood friend.

EDWARD N. BRENNAN

Edward N. Brennan, M.D. '55, died June 25, 1998, at home in Greenwich, Conn., of cancer.

After graduation from the School of Medicine, Brennan served as a teaching fellow in psychiatry at Harvard University from 1956 to 1959 and trained at Columbia University's Psychoanalytic Clinic for Training and Research. He also served as a captain in the Air Force from 1959 to 1961 at Eglin Air Force Base in Florida. Brennan was an associate professor at Columbia and had an active practice in New York City and Greenwich, Conn.

KATHERINE L. BURNHAM

Katherine L. Burnham, M.P.H. '70, died Nov. 20 of breast cancer. She was 52.

Burnham was born in New York City and graduated from Hiram College in Ohio. She received a master's degree in public health from Yale and attended Duke University Medical School, where she received her physician's assistant degree. In 1978, she moved to Portland, Ore., where she practiced as a physician's assistant for Kaiser Permanente.

ALBERT C.K. CHUN-HOON

Albert C.K. Chun-Hoon, M.D. '57, died March 12, 1998, at St. Francis Hospice in Hawaii. He was 66.

Chun-Hoon graduated from Bowdoin College in Maine, and, after receiving his Yale medical degree, trained as a resident at Baylor University. He served in the Army Medical Corps in Okinawa and returned to Hawaii in 1960 to practice medicine. Chun-Hoon served on the Hawaii Medical Service Association Board for more than 20 years and as its chairman from 1984 to 1987. He helped launch and was the first medical director of the WorkComp Hawaii Insurance Co. Inc., which underwrites workers' compensation coverage for employers in Hawaii. He also was a professor of surgery in orthopaedics at the University of Hawaii and served on the medical staff of the Queen's, St. Francis and Kuakini medical centers.

NORMAN L. CRESSY

Norman L. Cressy, M.D. '39, died Jan. 25 at the Wildflower Health Care Center in Greenville, R.I. He was 85.

A 1935 graduate of Yale College, Cressy served as a lieutenant colonel in the U.S. Army Medical Corps and played a role in the Army's efforts to identify and control viral pneumonia. Following a post-war fellowship at Yale, he became a fellow of the American College of Physicians while serving on the staff at the Veterans Administration Hospital in Newington, Conn.

In 1949, he moved to Northampton, Mass., and practiced internal medicine. Cressy joined the staff of Uncas-on-Thames Hospital in Norwich, Conn., in 1953 where he was apointed superintendent and medical director. He retired in 1974. During his career, he also served as an associate clinical professor at the School of Medicine, where he was recognized for his work in pulmonary diseases and oncology.

MARCIA FITE

Marcia Fite, M.D. '37, died Jan. 20 at the Gregory Wing Nursing Home in Boothbay Harbor, Maine. She was 87.

Born in Poughkeepsie, N.Y., Fite graduated from Vassar College and received her medical degree from the School of Medicine in 1937. Most of her career was devoted to clinical research.

STORER P. HUMPHREYS

Storer P. Humphreys, M.D. '32, died Dec. 28 at the Anna Jaques Hospital in Newburyport, Mass. He was 93.

In 1928, Humphreys graduated from Norwich University in Northfield, Vt. After receiving his medical degree from Yale, he continued his studies at McGill University and Neurological Institute in Montreal. He served his residency as a neurological surgeon at Massachusetts General Hospital and became an associate on the hospital's neurological team.

Humphreys served with both the Canadian and the U.S. Army Medical Corps and retired from the Army as a colonel.

WILLIAM H.E. KEELER

William H.E. Keeler, M.D., M.P.H. '58, died Dec. 10 at the Licking Memorial Hospital in Newark, Ohio. He was 79.

Keeler received his medical degree from New York Medical College and his master's of public health degree from Yale. He served in the U.S. Marine Corps as a medic in the Pacific Theater during World War II.

Keeler was a retired medical officer for the U.S. Postal Service and a former health commissioner in Marion City, Ohio, where he was affiliated with the Frederick C. Smith Clinic.

WILLIAM KESSEN

Child psychologist William Kessen, Ph.D. '52, died Feb. 13. He was 74.

Kessen graduated from the University of Florida in 1948 and went on to Brown, where he received his Sc.M. degree in 1950. After earning his Ph.D. at Yale, he began his career as a postdoctoral fellow in the Yale Child Study Center. He was named the Eugene Higgins Professor of Psychology in 1976 and became a professor of pediatrics in 1978.

Kessen chaired the Department of Psychology at Yale from 1977 to 1980. He also served as acting secretary of the University during the fall of 1980 and acting master of Calhoun College in the spring of 1989. He retired in 1997.

Kessen's research centered on the behavior of children in the first years of life. His work led him to many parts of the world including China, where he led one of the first delegations following the re-establishment of U.S. diplomatic relations.

PAUL F. MCALENNEY

Paul F. McAlenney, M.D. '29, died Dec. 23 at Pomperaug Woods Health Center in Southbury, Conn. He was 94.

McAlenney graduated from Catholic University of America in 1925. After earning his M.D. from Yale, he began his career as an associate clinical professor of pediatrics at Yale from 1932, remaining on the faculty until 1974. He headed the Department of Pediatrics at St. Raphael's Hospital in New Haven from 1950 to 1964.

RUTH CORTELL MEDINE

Ruth Cortell Medine, M.D. '48, died Dec. 21. She was 84.

Medine graduated from Wellesley College and the University of Chicago. While pursuing her medical degree at Yale, she also studied thyroid function as a research fellow in pharmacology. Medine served as associate medical director of the Metropolitan Life Insurance Co.

ETHAN R. NADEL

Ethan R. Nadel, Ph.D., died Dec. 26 of cancer at his home in Guilford, Conn. He was 57.

A native of the Washington, D.C., area, Nadel received a bachelor's degree from Williams College and a Ph.D. in environmental physiology from the University of California at Santa Barbara. He then continued with postdoctoral studies at the Pierce Laboratory in New Haven and was appointed assistant professor of epidemiology at the Yale School of Medicine in 1970.

Nadel was an authority in the area of human thermoregulation during exercise and heat exposure. In 1986 he became a consultant on the M.I.T. Daedalus Project, which took human-powered flight to a new level with a successful non-stop flight in 1988 between the Aegean islands of Crete and Santorini.

During his tenure as director of the Pierce Laboratory from 1989 until last year, Nadel planned and oversaw the expansion and major renovation of the laboratory's facilities and helped increase the research staff to a level of 25 scientists and postdoctoral fellows. He also strengthened the relationship between the laboratory and the medical school, inviting medical and graduate students to use Pierce facilities and expertise to complete their training.

CHARLES J. PETRILLO

Charles J. Petrillo, M.D. '38, died Dec. 31 at his home in Clinton, Conn. He was 84.

Petrillo was born in West Haven and graduated from Yale College in 1935. After completing medical school at Yale, he practiced otolaryngology in New Haven from 1947 to 1985.

Petrillo served on the school's clinical faculty in otolaryngology from 1950 until his death. He was also an associate section chief of otolaryngology at Yale-New Haven Hospital.

Petrillo was active in the Association of Yale Alumni in Medicine, serving as a class secretary for many years. He was a former president of the New Haven Medical Society, the American Rhinologic Society, and American Diopter and Decibel Society.

IN MEMORIAM

The School of Medicine has received notification of the deaths of the following persons:

Muriel H. Bagshaw, M.D. '51
February 9, 1998

Erica Pifer Bate, M.P.H. '82
January 2, 1999

Eleanor Clay Bigley, M.D. '51
January 23, 1998

Katherine L. Burnham, M.P.H. '70
November 20, 1998

Nicholas W. Fenney, M.P.H. '46
January 9, 1999

Storer P. Humphreys, M.D. '32
December 28, 1998

William H.E. Keeler, M.D., M.P.H. '58
December 10, 1998

Harriet P. Leach, M.D. '35
May 25, 1998

Paul F. McAlenney, M.D. '29
December 23, 1998

Ruth Cortell Medine, M.D. '48
December 21, 1998

Charles J. Petrillo, M.D. '38
December 31, 1998

Donald A. Pious, M.D. '56, HS '57-59
September 6, 1998

Charles F. Scholhamer, M.D. '42
October 2, 1998

H. Yale Tyler, M.D., Med '35
November 28, 1998

John H. Wentworth, M.D. '39
June 21, 1998

Mabel Wilson, Med '29
April 28, 1998

Abrahim I. Zafar, M.D. '96
October 10, 1998

The designation Med. *indicates that the deceased attended the School of Medicine for a portion of his or her education.*

Face to face with Ray

In the clinic and on film, an exceptional patient is a teacher without peer.

PETER CASOLINO

By Angelo Volandes

Over the last four years, I have listened to hundreds of patient stories as a medical student taking histories. Not all stories are equal in their impact, and some are so profound that one begins to see patients differently. The story of Ray has stayed with me for four years and will, I think, color my experience with every patient.

I first encountered Ray in the dermatology clinic in the Yale Physicians Building. I poked my head in, greeted him, and closed the door. I stood there for what seemed an eternity, mouth agape, as I gawked at the lesions that festered on every inch of his skin. Tumors the size of golf-balls appeared to be in a sort of limbo, not sure whether to remain embedded under the skin or to bud out. "Are you okay?" Ray asked self-effacingly, and I sat down in the chair usually occupied by the patient.

Ray had a severe and untreatable case of neurofibromatosis. The scheduled 15-minute visit turned into a two-hour conversation in which he recounted the endless ways it had changed his life. A normal kid growing up in a normal New Haven family, Ray had hoped to be a photographer running around New York City like the famous Weegee. His dreams faded when bumps the size of marbles began parasitizing his skin during adolescence. The doctors told him, "You have the elephant man's disease—just bad luck." Now, as then, there is no cure. The best medicine can do is manage the complications, which is why Ray has had more than 40 surgeries to remove fibromas that had become infected. Fifty years after diagnosis, alone and reclusive, Ray's otherwise monotonous existence of television and videotapes is interrupted by a call inviting him to come to clinic and meet some students, which he enjoys doing in the hopes of educating us. "I want you all to be good docs," he continually reminds us.

It is difficult not to have a changed perspective on the doctor-patient relationship, and a greater capacity for empathy, after meeting and talking with Ray. His greatest fear is that others will fear him, out of misplaced anxiety that he might be contagious.

Last summer while shopping at the market and covered from head to toe with a very long raincoat, Ray encountered a new cashier. When she saw him she shrieked, drawing the attention and stares of a crowd of onlookers as Ray pleaded with her to accept his 10-dollar bill. She placed his change on a napkin, and a very nervous Ray dropped the money on the floor. Embarrassed once again, he ran from the store, leaving his groceries and money. "It's the unforeseeable reaction that I live with on a daily basis," he says as he stares at the floor. He never looks you in the eye.

Ray affected me and has helped to make me a better doctor. Soon after I met him, I wondered how his story might help other medical students be good docs, too. A film about his life would say it all. After a meeting with Ray and one of his dermatologists, Irwin Braverman, M.D., we all agreed to make a documentary recounting Ray's battle with this horrible disease. The film would be used to teach medical students and residents the profound impact that disease can have on patient lives, not only physically but socially as well.

With encouragement and direction from mentors at the medical school, I began work on *Illness As Experience.* The half-hour film took a year to make, with resources and financial support from the school, the Yale Film Studies Department and outside grants. Ray's story unfolds in interviews with him and Dr. Braverman detailing the pervasive presence of neurofibromatosis in his life. The film is being shown at more than 100 medical schools and residency programs throughout the country as part of their humanities-in-medicine and ethics curricula.

Ray's altruism towards young doctors, as he shares his life with us in the clinic and on the screen, goes beyond words. I occasionally view the documentary, and it is admittedly an unsettling experience; even the thought of briefly viewing the world through the eyes of a severely disfigured man is a vicarious experience most would rather not have. For many Yale students who meet Ray, however, it is a voyage we rarely forget.

Angelo Volandes is a fourth-year medical student graduating in May. He will begin his residency training in primary care this summer at the University of Pennsylvania.

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Please send additional information on the conferences checked at left. Letters correspond with conference listings on the opposite page.

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Continuing Medical Education at Yale

A

August 7 - 8
Saturday - Sunday
Spinal Canal Endoscopy
Course Directors: Lloyd Saberski, M.D.
and James Rosser, M.D.
Temple Medical Center, 40 Temple Street,
New Haven

B

September 15 - 19
Wednesday - Sunday
PA Conference
Course Director: Christiane Nockels
Omni Hotel, New Haven

C

September 17
Friday
The Yale Glaucoma Symposium
Sheraton Four Points, Waterbury

D

September 25
Saturday
Asthma Update for the New Millennium
Course Directors: Alia Bazzy-Asaad, M.D.
and Gabriel Haddad, M.D.
Foxwoods Resort & Conference Center,
Ledyard, Conn.

E

October 15
Friday
Second Annual Frisbee Stem Cell Symposium
Course Director: Edward Snyder, M.D.
Omni Hotel, New Haven

F

October 21 - 23
Thursday - Saturday
Yale Conference on Women's Health and Fitness
Course Director: Peggy DeZinno
Omni Hotel, New Haven

G

October 23
Saturday
Diabetes
Course Director: Rosa Hendler, M.D.
Omni Hotel, New Haven

H

October 29
Friday
Changing the Risk: Women and Heart Disease
Course Directors: Teresa Caulin-Glaser,
M.D. and Frans J.Th. Wackers, M.D.
Fitkin Amphitheatre, New Haven

I

November 5
Friday
Osteoporosis
Course Director: Karl Insogna, M.D.
New Haven Lawn Club

J

November 6 - 7
Saturday - Sunday
Spinal Canal Endoscopy
Course Directors: Lloyd Saberski, M.D.
and James Rosser, M.D.
Temple Medical Center, 40 Temple Street,
New Haven

K

November 12
Friday
Yale Ophthalmology Cornea Update
Yale Eye Center, Boardman Building,
Room 307, New Haven

For information, contact the Office of Postgraduate and Continuing Education, Yale University School of Medicine, 333 Cedar Street, P.O. Box 208052, New Haven, CT 06520-8052; Tel: (203) 785-4578

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Spring 1999

Photo by Michael Marsland

"Our AYA trip to Santa Fe surpassed our expectations in terms of faculty, program and companionship. What an experience." —Maureen & Harold Bornstein '53 MD

Yale Medicine

YALE UNIVERSITY SCHOOL OF MEDICINE
SUMMER 1999

KOSOVO JOURNAL

Hardship and hope through the eyes of six Yale medical students

On the cover: Children in the Senekos refugee camp near the Kosovo border in the former Yugoslav Republic of Macedonia found themselves homeless and, in many cases, separated from family members and loved ones. Yale volunteers organized recreational activities including soccer and volleyball leagues, hikes in the countryside and a theatrical production of *Cinderella* complete with props and costumes scavenged in the marketplace in Skopje. "If you make the kids happy, it makes the community a whole lot better," observed one of the medical students who worked in the camp. For excerpts from the volunteers' journals, see page 26.

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John Curtis (4)

A case study in corporate resuscitation

1 Managed-care executive Norman C. Payson, M.D., described "The Rise, Collapse and Resurrection of Oxford Health Plans Inc." for graduates of the Yale Management Course for Physicians in April. The Connecticut-based health insurer "is off the ventilator, it is out of the ICU, but it is still an inpatient," said Payson, who was brought in to revive the ailing company as its CEO last year.

He was a fitting choice for the graduation ceremony, which marked the end of a course designed to impart management skills so doctors may better cope with medicine's new regulatory and financial environment. Payson started his career as a physician, became CEO of a 120-physician group practice, then headed a managed care company before taking over as CEO of Oxford. The company became the darling of Wall Street in the early 1990s as it offered customers a choice of insurance plans and sought affiliations with top doctors and hospitals. After a series of poor business decisions, its quarterly profits of $34 million, Payson said, fell to quarterly losses of $45 million a year later. Its stock plummeted, investors sued and regulators intervened. To survive, the company jettisoned its management, secured new investments and pulled out of unprofitable markets. Now, Payson said, Oxford's recovery is a work in progress. "Hopefully," he said, "the patient will be able to go home soon."

Shades of gray in the human genome

2 Nobel laureate Baruch S. Blumberg, M.D., Ph.D., discussed environmental and genetic factors of the hepatitis B virus and related liver diseases during a talk on May 24. "It is very difficult, if not impossible, to assign a value to a gene in terms of good or bad," Blumberg said. "Those terms are polarized and very often they can only be used in the context of other factors that are involved."

His talk, "DNA Polymorphisms and Clinical Phenotypes: A New Era for Genome Epidemiology," was the second annual Genaissance Pharmacogenetics Lecture. Blumberg shared the 1976 Nobel Prize in Medicine with D. Carleton Gajdusek, M.D., for their discoveries concerning new mechanisms for the origin and dissemination of infectious diseases. Blumberg was honored for his discovery of the hepatitis B virus.

"Lost Boys" author weighs in on Littleton

3 Access to weapons, violent role models in the media, spiritual emptiness and a history of trouble are among the risk factors that can precipitate teen violence, said James Garbarino, Ph.D., director of the Family Life Development Center and professor of human development at Cornell University. Garbarino's talk on May 6, "Lost Boys: Pathways to Violence," came two weeks after the high-school massacre in Littleton, Colo., that left 15 dead, including two high-school gunmen.

"[The cause] is not one thing, it's an accumulation of risk factors," Garbarino said during the second in a series of lectures marking the opening this fall of the Neison and Irving Harris Building of the Child Study Center. "With one or two risk factors, kids do fine. With three or four risk factors they go over the line." But Garbarino saw cause for optimism in the tragedy. "This is obviously a time of despair, but also an opportunity to help people mobilize in caring, thoughtful ways," he said.

Biology's new world

4 DNA sequencing and genome-mapping have moved biology into a new world where researchers try to keep pace with the explosion of information and ideas, Nobel laureate Walter Gilbert, Ph.D., told a standing-room-only audience of graduate students, postdocs and researchers in May.

"By the time you start graduate school," he said, "there is only 10 percent of the information about DNA that will be known by the time you get your Ph.D. A few years ago it was possible to get a thesis by cloning a gene. Today it is impossible. You have to do something more."

Gilbert, a microbiologist at Harvard who invented DNA sequencing, delivered the seventh annual Edward A. Adelberg Lecture in Genetics. He shared the 1980 Nobel Prize in chemistry with Frederick Sanger for their work in determining base sequences in nucleic acids.

— John Curtis

FROM THE EDITOR

An evolving *Yale Medicine*

You may notice a few improvements in this issue of *Yale Medicine:* cleaner typography, more extensive use of color, an additional feature or two and the lively touch of designers Peter Johnson and Kristin Tomsits of the Yale RIS Design Department. During the course of the next several issues, we will be fine-tuning the magazine's content and presentation with the goal of creating a more attractive, better organized, and, ultimately, more informative publication.

While the core mission of *Yale Medicine* remains unchanged, we would like to hear from readers as we reconsider its format. What do you like about the magazine? What could be better? What could be added to make *Yale Medicine* more useful and enjoyable? Please share your thoughts by writing to us at the address on the masthead or by e-mailing me directly at michael.fitzsousa@yale.edu.

Meanwhile, we have added content to our Web site, including back issues from the past two years and supplemental material that you won't find in the magazine. A video clip, edited from interviews with three of the students who traveled to Macedonia, accompanies our cover story at info.med.yale.edu/ymm. We're also seeking student-show memorabilia, which we will digitize and make available on the Web; see the timeline on pages 14-17, and please help us fill in the missing years.

While you're online, please take a fresh look at the school's overall site, info.med.yale.edu/ysm, which has been redesigned by Patrick Lynch with the help of a school-wide committee. You may also want to visit Yale University's retooled front door on the Web at www.yale.edu—one of the first projects overseen by new University Printer John Gambell. An accomplished designer and senior critic at the School of Art, John became university printer last August, continuing a long Yale tradition in graphic design and typography. He has provided valuable counsel as the School of Medicine refocuses its publications. Stay tuned for future developments.

Michael Fitzsousa

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.

Satcher's message of prevention

In visit to Yale, surgeon general cites public health challenges

Human behavior, according to Surgeon General David Satcher, M.D., Ph.D., is the most important factor in the public health challenges facing the nation. In conversations with students and in a speech to library associates this spring, Satcher said that smoking, poor nutrition and physical inactivity are responsible for hundreds of thousands of deaths each year. Half of all deaths derive from nine behaviors, he said in his keynote address, "Toward a Balanced Community Health System: Opportunities and Challenges," delivered March 24 at the 51st annual meeting of the Associates of the Cushing/Whitney Medical Library. And medicine expends a disproportionate amount of its resources on treatment of late-stage disease rather than health promotion and disease prevention, he said.

Michael Marsland

Surgeon General David Satcher warned that smoking, diet and physical inactivity contribute to hundreds of thousands of deaths each year.

Treatment, he pointed out, fails to reach all social groups and classes equally. "We have the most sophisticated health care system in the world," he said. "Yet there are tremendous disparities on the basis of race and ethnicity. An African-American baby born in this country is two times as likely to die in the first year of life as a majority baby."

Over lunch he took questions from medical, public health and nursing students who had traveled abroad on research fellowships or spent time working in inner-city hospitals and homeless shelters. What, asked Kebba Jobarteh, did Satcher think about controversial AZT trials designed to reduce vertical transmission of HIV in the Third World? "We were criticized by people I respect a lot," answered Satcher, who, as director of the Centers for Disease Control and Prevention, endorsed the trials that used placebos in a control group. The study found that use of AZT could reduce the spread of AIDS from pregnant mother to child, even if the first dose is administered during labor. "That controversial study is saving thousands of lives every day," Satcher said.

Did he foresee, asked Rachel Lovins, any changes in the nation's health insurance system? "There is no way we are going to control costs as long as we focus on treatment of patients after they are sick," he said. "There is not enough incentive for health promotion and disease prevention." Satcher expressed hope that frustration with the current system would pave the way for his balanced approach.

Yale delegation brings high-tech care to remote corner of Peru

Two Yale plastic surgeons traveled to the Peruvian Amazon in March, where they performed about 80 operations for people in need of corrective surgery. John A. Persing, M.D., chief of the section of plastic surgery, and Joseph Shin, M.D., HS '97, assistant professor of plastic surgery, went as part of Interplast, an agency that sends doctors around the world to do charitable work. Their trip to Iquitos, Peru, a port on the Amazon accessible only by air or water, was sponsored by the Ronald McDonald House. Interplast was founded in 1965 by Yale alumnus Donald R. Laub, M.D. '60, HS '63, now at Stanford University.

The surgeons each spent a week in Iquitos, part of a team of 16 people that included nurses, an obstetrician-gynecologist and a pediatrician. Of the 80 operations Persing and Shin performed, most were for cleft lip and palates. They also operated on burn patients and removed a tumor on the nose of a 90-year-old woman. "We try to serve the needs of the local population," said Shin, "although the emphasis is on cleft palates and congenital malformations." This was Shin's second trip on behalf of Interplast and Persing's fifth since 1993.

As part of their program they are following up on their patients' recoveries via information sent by local doctors on the Internet. Two Web sites, http://www.wiredMD.com and http://yalesurgery.med.yale.edu, carry the information. Part of the doctors' mission is to provide training to local physicians, both during their visit and afterwards over the Internet. "The initial goal," says Persing, "is to provide service for people who would not be able to afford care. The secondary goal is to magnify our effect by teaching local surgeons how to do the work."

Telemedicine proves its mettle on Mt. Everest

Jim Williams / Professional Mountain Guides

John Curtis

Real-time communication between Mt. Everest and New Haven enabled Yale physicians on both sides of the connection to consult on emergency cases. When a climber returned to the Everest Base Camp with a retinal hemorrhage, images from a fundoscopic exam (inset) were transmitted to Yale, where the chair of ophthalmology was able to view them and discuss treatment with the expedition team.

In May 1998, a team of Yale physicians trekked to the slopes of Mt. Everest to provide medical support for climbers and to conduct research on the body's response to high altitude and thin air. They brought along equipment to record how fast climbers' hearts pumped and how well their lungs worked in those extreme conditions on the world's highest mountain.

At the core of the expedition was a system to transmit that information from climbers high on the mountain to the expedition's makeshift medical center at the Everest Base Camp at 17,500 feet, and then around the globe to New Haven.

This spring, a second Yale team returned to Everest to continue the work of that first expedition and quickly found an opportunity to prove the value of telemedicine in an emergency. On May 14, as physicians on the mountain were beginning their daily videoconference with colleagues in New Haven, a climber stumbled into the medical tent, wheezing and coughing. The climber had reached Everest Camp Four, at 26,000 feet above sea level, before turning back with breathing difficulties that worsened even as he descended into the fuller air of lower altitudes.

Tests showed that his blood oxygen was low and that little air was moving through the lower part of his lungs. Suspecting either pneumonia or the potentially fatal condition known as high-altitude pulmonary edema, his physicians used the expedition's electronic network to consult in real time with their colleagues in New Haven. They sent ultrasound images of the climber's lungs, along with digitized blood smears and sputum samples, to Yale for further analysis, and the diagnosis of pneumonia was confirmed. The clinical data traveled the 15,000 miles in an instant—by satellite from Base Camp to a relay station in Malaysia, then to the United States and onto Yale via the Internet.

After two days of antibiotics, oxygen and an IV to treat dehydration, the climber left the medical tent. "He was able to walk down to lower altitudes, where he continued to improve," said Richard Satava, M.D., of the Commercial Space Center for Medical Informatics and Technology at Yale, which was responsible for the expedition. Yale's partners in the expedition were the Explorers Club and Millennium Healthcare Solutions Inc. Olympus America was a major sponsor of the expedition. Ronald C. Merrell, M.D., former chair of surgery, was the driving force behind the school's telemedicine efforts.

continues on next page

Telemedicine *continued*

The consultation that spanned an ocean and two continents proved the viability of the communications technology, which is being developed for the National Aeronautics and Space Administration. "We are hoping that the success of this year will be enough to encourage NASA to put some of these things on the space station and the mission to Mars," Satava said.

The expedition's research also expanded knowledge of the effects of hypoxia on the cardiovascular system. Previous studies concentrated on the pulmonary system, Satava said. "We now have specific measurements about how the heart and blood vessels adapt to low oxygen," he said.

Last year's lesson was that a telemedicine station in remote terrain could transmit to a medical center thousands of miles away, said Peter Angood, M.D., program director for the Yale Surgical Critical Care program, and a member of the support team at Yale. But during that first expedition the technology was not always successful. Personal status monitors, designed to measure climbers' temperature, heart rate, breathing and location, often failed to transmit the information to Base Camp. This year climbers successfully repositioned repeaters, the line-of-sight devices that transmit data from the climbers' monitors to Base Camp. Upgraded personal status monitors proved better able to transmit data to Base Camp than last year. On May 12 three climbers wore them on a trek to Camp One at 21,000 feet, while the Yale support team monitored them in real time.

Physicians on the team again opened a clinic at Base Camp, where they treated routine high-altitude ailments — headaches, insomnia and gastrointestinal disorders — as well as medical emergencies such as frostbite and physical injuries. The expedition team included a resident in ophthalmology who conducted research into the effects of high altitude on sight. "Surprisingly," said Angood, "there is very little good research on what happens to the eyes in high altitude. With the pressure changes the contours of the eyeball itself change." On May 18, M. Bruce Shields, M.D., chair of ophthalmology and visual science, consulted with the resident, Jennifer Grin, M.D., on a case of retinal hemorrhage. A video fundoscopic exam had revealed the hemorrhaging, and Shields also identified venous congestion in the retina. In addition to caring for sick and injured climbers, the team's physicians conducted regular tests on a core group of seven climbers. Every other day the climbers went through a 90-minute exam that measured, among other things, cardiac output, oxygen saturation, mental and visual acuity and cognitive functions. The tests started before the team members left the United States so their physiological measurements at sea level could be compared with readings in the mountains. The team's medical devices included a small camera that fits under the tongue and reveals how small blood vessels change shape and caliber.

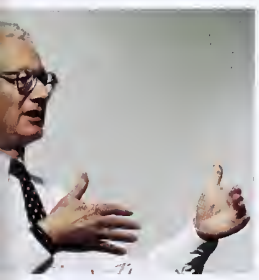
The next step in the project is, Satava said, "up in the air." An expedition to Everest, or another remote site, depends on the results of this year's research and the availability of corporate support. "There are other environments that similar concepts and ideas could be tested out on," Angood said. "It doesn't have to be Everest."

Robert Hyman

At the Everest Base Camp, Yale physicians provided medical support for climbers scaling the world's tallest mountain.

CIRA events focus on the ethics and science of HIV

An impromptu debate over the case of NuShawn Williams, an upstate New York man accused of infecting at least nine women with HIV, explored the legal and public health consequences of criminalizing sexual behavior linked to deliberate HIV infection. The debate took place at "Using Law to Regulate Behavior: AIDS and the Criminalization of Sex," a symposium sponsored by the Law, Policy and Ethics Core of the Center for Interdisciplinary Research on AIDS (CIRA). Some states already have laws on the books that make it a crime to expose others to HIV infection through sex or blood donations. Williams, already in prison on drug charges, pleaded guilty to two counts of reckless endangerment for exposing women to HIV, and one count of statutory rape for his relationship with a 13-year-old.



John Curtis

Neal Nathanson: The greatest threat to progress in HIV research is complacency bred by recent clinical successes. HIV infection is still devastating developing countries, particularly in Africa.

Leslie Wolf, J.D., M.P.H., an assistant professor of medicine at the Center for AIDS Prevention Studies at the University of California San Francisco, set forth arguments in favor of and against criminalization of HIV transmission. She suggested that criminalization of HIV transmission may be appropriate, but only if statutes are drafted to target a narrow range of cases and to minimize negative effects on public health efforts.

In the ensuing debate, Scott Burris, J.D., professor of law at Temple University, noted that issues of race and poverty were missing from her discussion. "Criminalization of HIV exposure is fine in principle," Burris said, "but impossible in any social setting."

The following day CIRA, in collaboration with the Yale AIDS Program, held AIDS Science Day '99 to highlight AIDS research at Yale. Neal Nathanson, M.D., director of the Office of AIDS Research at the National Institutes of Health, delivered the conference's keynote address, "AIDS Research and the Global Epidemic." "Right now in the developing world there are 30 million people living with HIV/AIDS," Nathanson said, "and almost all of them will be dead in 10 years and they will be replaced by 60 million people." Although drug therapies may help stem the spread of AIDS, a vaccine remains elusive, he said. Once candidate vaccines are identified, he continued, it could take five years to evaluate their efficacy. "The future of AIDS research depends on convincing the world that it is important to sustain research."

Presentation topics included needle exchanges, prenatal HIV counseling and testing, and drugs users' social networks. Gerald Friedland, M.D., director of the Yale AIDS Program, cautioned that more study is needed on the pharmacokinetic interactions between anti-HIV drugs and drugs employed in drug-abuse treatment programs. "Methadone may alter the pharmacokinetics of antiretroviral drugs and, conversely, antiretroviral agents may alter the disposition of methadone and other opiate substitution therapies," Friedland said, adding that very little data on these interactions is available, and this is an active area of research at Yale.

EPH inaugurates grand rounds series

Connecticut's $3.6 billion share of the nationwide tobacco settlement should be used to fund public health and antismoking programs, the state's attorney general, Richard Blumenthal, told faculty and students during a talk April 14 at the Department of Epidemiology and Public Health. "We have an opportunity to use this money in a way that literally will save lives," he said, noting that some in government would rather use the money for politically desirable programs such as property tax relief or increased public school funding. "We continue to face this industry that will go on marketing to kids and we have to figure out how to counter it," Blumenthal added, posing a challenge to his audience in Winslow Auditorium. "I am inviting you to think about this problem."

Blumenthal was the final speaker in an inaugural series of public health grand rounds that began in December with a talk on drug policy by Thomas Zeltner, the director general of the Swiss Federal Office of Public Health. Other speakers were Barry S. Levy, M.D., M.P.H., former president of the American Public Health Association, and Frank Ruddle, Ph.D., Sterling Professor of Biology. "We want to give our students the opportunity to hear from practitioners of public health in the community, the state and the nation, as well as experts from fields related to public health," said Michael H. Merson, M.D., dean of public health, adding that the roster of speakers will reach beyond physicians and researchers to include government officials, such as Blumenthal, whose duties touch on public health issues. Merson said he hopes to have up to five grand rounds each academic year.

John Curtis

Richard Blumenthal at grand rounds

Non-traditional medicine is complementary, not alternative, says alumnus who headed NIH office

Although he once headed the Office of Alternative Medicine at the National Institutes of Health, Joseph J. Jacobs, M.D. '77, HS '80, says he never liked the term. "It conjures up this mutually exclusive range of either/or decisions that patients have to make," he told a crowd of about 60 people in the Beaumont Room at the School of Medicine in April.

He prefers to look at acupuncture, herbs, macrobiotics, massage, biofeedback, t'ai chi and other regimens as complements, rather than alternatives, to conventional medicine. Many patients see in alternative medicine a holistic approach they feel is lacking in traditional medicine, he said. "What is not so important is whether this group of alternative medicines have any efficacy," he said, noting that they may offer hope to patients. "Patients trust us with their bodies and should not be afraid to trust us with their beliefs. We must let our patients know we are not only listening to them, but hearing them as well."

During his talk on alternative medicine in April, part of the Humanities in Medicine lecture series, he described his own initiation into the world of alternate beliefs. Jacobs, a member of the St. Regis Mohawk tribe who grew up in Brooklyn, spent his early years as a physician on a Navajo reservation in New Mexico. Those formative personal and professional experiences have made him particularly sensitive to his patients' belief systems, which he says can be as important to healing as the latest medical technology. A physician colleague on an Apache reservation once described to him how a tubercular patient looked at his X-ray, then chanted and danced before allowing conventional treatment to begin. "When immigrants come into your clinic, what is their belief structure?" asked Jacobs, now medical director for the Medicaid and corrections systems in the state of Vermont. "How is it going to influence the way we deliver health care?"

Jim Flora

Patients' belief systems can be as important to healing as the latest medical technology, says Joseph Jacobs.

Cancer Center chosen for breast cancer study

The Yale Cancer Center will participate in a national trial to determine the effectiveness of two drugs in preventing breast cancer. The STAR Trial, also known as the Study of Tamoxifen and Raloxifene, began this spring and will involve 22,000 post-menopausal women at increased risk for developing breast cancer. The National Surgical Adjuvant Breast and Bowel Project (NSABBP) is conducting the study.

Tamoxifen, which has been in use for 20 years to treat cancer, also has been found effective in preventing breast cancer. In a previous trial the NSABBP found a 49 percent decrease in invasive breast cancer among women who received tamoxifen therapy. The new study will seek to determine whether raloxifene is also effective in preventing breast cancer and whether it results in fewer side effects than tamoxifen. Raloxifene was recently approved by the FDA to prevent osteoporosis in postmenopausal women.

Grant will support musculoskeletal research

A biologist who isolates a gene linked to the musculoskeletal system, regardless of where on campus he or she works, will have increased access to resources for research, thanks to a $1.98 million, five-year grant from the National Institute of Arthritis, Musculoskeletal and Skin Diseases. The grant to the School of Medicine will fund the new Yale Core Center for Musculoskeletal Diseases. The center will encourage research into musculoskeletal disorders such as osteoporosis and provide financial and technical support, as well as the expertise of its members. The center currently has 25 affiliated researchers, most of them at the medical school.

"There is an appreciation that musculoskeletal disorders, in particular osteoporosis, are emerging as a major health concern," said Karl L. Insogna, M.D., associate professor of medicine, director of the new center. "There is a need for a more comprehensive approach to understanding the pathogenesis of these diseases and other musculoskeletal disorders."

What's in a yam? Clues to fertility, a student discovers

White yams, a staple of the diet of the Yoruba people of southwestern Nigeria, may play a role in the society's high incidence of fraternal twinning, according to a student's research. "You see families consuming yams three or four times a day," said Obinwanne Ugwonali, M.D. '99, whose thesis on the link between yams and fertility was one of five to garner awards this year on Student Research Day (See page 42). "I think this project will lead us to understanding more about the mechanisms of the human reproductive system, specifically the reason why we are typically monotocous rather than polytocous like other animals," he said.

Ugwonali's adviser, Frederick Naftolin, M.D., professor and chair of obstetrics and gynecology, said the research is the cornerstone of a group of related studies of yam intake and genetic predisposition to multiple births now under way at Yale and Harvard and in Nigeria. In addition to the biological and anthropological aspects, the study has medical applications, Naftolin said. "We don't know why normally monotocous women become polytocous, but multiple pregnancy is the most common cause of prematurity, which is the major cause of perinatal morbidity and mortality," he said.

Ugwonali's interest in yams and fertility started when he worked in Naftolin's lab the summer before he entered medical school. Naftolin asked him to investigate why humans are monotocous, and a Medline search led Ugwonali to information about the high rate of twinning in Nigeria. Although some Nigerian tribes have rates of fraternal twinning ranging from 20 to 30 pairs per thousand births, it peaks among the Yoruba at 41.6 per thousand. "I'm from Nigeria and I didn't know this before," said Ugwonali, who is a member of the Ibo tribe. For African-Americans the rate is 15 per thousand, and for Caucasians in the United States and the United Kingdom it is between 10 and 11 per thousand. Among the Yoruba, twins symbolize a duality of blessings and burdens that is celebrated in hardwood carvings.

In 1996 Ugwonali went to Nigeria on a Downs fellowship to begin his research. After analyzing age, socioeconomic factors and other variables, Ugwonali focused on diet. Demographic and scientific studies conducted in the early 1970s pointed to white yams as the culprit in the mystery of multiple births in southwestern Nigeria. Ugwonali interviewed people about their eating habits and made his own observations. "We suspected environmental factors," he said. "The only factor that ended up being different from the ones we controlled was yams." In laboratories at Yale and in Nigeria, he fed rats a diet of yams and saw the average size of their litters double from about four to about nine.

Peter Casolino

Obinwanne Ugwonali has correlated the high incidence of fraternal twinning among the Yoruba people of Nigeria with the consumption of white yams.

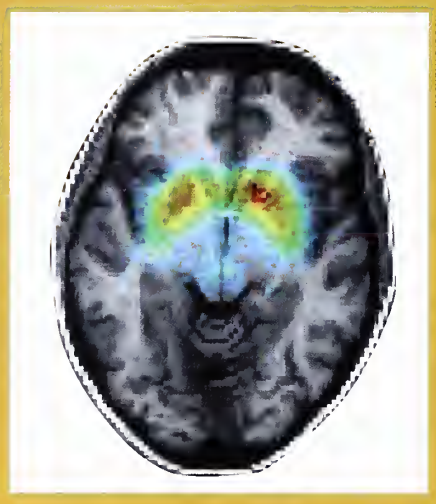
"Our hypothesis is that yams act as anti-estrogens," he said, noting that he hasn't investigated the precise chemical link between yams and fertility and has yet to isolate an anti-estrogen from yams. Anti-estrogens fool the brain into thinking there is insufficient estrogen, causing it to release more of a hormone called gonadotrophin and increase the ovulation rate, he said.

Ugwonali, who began his residency in orthopaedics at Columbia-Presbyterian Medical Center in New York, plans to continue his research in Brazil, where many Yoruba were brought as slaves in colonial times. He wants to determine if the high incidence of multiple births persists there among the Yoruba, who have maintained elements of their language, religion, cultural identity and diet, including consumption of white yams.

Dole joins commencement celebration

Graduating medical students chose presidential candidate and former American Red Cross chief Elizabeth Dole as this year's commencement speaker. Dole delivered a speech touching on health care concerns including gun control and support for biomedical research. Below, she was joined at the podium by Deans David Kessler, Robert Gifford and Forrester Lee, from left. *Commencement coverage, page 45.*

Melanie Stengel



Robert Malison

A glimpse inside the brain

New imaging techniques allow physicians to peer inside the brain to measure how mental and emotional stress provoke physical reactions, such as the shrinking of the hippocampus in response to trauma or changing levels of chemical messengers during depression or panic. A symposium in March, "Neuroscience 1999: Breakthroughs in Brain Imaging of Neuropsychiatric Disorders," offered a glimpse of promising new methodologies. This was the third annual symposium sponsored by the Connecticut Mental Health Center, the Department of Mental Health and Addiction Services of the State of Connecticut, the Department of Psychiatry and the National Alliance for the Mentally Ill. Above, associate professor Robert Malison found that cocaine addiction increases the density of binding sites for cocaine in the brain, and that the density persists even after patients stop using cocaine. This SPECT image shows cocaine binding sites in a healthy human brain.

Honors in anatomy

More than 60 students from New Haven's Career High School received diplomas in May for their successful participation in anatomy and biology programs at the medical school. Milca Sanchez, a junior, received her diploma from Forrester A. Lee, M.D., associate dean for multicultural affairs. Standing with them (from right) were Career High School science teacher Shirley Neighbors, William B. Stewart, Ph.D., associate professor of anatomy and coordinator of the program at Yale, and Charles Williams, the principal of Career High School.

John Curtis

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Yale researchers find ways to ward off delirium in hospitalized patients and eliminate home hazards for the elderly

In separate studies, Yale geriatricians have found two ways to help the elderly maintain their physical and cognitive function. One study surveyed the homes of elderly people for physical hazards that can be easily eliminated. The other demonstrated the efficacy of a program to prevent delirium in elderly hospitalized patients.

Thomas M. Gill, M.D., associate professor of medicine, conducted the study on home hazards such as poor lighting, exposed electrical cords, throw rugs and insufficient bathroom grab rails or stairway banisters. Gill believes the potential for disabling accidents can be decreased by assessing potential hazards in the home and correcting them.

The delirium study examined the effects of the Elder Life Program, designed to ward off delirium among elderly hospitalized patients through a mix that includes conversation, exercise and memory aids. The program has been found to reduce symptoms by 40 percent, according to a study published in the March 4 issue of the *New England Journal of Medicine.*

The study, according to leader Sharon Inouye, M.D., M.P.H. '89, associate professor of medicine, compared an intervention group with a control group, which had a higher rate of delirium. The Elder Life Program is the first major clinical program designed to prevent rather than treat delirium. It focuses on six risk factors for delirium — vision loss, hearing impairment, dehydration, sleep deprivation, cognitive impairment and immobility from prolonged bed rest.

Trained volunteers took patients for walks three times a day, talked about current events and offered warm milk rather than sedatives to induce sleep at night. A bedside bulletin board lists names of doctors and nurses, as well as a schedule of daily tests and activities.

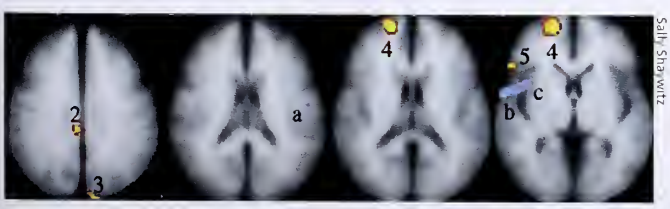
John Curtis

Patients served by the Elder Life Program were much less likely to become disoriented during the course of their hospital stay.

Estrogen treatment increases brain activity in mature adults

In a study of 46 postmenopausal women, Yale researchers found that estrogen therapy stimulated activity in areas of the brain that deal with the type of short-term memory used in common, everyday tasks. "It is significant that there was a change," said Sally E. Shaywitz, M.D., leader of the study and professor of pediatrics and in the Child Study Center. "It shows that there is flexibility in the neural circuitry in mature adults." The study, she said, suggests that estrogen affects brain organization for memory in postmenopausal women. The findings were published in the *Journal of the American Medical Association* in April.

Sally Shaywitz



Functional magnetic resonance imaging shows the effect of estrogen on the memory's ability to retrieve stored information. The regions numbered 2 through 5 indicate increased activity associated with estrogen.

Magnetic stimulation offers relief to schizophrenia patients

Pulsing a magnetic field into the brain can temporarily reduce or stop the imaginary voices heard by schizophrenic patients, Yale researchers reported at the May meeting of the American Psychiatric Association in Washington. The investigational treatment, transcranial magnetic stimulation (TMS), involves placing an electromagnetic coil on the scalp, then turning current on and off to create a pulsing magnetic field which is directed at the temporoparietal cortex. This brain region plays a critical role in processing speech. Half of the study's 12 participants reported clinically significant reductions in their hallucinations following TMS. These improvements were sustained for periods ranging from several days to six weeks. The study is continuing with an additional 20 patients, said Ralph Hoffman, M.D., deputy medical director of the Yale Psychiatric Institute, who led the study. "Patients will get a more extended course of TMS. Starting this summer we are going to be doing our own neuroimaging studies to better understand what TMS is doing in the brain," Hoffman said.

THE SHOW must go on

In 1949, Yale's fourth-year medical students set the stage for institutionalized irreverence with the Four Years for What Follies, *a collection of questionable skits, songs and dance numbers. Half a century later, students are still poking fun at their professors and peers.*

BY JOHN CURTIS / PHOTOGRAPHS BY PETER CASOLINO

Imagine Deputy Dean for Education Robert H. Gifford, M.D., HS '67, (the real one) and dozens of his clones (second-year students in white coats and wigs) prancing around the stage in Harkness Auditorium and singing to the tune of the 1970s musical *Fame:*

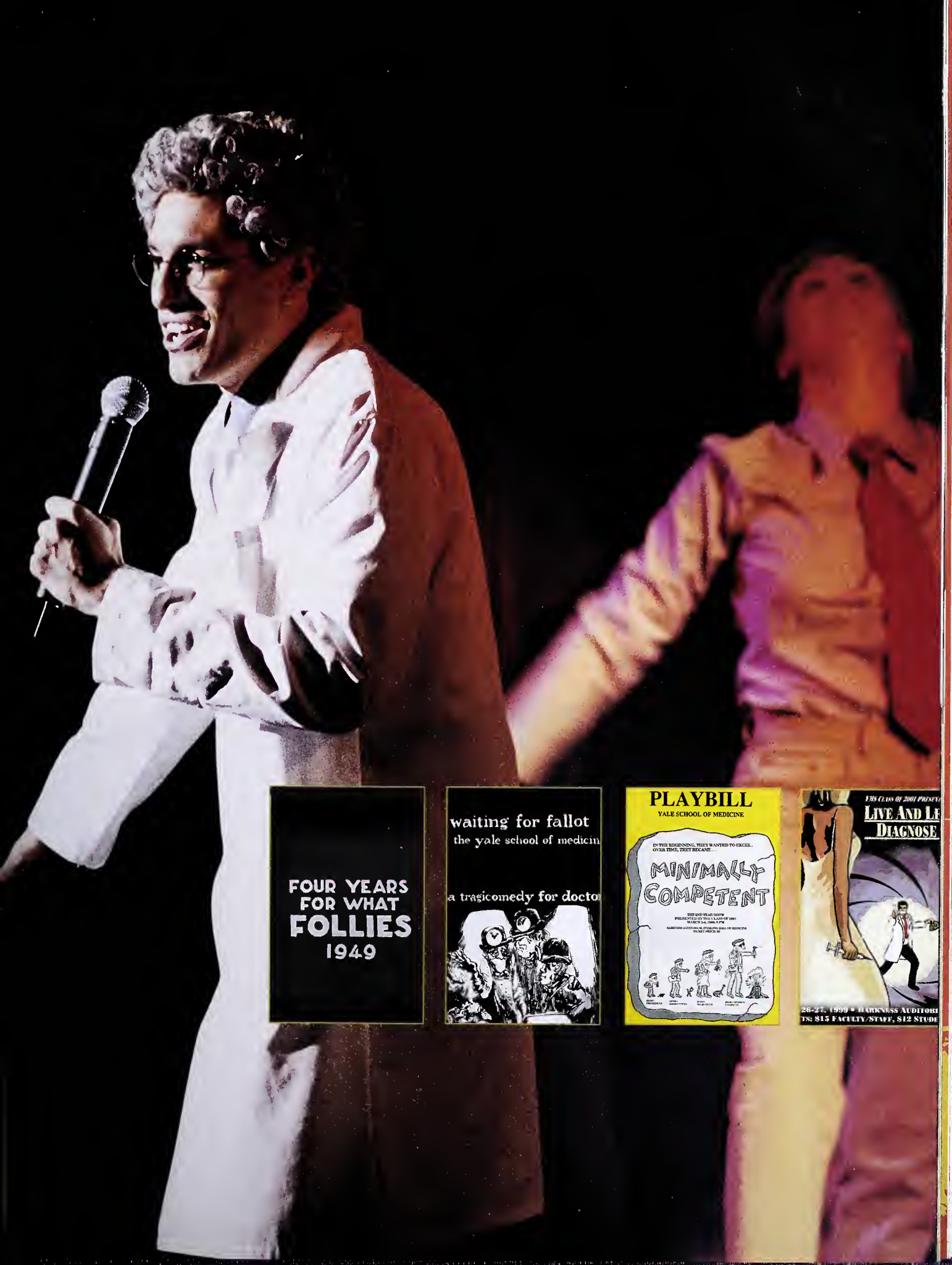
Remember my name,
FAME.
I'll be the dean forever,
Students will learn how to rhyme.
People at Yale Med will treasure
The Giff for a very long time.

That bit of surreal fantasy was the seed from which sprang *Live and Let Diagnose,* a James Bond-style spoof performed in February by the second-year Class of 2001. Gifford's twice-delayed retirement, which has become a running gag over the last two years, was a recurrent theme throughout the show, as was this second-year class's apparent reluctance to attend basic science lectures. Add song, dance, a ridiculous story line and large doses of irreverence and you have the latest installment in a stage tradition that has endured for 50 years.

The plot revolved around the scheme of an evil professor (Greta Galore) to remain head of her curriculum subcommittee. By cloning and controlling Dean Gifford, she plans to orchestrate her reappointment. Meanwhile, the diabolical Dr. No, a deadly lecturer in child psychology, has spiked the students' food with Y-agra, a drug that compels them to attend class. To the rescue come James Bond and Ana Phylaxis, students in the M.D./Ph.D. program, which is universally regarded as a home for the "socially challenged" but is really a school for spies. Like its predecessors, the show poked fun at a variety of targets, including, but not limited to: deans of all ranks, faculty members with unintelligible accents, anatomy professors, the ignorance of first-year students and the arrogance of the third-year class.

After polling alumni and faculty in a highly unscientific survey, *Yale Medicine* has concluded that The Show is a tradition that dates to at least 1949, when the graduating class got the ball rolling with the *Four Years for What Follies.* The show remained a staple of the fourth year for the next two decades before evolving into a second-year tradition. Fifty years later, this exercise in sanctioned irreverence has become a fixture of student life almost as hallowed as the student thesis requirement — despite major lapses in taste, the occasional resentment of faculty and one dean's threat to ban the show.

From its origins 50 years ago as the fourth-year follies to this year's James Bond-inspired spoof, the student show has found humor in the Yale System of medical education and paid special homage to the most admired faculty members. (Right) Jeffrey Miller donned a wig and sang "I'll be the dean forever" in his portrayal of the ever-retiring Robert Gifford.


FOUR YEARS
FOR WHAT
FOLLIES
1949
waiting for fallot
the yale school of medicin
a tragicomedy for docto
PLAYBILL
YALE SCHOOL OF MEDICINE
IN THE BEGINNING, THEY WANTED TO EXCEL..
OVER TIME, THEY BECAME...
MINIMALLY
COMPETENT
THE CLASS OF 2001 PRESEN
LIVE AND LE
DIAGNOSE
26-27, 1999 • HARKNESS AUDITORI
TS: $15 FACULTY/STAFF, $12 STUDE

THE SHOW 101

To appreciate the show, there are things you must know. First, although a familiarity with medical terms is handy, it is not as essential as an intimate knowledge of the medical school personalities being lampooned. Keeping up with gossip also helps, as shows tend to draw their plots from current events and intrigues. It's good to have seen last year's show, since it will be the butt of at least a few snide cracks.

It's also best to see the show on a Saturday night. Absent at Friday night's performance are the hooting, cheering, catcalls and the inevitable attempt by first-year students to sabotage the production. The audience response—first- and third-years don't take their skewerings lightly—is as much a part of the show as whatever nonsense is happening on stage.

The show also has its drawbacks—sophomoric humor, incomprehensible inside jokes and uneven singing, acting and dancing. And, at times, it seems the performance will go on forever, or until midnight, which is nearly as bad. What is it about this variety show that has made it last? What makes students drop other activities to write scripts and rehearse songs and dance numbers as early as October of the second year?

"It has a wonderful social function," said Gifford. "Years later, as the students look back on medical school, they have long since forgotten what they learned in anatomy, but they will not forget a single line of the lyrics they sang in the second-year show. It brings the class, usually, very close together. It is a revelation to the students the amount of talent that exists in a group of 100 people."

The producers of *Live and Let Diagnose* were similarly effusive in praise of their cast and crew. "Our choreographers have danced for years, our music directors studied music and our writers were born funny," said Jennifer Wang, who co-produced the 1999 show with classmate Jordan Prutkin. Professors know better than to schedule important lectures the week of the show. "It is pretty all-consuming," recalled Susan J. Baserga, M.D. '88, Ph.D., now an assistant professor of therapeutic radiology and genetics, of her class show. *Damn Yalies* told the story of a medical student who sold his soul to the devil in exchange for a passing grade on the boards.

"If they worked as hard on their studies as they do on the show they would all be getting a Nobel Prize," said Gifford. But he adds, "It plays such a valuable role in the socialization of medical students, it is probably worth the irritation it produces in the faculty when students don't go to class."

Brainstorming for this year's show began in October, when students submitted ideas for skits and a team of four writers shaped them into a coherent format. By the end of December they had a rough draft. Editing and polishing continued, and the script was ready for rehearsal by the middle of January.

John Curtis is a staff writer for Yale Medicine. *Peter Casolino is a photographer in New Haven.*

A SECOND- [AND FOURTH-] YEAR SAMPLER

Over the past 50 years, student productions have parodied every facet of medical school life, from the ever-present food vendors on Cedar Street to the peccadilloes of the financial aid office. Always in the crosshairs are faculty members and the Yale System. Faculty targets have included John P. Peters, Averill Liebow, Milton Winternitz, Howard Levitin and, in recent years, Robert Gifford, Nancy Angoff, David Kessler, Angela Holder, Arthur Crovatto, Margretta Seashore and Frank Bia.

Always Frank Bia, it seems. What did he do?

In fact, Bia actively encourages the students to mock him. "I would feel left out if they didn't," he said. "I make it very clear to medical students that one of their major obligations is to put on a good show." And they oblige, often with the most biting wit.

Among the highlights of past years' shows are the tidbits that follow.

1949

Four Years for What Follies
[Fourth Year]

"How Many Liters, Dr. Peters?" made fun of the tendency of John P. Peters, M.D., to speak in a very low voice. The show opened to an overture, "We're Doctors Out of Yale." Skits included "Continental Bow-Wows" and "Super-Duper Rounds."

Daniel Elliott

1954

Not As a Doctor
[Fourth Year]

These lyrics, sung by John Cole, Jack Gariepy and Ed Ransenhofer to music borrowed from Gilbert and Sullivan's *The Mikado*, lampooned Averill Liebow, M.D., a pathologist noted for his demands on students. (CPC stands for clinical pathology conference.)

If you want to know what this is,
it's a medical CPC
Where we give the house staff
the biz, for there's no one so
wise as we!
We pathologists show them how,
Although it is too late now.
Our art is a sacred cow!

And, poking fun at the Yale System, to the tune of "Fugue for

A month later, rehearsals were daily events, starting at about 5 p.m. and continuing late into the night.

FROM *FORCEPS* TO *FOLLIES*

Although shows are more elaborate these days, with more songs and dance numbers—and a new wrinkle, scenes on video—the basic formula harks back to what appears to have been the first show in modern memory, 1949's *Four Years for What Follies (A Tragedy in Four Years)*. That collection of skits lampooned faculty targets such as John Paul, M.D., who was portrayed singing "I Am the Very Model of a Modern Epidemiologist" to music from Gilbert and Sullivan's *H.M.S. Pinafore*. Metabolism pioneer John P. Peters, M.D., was targeted for his tendency to conduct his rounds in such a low voice that students circled around him and leaned in to capture the great man's every word. A skit had a gaggle of white-coated students moving around Peters as a single body. One of the songs asked, "How many liters, Dr. Peters?"

The man behind that show was William G. Anlyan, M.D. '49, who wrote the script, provided piano accompaniment and directed the show on his way to becoming chancellor of Duke University Medical Center 15 years later. At Yale, Anlyan had led a vocal quartet called The Forceps, featuring singers Bi, Tri, Quadri and Contra. He decided to expand on the singing group and stage a class show. "It was great fun. It's the thing that everyone remembers most," he said. Classmate William D. Bevis, M.D. '49, said the cast included

John Curtis

John Curtis

Preparations for the show include planning sessions, script meetings and a lot of rehearsal time. Michael Sherling, one of the show's musical directors, rehearses a song with Jennifer Wang and Caroline Harada (above right); Sherling sets up his keyboard during a sound check (right). The practice pays off at showtime (above) as Jeanne Triant and Jeff Miller join in a swing dance number in the show's final performance.

Tinhorns" from *Guys and Dolls*:

You needn't take exams.
You never have to cram.
About the boards, you see,
we don't give a damn.
You fail—
The tale
Will stay quiet here at Yale.

The Class of 1954 also made fun of Dr. Peters' speaking manner to the tune of the chorus of "Oh, Susanna."

J.P. Peters,
We greeted him with cheers.
But he whispered sweet
nothings in
Our eager, upturned ears.

Crovatto appeared in his class show not as a doctor, but as a nurse. Student shows have made him a regular target, most recently in 1998's *The Rx Files*.

Arthur Crovatto

1959

Title unfit for publication

[Fourth Year]

The Class of 1959 struggled to find lyrics from their fourth-year show, featuring Nicholas Passarelli and John Marsh, that might be suitable for publication. "Failing at the task," Marc Schwartz wrote in a memo (below) to *Yale Medicine*, "and unwilling to risk disqualifying the medical school from any grants it might receive from funding organizations overseen by Congress, we regretfully decline your invitation."

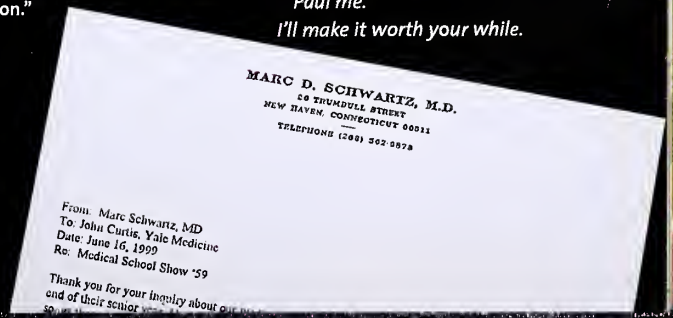
1964

The Senior Show

[Fourth Year]

Set to the music of Carl Orff's "Carmina Burana," these lyrics poked fun at Paul Beeson, then the chairman of medicine, who was rumored never to use his first name.

Attila was not called Mr. Hun.
I don't think that was done
In the year 453.
So, fellows when you call me
Just take a chance and
Paul me.
I'll make it worth your while.



MARC D. SCHWARTZ, M.D.
60 TRUMBULL STREET
NEW HAVEN, CONNECTICUT 06511
TELEPHONE (203) 562-5678

From: Marc Schwartz, MD
To: John Curtis, Yale Medicine
Date: June 16, 1999
Re: Medical School Show '59

Thank you for your inquiry about our
end of their senior

Faculty and administrators, long the fodder for student wit, began participating in the show a decade ago when Leon Rosenberg was dean. (Clockwise from top) This year, Jose Miranda, disguised as Dean David Kessler, a.k.a. Special K, *leapt onto a table in a scene depicting a meeting of students in the M.D./Ph.D. Program; Karlee Gifford joined her husband onstage, much to his surprise, as he promised that this year he really would retire; Kessler danced with Associate Dean Ruth Katz as they portrayed the handsome prince and Cinderella in a dance version of the fairy tale.*

nursing students. "The student nurses were just as inspired as the medical students," he recalled. "They sang and they wrote lyrics for the songs."

Although the tradition would last half a century, its early years were rocky. In the 1950s, then-Dean Vernon W. Lippard, M.D., threatened to ban the shows altogether unless students cleaned up their act. One production featured students with water bottles inside their costumes pretending to urinate onstage. "The shows got more and more obscene," said Arthur Ebbert, M.D., professor emeritus of medicine and former deputy dean. Even the manner of collecting money was in questionable taste. "They didn't sell tickets, but at intermission they would collect money by passing a bedpan around and you dropped your dollar in the bedpan."

The show survived the dean's warning, but interest waned and some classes chose not to do a show. When the Class of 1959 presented its own bawdy offering, it was the first in a few years. The 1959 production, which told the tale of an astronaut who is mistaken for a patient, roasted faculty, particularly in the departments of pediatrics and obstetrics and gynecology. "There were a lot of references to the posterior fornix," recalled John Poglinco, M.D. '59.

By the mid-1960s, a similar revue that celebrated the end of a second-year pathology course began to eclipse the fourth-year show as the main student production. "What happened," recalled Thomas Lentz, M.D. '64, now a professor of cell biology and assistant dean of admissions, "was the fourth-year show died out. Students didn't want to get involved. They

1969

How to Succeed in Medicine Without Really Trying

[Second Year]

This class stressed scholarly pursuits and their second-year show included a scene of runners sprinting to overcome the hurdle of the medical boards.

David Upton

1972

Guaiac Positive

[Second Year]

The Class of 1972 also poked fun at the Yale System with this song to the tune of "There Is Nothing Like a Dame," from *South Pacific*.

When we first considered Yale,
We were anxious all to come.
They had something new to offer
Called the New Curriculum.
It was novel and heroic
To put Yale back on the map.
But what did we get?
The same old CRAP!!!

We have tennis matches Monday.
We spend Tuesday at the track.
We have mixers with the nurses
And we wind up in the rack.
Every Thursday on the
golf course,
Every Friday at the pub—
That's why it's called
The Country Club!!!

1978

Waiting for Fallot

[Second Year]

In 16 skits, the Class of 1980 targeted classmates whose parents were on the faculty, student recruiting practices and the "new" curriculum. The title refers to tetralogy of Fallot, a common form of congenital heart disease.

1989

Minimally Competent

[Second Year]

The Class of 1991 mocked the faculty in "Yalehouse Rock," to the tune of the Elvis Presley standard:

Bill Stewart was bangin' on the
ol' leg bone.
Ed Crelin's blowin' on
his microphone.
Anatomy is dancin'—
Barber says it don't matter.
If you can't find a partner,
use a cadaver.
Let's rock. Everybody, let's rock.
Everybody in the whole
Cedar block
Was dancin' to the
Yalehouse Rock.

To the tune of The Who's "Pinball Wizard":

Ever since I was in med school,
afraid to be on call,
Examining the organs,
I really had a ball.
Eyeing all the patients,
I'd wait for them to fall.
That young path professor
sure seems to know it all.
He's a path lab wizard,
Naming that disease.
He's a path lab wizard,
He does it with such ease.
How do you think he does it?
I don't know.
What makes him so cool?

were applying for residencies and finishing their theses."

A number of factors coincided in the late 1960s to drop the curtain on the fourth-year show. During the clinical years classes dispersed as students who had once traveled no farther than Yale-New Haven Hospital began rotations throughout the state. The social ferment of the times—the Vietnam War and the Civil Rights movement—led students away from the frivolity of a show. It also led them to reject authority, at times with unpleasant consequences. Once-good-humored jibes became personal and vicious. "The faculty stopped going," Lentz said. "First they stopped taking their spouses, then they stopped going themselves." Members of the Class of 1974 fought among themselves over nasty attacks that found their way into *Proctalgia Fugax* (loosely translated as *Pain-in-the-Butt*), a collection of sketches set to an operetta and centered on a clinical pathology conference. "The things that were in bad taste or caustic we didn't want to put in," said Richard A. Cazen, M.D. '74, director of that second-year show and now a gastroenterologist in San Francisco.

Over the years the bitterness subsided, and in 1983 the graduating class demonstrated their school spirit by resuscitating two lost traditions, the yearbook and the abandoned fourth-year show. The class's 1983 production, *Still Crazy After All These Years,* had alumni reminiscing about medical school, with each recollection segueing into a skit, said Peter Blier, M.D. '83, Ph.D. '87, a pediatrician and rheumatologist in Springfield, Mass. One skit had the cast singing "Rounds, rounds, go to rounds, I go to rounds," to the tune of the Beach Boys' "I Get Around."

But the second-year show, which had weathered the stormy '60s and '70s, would ultimately prevail. It began to resemble a Broadway production, say faculty, and, as classes achieved a balance of men and women, it lost much of its vulgarity.

Faculty and alumni, however, lament the loss of the fourth-year show. Clinical professors, with whom students spend their last two years, are now spared the withering ridicule accorded their colleagues in the basic sciences. "When you work in the wards with faculty, you learn a lot about their personalities and peccadilloes," said Sherwin B. Nuland, M.D. '55, HS '61, who played a leading role in his class show as a hapless patient. "There's nothing like being in an operating room with a professor of surgery at three in the morning when crucial decisions are being made." To say that the show is irreverent, said Nuland, "is like saying the flag is red, white and blue." But that very irreverence is a sign of affection and comfort, he added. "When you're comfortable with the faculty you feel free to lampoon them," he said. His show had a patient going from service to service at the medical school and finding himself in worse shape after each visit. At show's end he is struck by a car. The diagnosis? "The patient's a little run down," Nuland said.

To be lampooned in the show is the highest honor. "We're told that faculty come to the show because they know they're going to be made fun of," said 1999 co-producer Wang. "The ones with the accents, the ones who are heads of certain courses, the ones that are very much characters always end up

1998

The Rx Files [Second Year]

To the tune of "The Lion Sleeps Tonight":

In the rectum, the itchy rectum,
The pinworm crawls tonight.
In the bedsheets, the
fertile bedsheets,
The pinworm breeds tonight.
CHORUS: Itchy anus, itchy anus,
itchy anus, itchy anus.

Drop your skivvies, here comes
the Scotch tape,
We'll diagnose it right.
Watch out pinworm, you
vile pinworm,
Frank Bia's on his way.
CHORUS: He's on his way. He's
on his way. He's on his way.
He's on his way.

The Class of 2000 borrowed the music from "Don't Worry, Be Happy" to lampoon the food vendors on Cedar Street.

Bean curd make your
mouth a-water?
You get two pieces for a quarter.
No Greasy, No Oily.
The Yaki Soba on my right,
Eat it, you get a parasite.
No Greasy, No Oily.

Peter Casolino

They also mocked Dean Kessler, newly arrived at Yale after seven years as head of the Food and Drug Administration. They sang "FDA Dropout" to the tune of "Beauty School Dropout" from *Grease*.

Your story's too long to tell,
a premed done too well.
You took on the delinquents in D.C.
Your future's very clear now,
you've got a med career now.
We're gonna help you make the
world smoke-free.

Kessler took it in good humor and even appeared in the show, imitating Irish preener Michael Flatley in a number titled "Deans of the Dance."

—John Curtis

THANKS FOR THE MEMORIES

If you have photographs, programs, posters, lyrics, recordings or other memorabilia from past shows, please consider adding them to the collection of the Cushing/Whitney Medical Library. Materials that are submitted will be digitized and posted on our Web site (http://info.med.yale.edu/ymm) with this article. Send your submissions to:

John Curtis, Staff Writer
Yale Medicine
Yale University
School of Medicine
P.O. Box 7612
New Haven, CT 06519-0612


GO VEGETARIAN!

in it." One scene in the 1999 show paired associate deans Ruth Katz, J.D., M.P.H., and Nancy Angoff, M.P.H. '81, M.D. '90, HS '90-93, (who accommodated the second-year class by playing themselves) in a sweetly sung duet to the tune of Paul McCartney and Stevie Wonder's "Ebony and Ivory." The two deans turned in a respectable performance of "Empathy, Not Rivalry" and made fun of themselves in the process: "She's uptight and I am touchy-feely," sang Angoff. To which Katz replied: "I balance the budget while she runs group therapy." The audience loved it.

PROFESSORS, PRANKS AND PARTING SHOTS

According to Gifford, faculty participation started in the early 1990s when faculty members pulled a prank on the students. Then-Dean Leon E. Rosenberg, M.D., HS '63, Gifford and others jumped up from their seats in the audience, feigned anger at being ridiculed and began singing their outrage to the tune of the Beatles' "Let It Be" with lyrics written by Alvan Feinstein, M.D., HS '54. "We each had a verse, then we all sang the chorus," Gifford recalled. "It brought the house down." It was faculty's first and only appearance in the show until Gifford and then-Dean Gerard Burrow, M.D. '58, made another appearance a few years later as a pair of gamblers taking their chances at Foxwoods Casino in hopes of erasing the school's deficit. Students also began offering roles for sale in the annual Hunger and Homelessness Auction, and faculty bid for the privilege of appearing in the show.

This year Dean David A. Kessler, M.D., joined Katz, Angoff and Gifford in the cast. On the night of their rehearsal the deans bought pizzas for the cast and joined them for dinner. Then, Jennifer Lucero directed a dance number involving all four deans. Gifford recited a spoonerized version of *Cinderella* while Katz danced the title role. Angoff was the fairy godmother and Kessler played the "prandsome hince." "I can't believe I paid $300 for this," said Katz, who shared the bid with Angoff at the homelessness auction last November. Students Tara Lagu and Aaron Covey pranced around the stage as the "sticked wepsisters."

Rehearsals intensified, becoming longer and more frequent as opening night approached. On Saturday night, the show's final performance, producers were on the lookout for the first-year prank, a traditional effort to sabotage the show. This year, however, a prank came from an unusual source—the third-year class. During the first act a hissing sound emanated from the audience, then a balloon carrying a banner that read "Diagnose This" wafted up to the ceiling.

Mike Fehm and Hany Bedair, in full costume, rehearse before the Saturday night show. (Inset) To the tune of the Village People song YMCA, the Class of 2001 put Lynne Wootton's annual profile of the incoming class to music and dance. Portraying new students were, from left to right, Aaron Covey, Dan Hoit, Seth Goldbarg, Jeanne Triant and Jessica Mega.

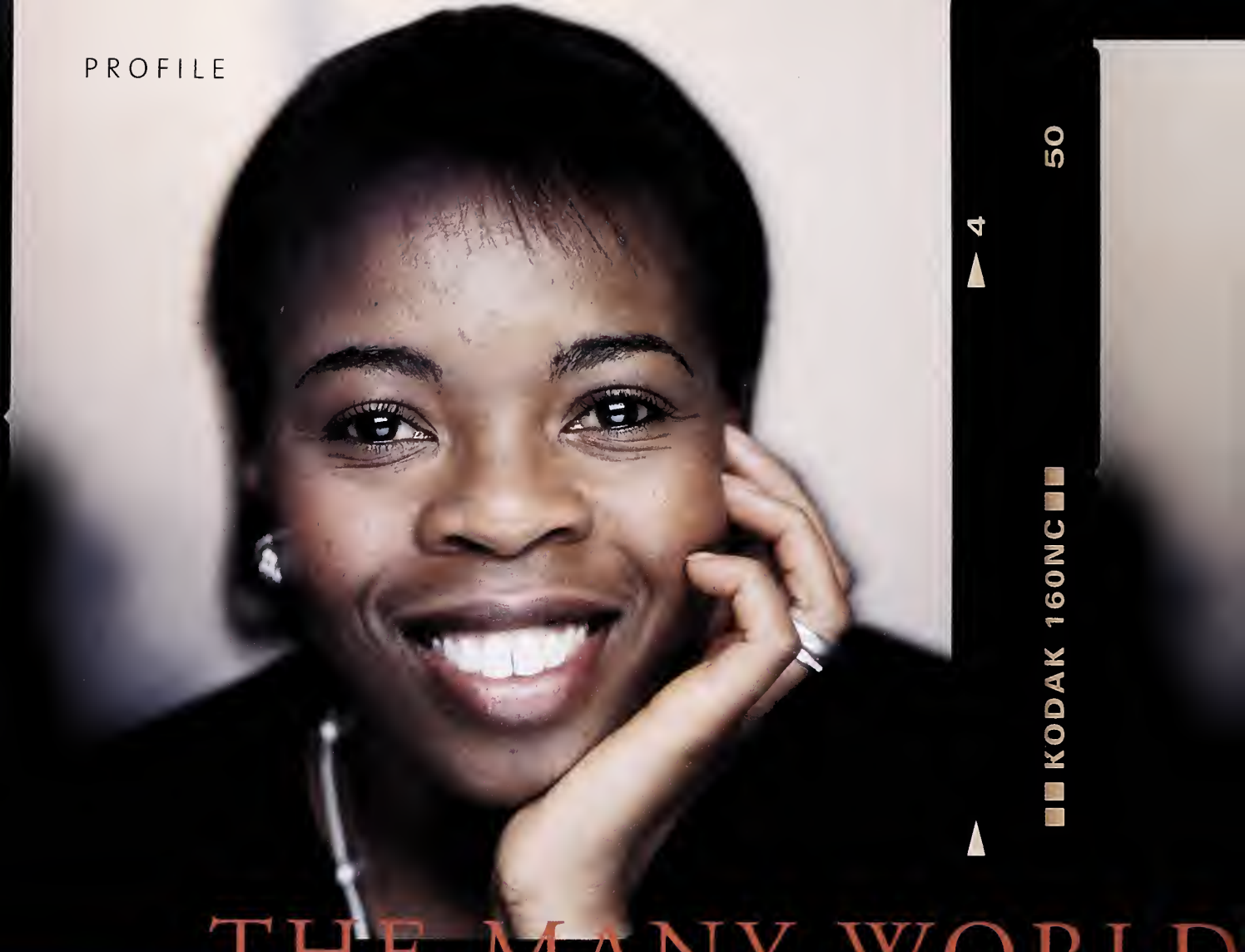
The second-year performers also played a trick on Gifford. The script called for him to announce that, unlike past years when the administration had asked him to delay his retirement in order to take on one more task, he was really leaving at the end of the academic year. On Saturday night his wife, Karlee, emerged from the wings, and asked, "Do you promise?" Her unexpected appearance startled Gifford, and in the next scene he flubbed his lines, turned away from the audience, and started over.

The show ended with the entire Class of 2001 joining in a medley of songs—among them, one to the tune of the Sinatra classic "New York, New York."

Start washing your hands and wearing your gloves,
Learn how to use that stethoscope and draw
some blood.
With clinical pearls that we learned in school,
Now we can find the optic disk and culture stool.
I got accepted here, but off the wait list, dear,
My heart's with you, Yale Med, Yale Med.

With the medical boards offered on a flexible schedule at designated computer sites this summer, the second-year show represents the class's last shared effort before students move on to clinical studies and two years of rotating clerkships. "It takes on more importance as the last class activity," Prutkin said. "This is the last time that we are all working together, all doing something together."

"It's nice to have an activity that is fun and that people can bond over," said Wang. "It's good to see your classmates when they're not under tension, when they're having fun." ***YM***



THE MANY WORLD

BY CATHY SHUFRO / PHOTOGRAPHS BY FRANK POOLE

Most neurosurgical residents are happy just to learn their craft, help humanity and survive seven years of very long days. Zimbabwe's Nozipo Maraire has other things on her mind as well.

A morning in December. The neurosurgeon and the ophthalmologist have searched for three hours without finding the tumor on the 15-month-old boy's optic nerve, a glioma that has already blinded the toddler in one eye and threatens his sight in the other. Because it is the same pearl white as the surrounding tissue and lies hidden somewhere behind the eye, it is hard to find. Reluctantly, the two doctors decide they must drill farther into the boy's frontal bones and orbital rim.

Nozipo Maraire has been watching this from the sidelines. As the chief resident neurosurgeon, she had begun by assisting with the procedure but ceded her place at the operating table when the ophthalmologist was called in to help. For the last three hours, Maraire has watched the surgery on a video screen linked to the operating microscope. Now she asks to take another quick look for herself. She steps onto the stool, peers into the microscope and this time finds the tumor. She guides the stainless steel instruments with precision to free it from the nerve. After two hours of painstaking work, Maraire lifts out a glioma the size of a cherry

OF NOZIPO MARAIRE

For J. Nozipo Maraire, M.D., HS '92-99, the operating room is a world apart, a place where little else intrudes as surgeons, nurses and technicians focus on the delicate work of opening the skull and fixing what's wrong inside. "There's a closeness you share with people here. It's almost a kind of clandestine fraternity," she says, wearing a blue surgical cap, her smooth black hair pulled back above a high forehead. "Part of the culture is the balance between the seriousness of the situation—how macabre it really is—and yet you're able to talk about the baby you just had, your lives, your friends. Time is suspended."

Amid the repartee of the operating room, Maraire concentrates almost single-mindedly on the work of her hands. She has used this ability to focus outside the OR as well, extending her influence far beyond hospital walls. In the little free time granted a surgical resident, she has written a critically acclaimed novel, served on the board of an international development agency, pursued her master's degree in public health, and laid the groundwork for a partnership between Yale and the medical institutions of her native Zimbabwe.

When she returns there next year, the 34-year-old Maraire will be one of seven neurosurgeons in the southern African nation of 11 million people. (Her 77-year-old counterpart at Pariranyetwa Hospital in the capital city of Harare is "counting the days until I get there," Maraire says.) She will be only the second woman to have completed neurosurgical training at Yale since its program began in 1925, and she believes she will be the first black female neurosurgeon on the African continent.

Maraire was five years old when she told her father she wanted to be a neurosurgeon. She had only the vaguest notion of what one did, but liked the idea because "it sounded like the most difficult thing I could find to do." Her mother is a pediatrician; her father, now deceased, was a college professor, banker and tobacco farmer. Nozipo grew up in Harare, attended elite private schools, then earned her undergraduate degree at Harvard before studying medicine at Columbia. Though her choice of career originated as a dare to herself, it has proven satisfying to Maraire. She feels drawn to the intellectual challenge of working out the puzzle of

what afflicts a patient: asking good questions, listening carefully, visualizing the neuroanatomy, doing research. She recognizes that the problems treated by neurosurgeons lie at the core of the patient's identity.

"What is wrong with them, and what are you going to do about it? What do they want done? You know you are going to do something that affects their body and, worse yet—in our case—their brain, which is at the center of how they function," Maraire says with a trace of a British accent. "If you affect someone's memory, it affects their ability to interact with their children, to get around town, to find their way home, to remember what they left the house for. You almost have a dread when you first meet a patient because you know, initially, more than they do about how they will be affected."

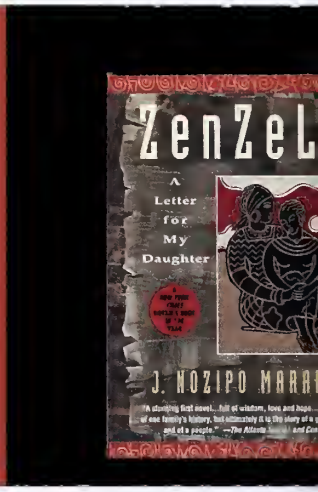
On a different day, writing notes in the recovery room, she glances toward a gurney where a curly-haired man in his 40s is stirring back to consciousness. She has just completed surgery to release fluid pressure caused by an inoperable brain tumor. She asks the man to squeeze her hand, then continues holding it.

"Surgery's all done!" Maraire says in a loud voice. "You're doing great. You just have to wake up." She has to strain to keep a grip on his hand because she is very short. ("Say I *claim* to be five feet tall," she teases jovially when asked her height on another occasion.) Watching the man drinking orange juice from a paper cup in the recovery room a half-hour later, she says, "I didn't know him yesterday, and when he's finished I may never see him again. It's just for the moment. He trusts me completely. It's amazing."

For her part, Maraire throws herself into the process of diagnosing problems and working out a treatment plan. In the course of talking through these issues with patients, she says she has experienced "an intimacy you don't encounter anywhere else." She also recognizes, and tries to resist, the impulse to shield oneself from the patient's pain. "There's a vulnerability in really allowing yourself to feel things," she says. "For me it wouldn't be meaningful without it. It helps the quality of what I do. I can only hope it helps the patient." With a few patients, she has had to overcome racial stereotypes. There was the patient who was on the phone when she entered his hospital room to introduce herself as his surgeon. The patient told the person on the other end, "Hold on. The cleaning lady just came in."

Patients do respond to Maraire, and her medical colleagues clearly enjoy her company as well. She teases them by using exaggerated formality at times. ("Yes, doctor. Yes, sir.") She laughs at their bad puns. She joins in the irreverent banter while maintaining her focus as she performs a procedure. Operating room nurse Paul Bruch, R.N., has spent years trying to sleuth out Maraire's first name. (She uses only the initial "J.") Bruch's technique for venturing new guesses is intimately tied to the surgical process itself. At the end of each case, as Maraire dresses the patient's incisions, Bruch uses Bacitracin ointment in a fine-tipped tube to write "J" names on the gauze he prepares for her.

"I've tried Juanita, Jebedia, Jessica, Jewel, Jacqueline. ... I've been doing it for seven years," Bruch says in mock despair. Maraire smiles and keeps her own counsel.



When Maraire's day as a neurosurgical resident ended, often after midnight, she turned to her writing. The result was* Zenzele: A Letter for My Daughter, *a critically acclaimed first novel that has been translated into 13 languages.

Early evening. Maraire has spent 12 hours in surgery and the toddler's case is still in progress. She leaves the OR, slips the paper surgical mask off her face, and walks briskly downstairs to pathology, carrying the child's optic tumor in a sterile cup. Pathology will check to see that a margin of healthy brain tissue surrounds the glioma, showing that the entire tumor has been removed. As Maraire awaits the results, she notices stacks of glossy Christmas catalogs in the waiting area. She begins constructing a story in her mind. She imagines a play for children, in which a scholarship student in Zimbabwe visits the home of a wealthy classmate and recognizes the difference between material wealth and a rich family life. Maraire has no paper for making notes. She rehearses the ideas in her mind so that she will remember enough to record them when she gets home.

Cathy Shufro is a freelance writer in Connecticut and a tutor in the Bass Writing Program at Yale. Frank Poole is a photographer in New Haven.

Ideas for stories often emerge when she is most consumed by her work as a doctor. "I'm so full of neurosurgery and it's like a release valve that allows me to escape." Writing provided this kind of liberation early in her residency, when she wrote *Zenzele: A Letter for My Daughter* (Crown, 1996; Delta paperback edition, 1997). She borrowed the key to an empty computer room, and at midnight, or 2 a.m., or whenever her day finally ended (and her call began), she wrote for two hours. She says her need to write outweighed her need to rest, and she often got by on three hours' sleep. *Zenzele*, listed in the *New York Times Book Review* as one of the notable books of 1996, has been translated into 13 languages.

The book takes the form of a letter from a wise Zimbabwean mother to her daughter at Harvard. The mother uses her life story and stories of family and friends to illustrate the struggle of Shona people to preserve the strong aspects of their culture: respect for elders and a feeling of obligation to the community. She warns her daughter Zenzele of the perils of severing roots to her culture. In poetic language, the mother tells how the older generation suffered under and resisted colonial rule in Rhodesia (the name for Zimbabwe until independence from Britain in 1980).

"Since I've written the book," Maraire says, "I've met a lot of young Africans who've told me it's the first time they've read a book in which they recognize themselves, the generation of children who made the transition from pre-independence to the struggle for independence and the post-independence era, and the ensuing cynicism that inevitably followed.

"We remember apartheid, when we weren't allowed to shop in certain stores. ... We're lost between the traditional African culture and the modern culture. We don't know how to incorporate them, and there are no role models. The world is so Western, and we want to retain our core identity."

Maraire's second novel, well under way, tells the story of a return from the West: a Zimbabwean woman orphaned by the brutal assassination of her family escapes to the United States. Years later, she goes back to Africa to confront her past and the meaning of home.

The struggle of Maraire's fictional characters to reconcile African and Western values reflects Maraire's own enduring interest in the analogous challenge facing Third World societies: how to adopt Western ideals and technologies selectively. While an undergraduate at Harvard, Maraire organized a campus group to place students with international agencies like Oxfam. She took a year off from college to work on AIDS education for the World Health Organization in Geneva. There she worked closely with the late Jonathan Mann, M.D., a visionary advocate for global AIDS policy. Now she serves on the board of directors of the Manhattan-based nonprofit group South North Development Initiative, which finds innovative ways to provide capital to African and Latin American businesses considered too risky by conventional investors.

Maraire has retained her connections to home during her surgical residency. She found grant money for a fellowship that will allow American neurosurgeons to visit Zimbabwe, and she is the only African serving on a committee, led by missionaries, hoping to establish a second medical school in Zimbabwe. When she was invited to speak at the Zimbabwe International Book Fair this summer, she used her honorarium to establish an award for a young female African writer.

It's 10 p.m. when Maraire has completed the optic glioma case and "tucked the patient in." The prognosis for the little boy is excellent: the tumor has been removed and biopsied, and it is not malignant. His physicians will need to watch him closely, but they don't expect the tumor to recur. Maraire does rounds, checking on eight surgical patients on the neurosurgical intensive care unit and then another 32 on the neurosurgery ward. When she gets home, she writes until midnight, recording the ideas that struck her while she waited in pathology. Before sleeping, she phones her husband, Allen Chiura, M.D., a urologist in Delaware.

Allen Chiura was a childhood friend whom she met again by chance five years ago in Heathrow Airport in London. (He was traveling from Zimbabwe to Philadelphia; she from Ethiopia to New York.) Maraire had thought she wouldn't be caught dead making the conventional choice by marrying someone from her upper-class social circle in Zimbabwe. But

she and Chiura found that their common frame of reference gave them a deep understanding of each other. She says they "shared a time not too many people have shared, living in a country going through the transition from colonialism to a time of independence. We made sense to each other." She saw that broadening her horizons by dating men from different cultures had, paradoxically, imposed limitations. She compared it to living in a single room of a mansion. "Meeting Allen, it was like the whole house was open. Light came in."

Marriage to a Zimbabwean will make it easier for Maraire to transmit to her children what she most values in the Shona worldview: feeling linked to one's ancestors. "There's a sense that you have the benefit of other spirits. You're not so alone. There's a sense of some continuum. That continuum is with you and maybe — who knows — gives you wisdom and insights."

Maraire and Chiura have celebrated two weddings. Their families gathered in May 1998 in a traditional Shona *kuroora*. The *kuroora* ceremony joins the extended families of bride and groom. This union is symbolized by ritualized gift-giving and role-playing in which the groom's parents, siblings, aunts and uncles show appreciation to the bride's family for raising her. Chiura's family paid Maraire's family a *lobola*, or dowry — a "hefty" one because Maraire is a well-educated professional. Then in April of this year, they were married in a large Roman Catholic wedding in Zimbabwe. The reception, attended by 1,600 guests and a writer for *Martha Stewart Living*, was held at the botanical gardens in Harare.

The wedding also solved the mystery that has plagued operating-room nurse Paul Bruch for the last seven years. Engraved on the invitation that arrived at his home in late winter was Maraire's full name. The "J." stands for Jacqueline.

At seven the next morning, on a warm day for December, Maraire arrives at Union Station in New Haven. Briefcase in hand, she is heading to Manhattan for the annual meeting of South North Development Initiative. She serves on the agency's eight-member board, which includes bankers, business leaders, an environmental activist and a high-level United Nations administrator. Sitting in the conference room overlooking Rockefeller Center, they hear a report on a plum farm in western Argentina that South North is trying to save from bankruptcy. The discussion turns to South North's social rationale for preserving the farm, the largest employer in a small town. Maraire raises some philosophical questions, asking whether the agency is doing enough to differentiate itself from conventional venture capitalists and lenders by emphasizing its mission of empowering poor people.

After the board meeting, Maraire takes a rare evening away to meet Chiura and attend a friend's wedding reception in Philadelphia. By midnight she will be back in New Haven and on call. She seems almost embarrassed to admit that she will take a few months off before beginning a fellowship in New York in June. Not completely

Settling in the United States and leaving Zimbabwe behind is "not even an option," says Maraire, who will return home with husband Allen Chiura after completing a fellowship in New

off—Maraire will be writing the thesis for her master's degree in public health at Yale. She will develop a system for measuring quality of life for patients with cerebrovascular disease.

Maraire's next big project would affect lives on a larger scale. She hopes to create a foundation that will "galvanize civil society" in southern Africa. Her aim is to build cultural centers, museums and theaters in the region (Zimbabwe, South Africa, Namibia, Botswana, Mozambique, Zambia, and Malawi). She sees the foundation as "an instrument to improve the quality of life for southern Africans" in the broadest terms: providing grants to support innovation in medicine, public health, the arts, engineering and scientific research. For lack of money to carry out their ideas, southern Africans "have become culturally impoverished when we are culturally rich." Maraire has envisioned this project for a long time—she wrote her first proposal for a foundation while an undergraduate.

After Maraire completes her fellowship this December with pediatric neurosurgeon Fred J. Epstein, M.D., in New York, she and Chiura will return home. Many of their patients in Zimbabwe will have AIDS. (The United Nations estimates that at least one in five Zimbabweans between 15 and 49 is living with HIV or AIDS.) The epidemic has devastated people of every social class—Maraire says their parents tell her and Chiura that they attend as many as three funerals a week. She has no choice but to accept the perpetual risk that any patient could infect her. "You double glove. You take precautions. What are you going to do? You have to treat people," says Maraire. "It's not that it's not scary. It's scary."

Settling permanently in the United States is "not even an option," she says. She feels a strong tie to her home that she attributes in part to her parents' example. They were always raising money or collecting clothes for the revolutionary forces fighting to overthrow the government of Rhodesian Prime Minister Ian Smith. Even when her father's academic appointments took the family abroad to live, Maraire says, "it never occurred to my parents that they were not going home."

The strength of her commitment to return home was important to the Yale neurosurgeons who chose her, over 100 other candidates, for a single slot in the residency program in 1992. The committee immediately recognized that "if we wanted to make a difference in the world, this is the person to take on," recalls Alain de Lotbinière, M.D., associate professor of neurosurgery. "It was obvious that we had to take her. She's an exceptional individual. I don't expect to train anyone else like her in my lifetime."

The department's chair, Dennis Spencer, M.D., HS '72-76, says that, in his experience, surgeons trained at Yale are often unwilling to return to places that lack the sophisticated technology they have come to rely on in the United States. Maraire's challenge will be to adapt neurosurgical techniques to use the limited equipment in Zimbabwe. For instance, the university hospital in Harare just received its first operating microscope as a result of Maraire's efforts.

Yale will help her to handle difficult cases by establishing a videoconferencing link between New Haven and Harare, allowing Maraire and colleagues to confer with Yale physicians even while doing surgery. (A video camera can be aimed through the microscope to show detail.) Spencer plans to visit Zimbabwe to help train surgeons in advanced techniques and to provide any other help Maraire requests. "Her promise when we brought her into the program was that she would bring her training back to the people of Zimbabwe," Spencer says. "My promise to her was to make that dream happen and to continue to be a bridge between the United States and Zimbabwe."

Spencer says that knowing Maraire has inspired him to make more effort to extend his work in epilepsy to developing countries, teaching medical and surgical approaches that do not require expensive equipment. He foresees that Maraire will have to choose between two routes: becoming the mainstay for neurosurgery in Zimbabwe, case by case, "living in the hospital," or taking a broader approach by setting up programs to improve medicine in Zimbabwe and to train "more Nozipos." He predicts she will choose the latter.

Maraire agrees. She imagines a life for herself that includes time in the operating room, time establishing her foundation, time with the children she hopes for. She plans for her future by picturing how she wants to live—what she calls "doing the visioning thing." Observing that people often complain about their lives without recognizing that they are choosing those lives, Maraire recommends that people slow down and think: "I want my life to be like this. How can I construct the life I want?" This long-established practice of envisioning her goals has been confirmed by her experience in practicing medicine, in what she calls "this constant encounter with death." She says, "I have a sense that at any time this moment could be cut short. I think, as a result, I live more fully. Time is so precious."

Maraire says her drive and her ability to get things done derive from her assumption that she can accomplish whatever she chooses to undertake, even when she can claim no special expertise in a field. "I don't feel, 'I can't do that. Somebody else should do that,'" she says. Maraire believes her lack of inhibition about tackling projects grows, in part, out of coming from the Third World, where fewer people have the education and the connections to get things done. "If you have the opportunity to do something, you have to seize it."

Although Maraire has reached two of the goals she set in her twenties—becoming a surgeon and writing a book—she feels frustrated that she hasn't accomplished more. "The more you do, the more you feel needs to be done," she says. "I feel a responsibility because I've had so much opportunity. I've had a privileged life." *YM*

Nail polish for a young girl. A scrap of paper with a child's weight and height written on it. An origami bird that flapped its wings. A stage production of *Cinderella* for an audience of 400.

In the accounts that follow, six Yale medical students, a physician associate and an emergency room physician evoke these images as they recount what they saw, heard, did and felt in the four weeks they spent at the Senekos refugee camp in Macedonia in April and May. Their stories tell of the seemingly little things that offered comfort to emotionally fragile people, as well as the projects they undertook to improve life in the camp.

Our first day in Senekos refugee camp: a sea of white tents and somber

The group traveled to Macedonia in late April to work with ethnic Albanians forced from their homes in neighboring Kosovo. The trip was organized by the Dean's office under the auspices of Doctors of the World, an international relief organization. Chosen by lottery from more than 100 volunteers, the students arrived expecting to be put to work at any number of tasks, from digging latrines to handing out blankets to changing bandages. "We went with the understanding that we were not going to practice medicine," said Aaron Covey. "We went with the understanding that we would do anything that would be needed to help."

With most of the refugees' material and medical needs in the hands of others, the students devised a unique role for themselves at Senekos, which grew from an initial population of 800 to more than 6,000 in the month they were there. "As a medical student," said Margaret Bourdeaux, "you're not constrained by your professional role. You have the luxury and the privilege and the time to sit and talk with people and not have a goal, not need something from them. I think that was extremely special, yet it is difficult to convey to people how important that is."

Everyone here is looking for a lost relative or friend.

From the very beginning, the group plunged into personal contacts with the people they had come to help. A key was the presence in the group of Emine Alijaj, R.N., P.A.-C. '96, an ethnic Albanian who left Kosovo with her family when she was four years old and who now works as a physician associate in the Emergency Department at Yale-New Haven Hospital. At a camp called Stenkovac, an hour's drive from Senekos, she was reunited with the cousins she had last seen on a railroad platform 27 years earlier. "I was absolutely hysterical, crying and crying," Alijaj said of the reunion. Two days later, her relatives left for a refugee camp in France. The students' visit with the family, early in their stay, influenced their view of their role in the camps. "Just being part of their lives," said Sharon Chekijian, "is often enough."

The students came to know the inhabitants of Senekos through a tent-to-tent survey of medical needs and a similar assessment of the nutritional status of children in the camp. These visits not only helped them establish a rapport with the refugees, but brought patients to the camp clinics for treatment. "We identified a lot of health problems and health needs that would never have shown up in the clinic had we not been there to refer people and encourage them to go there," Bourdeaux said. "A lot of it was like being a small-town doctor. You knew where everyone lived, so you could go make house calls."

While Alijaj and Pamela Perry, M.D., had duties in the camp clinic, the students saw to other needs and concerns. Some camp inhabitants had tasks and chores to occupy their days; children under 15 attended school in a nearby town and mothers washed clothes, cooked and cleaned their tents. But men and older children often had nothing to do except think about what they had lost and wonder what lay ahead. The medical students organized soccer and volleyball leagues for 15- to 18-year-olds. "There was a sense of camaraderie within these teams," Covey said. "People enjoyed being a part of it and it was important for this age group."

Seth Goldbarg organized a theater production, with children in the camp acting out the story of *Cinderella.* "I thought it would be a really good idea to begin community-building activities to involve a spectrum of people," he said. The play had a therapeutic benefit that reached beyond those actively involved in the production, said Chekijian, who added: "If you make the kids happy, it makes the community a whole lot better."

Moments of happiness, however, often gave way to memories of war. When Covey gave children crayons and paper, they drew pictures that "showed a lot of burning houses, tanks in villages, sometimes dead bodies," he said. The war just across the border in Kosovo became real not only through the children's drawings, but through the stories the medical students heard often in the camp. When a young man recounted how Serbian paramilitaries took his family from their home, ordered them to lie down, then shot his father and two brothers, Goldbarg said, "I just thought of my parents and sister lying in the front yard in the grass."

The faces of new arrivals in the camp, who disembarked from buses in a state of exhaustion, dehydration and confusion, also reflected those horrors. "There was an older woman, about 75 years old, and she got off the bus and just stood there and looked around," said Bourdeaux. "I walked up and offered her a glass of water and she waved it away. I offered her a Kleenex and she grabbed it and burst into tears and she grabbed me and just stood there crying and holding on for dear life.

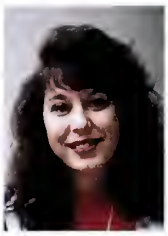
We see battered souls in need of healing.

"Your first reaction is you don't want to see this person cry. But that is really the first step in healing for them, just to have permission to be sad and angry and to think about what they're going to do next. This is not a medical crisis. It's a crisis of the spirit. Giving people a sense that they exist is the most important thing to do there." The volunteers' observations, edited from their journals and letters, follow.

A 'CRISIS OF THE SPIRIT' IN KOSOVO

A Yale journal / Photographs by Sharon Chekijian and Aaron Covey


Pamela Perry


Emine Alijaj


Sharon Chekijian


Vivian Lombillo


Aaron Covey


Anya Szeglin


Seth Goldbarg


Margaret Bourdeaux

John Curtis (8)

PAMELA PERRY, M.D.
ASSISTANT PROFESSOR OF SURGERY (EMERGENCY MEDICINE)

APRIL 5

The dean's office sent an e-mail today, seeking a faculty member to accompany a group of medical students to Macedonia to assist with relief efforts. When I asked myself, "Why drop everything and go to Macedonia for four weeks?" the answer was clear as a bell: If my family were suffering from the atrocities forced upon the ethnic Albanian people of Kosovo, I would expect the world to stop and help.

APRIL 23

The planning for the trip complete, yesterday we were on our way: New York to Brussels, to Vienna, to Thessaloníki, to Macedonia (roughly 24 hours of traveling). Finally, we're here. Our accommodations are sufficient: a rented, four-bedroom house in the capital city of Skopje. I will be rooming with Anya, a first-year medical student. I haven't had a roommate since I was 15! Group spirits are at a high. We will commute an hour by car to the camp with volunteer drivers from Doctors of the World.

EMINE ALIJAJ, R.N., P.A.-C '96
PHYSICIAN ASSOCIATE, EMERGENCY DEPARTMENT
YALE-NEW HAVEN HOSPITAL

APRIL 25

Yesterday we made our way to Stenkovac, the largest Albanian refugee camp in Macedonia, to look for my cousins. (I was born in Kosovo in 1968 and lived there until I was four, when my family emigrated to the United States.)

How we were going to get into the camp—and how we were to find my cousins there among 20,000 refugees—was a mystery to us, but somehow we did it. Sharon was able to get the number of the tent where my cousins were staying, and we walked through the camp calling out their last name, "Avdiu." A woman approached us thinking we were long-lost family coming to rescue her. When she realized that we were looking for someone else by the same name, the expression on her face changed to utter disappointment. I wished I could have been the family member she had hoped for.

And then I found my cousin Bashkim, whom I last saw 27 years ago when he accompanied my family to the train station in Kosovo. We cried and embraced as if the time had not gone by. He told me of his family's journey from Kosovo four weeks ago. Now they are living in a tent, 15 people in all. They welcomed all of us, and, within a few minutes, everyone in the Yale group felt like an Avdiu, despite not being able to say much that would be understood. When I saw my cousins, my first thought was, "Thank God they are alive." Then I thought, "God, how could this have happened to all the Kosovar Albanians?"

In Senekos, Yale students triaged new arrivals to the camp. Ethnic Albanians fleeing Kosovo were transported from the Macedonian border in buses, often arriving exhausted and dehydrated. Set against rolling hills and the mountains that form the border with Kosovo, the camp had a population of only 800 when the students arrived in late April. It grew to more than 6,000 in the month that followed. At the much larger Stenkovac refugee camp an hour away, the Yale group located Emine Alijaj's cousin, Bashkim Avdiu (embracing Alijaj in photo), and his family. Conversation was difficult but student Aaron Covey entertained the children with origami.

SHARON CHEKIJIAN

CLASS OF '01

APRIL 26

On the road from Skopje we had seen other refugee camps, kilometers of white tents stretched along the base of the lush, green mountains bordering Kosovo. But it was muddy in Stenkovac, where we went in search of Emine's cousins.

The Macedonian police guarding the camp looked at our American passports and let us in, to our great relief. Emine and I talked our way into the camp's administrative area, where the lists of refugees and their tent assignments within the camp were kept. The people working in this makeshift office hardly looked up, perhaps from fear that they would have to answer the endless questions fired at them by the crowd of refugees. Everyone here is looking for a lost relative or friend, or seeking asylum in France, Belgium or elsewhere.

We caught the attention of one of the workers, who looked up reluctantly and seemed to notice that we were somehow different from the others. It's that difference—our sense of self—that allows us to walk out of camp unchallenged at the end of the day and to ask questions when we need answers. It empowers us with confidence. Every single refugee—doctors, lawyers, teachers, farmers and children alike—seems to have been stripped of it.

The relief worker returned minutes later, surprising us with the tent numbers of Emine's cousins. We headed off as a group, followed by a crowd of people. After Emine was reunited with her cousin Bashkim, other family members appeared and the group of us from Yale were surrounded by 20 Albanian refugees, curious and excited. We had not expected that on our first evening we would find an instant connection to these people we had never met, whose culture and language were so different from ours. As our communication was limited to a mixture of French, Albanian, and English, Aaron taught us all the international language of origami.

Bashkim handed me a business card from the time that he spent away from his family in Switzerland. "I worked for 12 years to make a home and now nothing is left," he said. "It is all gone." As we learned later, most refugees don't even have pictures of the lives that they left behind. But Emine's teenage cousins had rescued two little albums, which they meticulously narrated as they turned the pages showing classmates, family members and vacations to the Adriatic. We are thankful to Emine for sharing her family with us. The experience was invaluable in influencing our view of our role here. We don't need to be medical students, doctors, volunteers, relief workers or foreigners. Just being part of their lives at this point is often enough.

PAMELA PERRY, M.D.

APRIL 26

Our first day in Senekos refugee camp. Initial impression: a sea of white tents and somber faces. We had driven by the camp the day before but were asked not to enter without ID cards, so we didn't go in. I have met so many beautiful people! The children are incredible. A lot of the doctors seem to have a certain bedside etiquette that surpasses any I have witnessed at home. It is refreshing to see people who take care of others merely because they want to and not because of the prestige attached to it. I met a neurosurgeon working in the Senekos clinic who could have left for America weeks ago but chose to stay and help his people. He's working as an internist!

VIVIAN LOMBILLO
CLASS OF '01

APRIL 26

Yes, mind-body therapies are effective in treating illnesses related to stress. But I could not have imagined their application in a situation such as Kosovo. Given what the refugees entering Senekos had been through, I doubted they would have felt like sitting quietly and meditating on the inspiration and expiration of their breath. Wouldn't it have been presumptuous of us to ask them to take their minds to a more peaceful place, just days after they had watched their homes burned down and family members assaulted by Serb paramilitary troops?

To my utter surprise, then, I found myself participating in a stress-reduction workshop on my first day in the camp. James Gordon, M.D., a Georgetown University psychiatrist and an expert on mind-body therapy, led the session. His audience was a small group of refugees from Kosovo in their teens and early 20s. When I arrived, Dr. Gordon was describing the fight-or-flight response to acute stress.

"What happens to your body if you realize that a tiger is chasing after you?" he asked. "My heart races," replied a teenage boy. "My eyes open wide and I start breathing fast," said another. Dr. Gordon explained the physiology of stress in terms that seemed to reassure his young audience. The message was that this tension and continued alertness to danger were normal, despite the discomfort associated with them. Further, they might be able to influence these sensations by a conscious effort.

Dr. Gordon led his group in an exercise of guided imagery to demonstrate how the body responds physiologically to a particular mental picture. "Close your eyes and imagine a lemon in front of you," he said. "Now, slice it with a sharp knife and then place it into your mouth. Bite down on its juicy texture. What do you feel?"

Some were refreshed by the image. Most felt their salivary glands activated by the sourness of the lemon that hovered in their mind's eye. "You see, our bodies respond to mental images. This can be an effective way to calm your body during stressful times," Dr. Gordon said. "Not by imagining lemons, necessarily. But taking one's mind to a more peaceful place can be relaxing physiologically."

Never has a lemon seemed so instrumental to me.

EMINE ALIJAJ, R.N., P.A.-C

APRIL 27

Bashkim and the rest of the Avdiu family have left Stenkovac for another temporary home in Lyon, France. He was reunited with his parents, brothers and sisters who are in France and Switzerland. They are all well.

AARON COVEY
CLASS OF '01

Every child in the camp between the ages of 6 and 14 is waiting at the gated entrance of our refugee camp. Today is the first day that these children will attend school while in Senekos, and I am the unofficial photographer!

The town that surrounds our camp is largely ethnic Albanian, and local officials have agreed to let the refugees

use the schoolhouses for four hours each weekday. For many of the 300 or so children, it is their first day of school ever. Under recent law, most Kosovar Albanians were not permitted to attend school in their homeland.

I followed the children as they sang their way to school. I tried to sing along to make the children laugh. It worked. They were excited and eagerly waved as I took pictures. Some held up the two-finger symbol for "Free Kosovo" for my camera. They were accompanied by older residents of the camp who had been teachers or teachers-to-be back in Kosovo. I went to a couple of classrooms and, unintentionally, disrupted them. The children tried to get me to take their photograph instead of paying attention to their teachers.

I peeked in another door to see if I would be disturbing another class in progress. I wasn't. I did not even see an adult in the room. I thought I could get some good pictures here. When I opened the door, these 6- to 7-year-old children started cheering. They had recognized me as the American who made balloon animals, sang and played ball with them.

I took some photos, but still no one arrived to teach the children. "Hello," I said. I said it a few more times, cupped my ears and stretched my neck until they said hello back. Then "Goodbye!" I left the classroom. I went back in again. … "Hello!" I did this a few more times and soon found myself teaching English. A man who I recognized from the camp poked his head in and nodded for me to keep teaching. At least that's what I think he said. It's what I wanted to hear!

I taught the things that I had myself learned in Albanian this past week. "How are you?" *Si je?* "Good morning." *Mir minges.* It was difficult to know whether the children actually learned any English, and, after two and a half hours I was

Arrangements were made far the children to attend schaal in buildings outside the camp, in the village of Senekas. Aaron Cavey tagged along as photographer and soon faund himself teaching English. Later the children made drawings with crayans and paper. Many af the pictures shawed villages under attack and hames … fire. A few days later, one af the children in the camp sat with Anya Szeglin to have her nails painted. Before long, a crowd had gathered and Szeglin faund herself busy decorating 50 sets af nails. "This was samething normal and civilized," she wrote in her jaurnal, "samething completely frivalaus that fulfilled mare than a basic human need."

feeling mentally drained. Relief came in the form of crayons and paper, brought by the organizer of the program. The children drew whatever they liked. After this, the class was dismissed back to the camp. I accompanied them with the pictures in hand, again singing songs.

I had lost myself in the fun of teaching and I felt energized the rest of the day, knowing how much the children enjoyed it. Yet that night, my perspective changed a bit while looking



Vivian Lombillo

through the drawings that they made.

Most children draw what is on their minds. In this case, almost all drew their homes and villages. Some of these images included burning houses, tanks and warplanes, even dead bodies. The pictures reminded me that I wasn't teaching kids at home, nor was I just having fun. These 6- and 7-year-olds are living through an indescribably awful time. While balloons, singing, and drawing will never erase the horror these children have witnessed, I hope that what we are doing at the camp has helped start their healing.

SHARON CHEKIJIAN

30 The camp has grown over the last four days from 800 inhabitants to 2,300. It is run by Mercy Corps International and is the smallest of all nine camps. It is rumored to be the cleanest and the most hospitable, too. The clinic or "Ambulanta" is a structure composed of two large tents joined by a canvas waiting room.

The clinic is staffed by three ethnic Albanian doctors, who are themselves refugees from Kosovo, and two American physicians. There are four Kosovar nurses on staff, as well as several interpreters. Currently there are few acute problems. Most medical problems are chronic in nature; diabetes, hypertension, heart disease and pulmonary problems predominate. Medications are adequate, but the supply is limited. New influxes of refugees introduce occasional acute considerations of dehydration, diarrhea, upper-respiratory infections, and minor trauma.

Two evenings ago, Emine, Seth and Aaron remained at the camp overnight to assist with the arrival of a new group of refugees who came by bus after spending days at the border camp at Blace. They arrived exhausted, dehydrated and disoriented. A triage area was set up and the sickest were given seats, taken to the clinic and evaluated for treatment.

ANYA SZEGLIN
CLASS OF '02

MAY 3

I brought five jars of nail polish to the camp yesterday to paint little girls' fingernails. They loved it. It might seem like a trivial thing to do when we have issues of overcrowding and shortages of clothes, diapers, and sanitary pads. A few days earlier I was talking with a 14-year-old girl named Havishe, who had told me that her hands were once beautiful in Kosovo, but have become ugly from her travels to Macedonia and living in the camp. I then noticed that many of the little girls (between 3 and 10 years old) had just scant remains of blue and green nail polish. I thought they might enjoy it.

I found Havishe and asked if she would like her nails painted. She was delighted. We sat down beside a tent and I asked her to choose a color from the bottles that I had brought. I was soon mobbed by 20 other people—small children and their parents, as well as an elderly woman and man. They had come to watch. When I was finished, I asked if anyone else wanted her nails painted. The response was overwhelming. I painted over 50 people's nails over the next few hours.

The strangest response was from the fathers. They kept saying, "Bravo! Bravo!" My reading of these events is that here in the midst of a refugee camp—where they have been degraded by being forced to leave their homes and flee for their safety, where there is no hot water and the few clothes they have are dusty and dirty—this was something normal and civilized, something completely frivolous, something that fulfilled more than a basic human need such as food, shelter or clothing.

I asked the elderly woman who had been watching whether she would like her nails painted. The man with her shook his head discouragingly. She shook her head, too, and lowered her gaze. From what I could gather in my small Albanian vocabulary, the man didn't think she should have her nails painted because she was finished, too old; it wasn't important for her to feel pretty. The woman, I think, felt ashamed by this and thus agreed with the man. I insisted that I paint her nails. The smile on her face was priceless. In that one gesture, I conveyed that she was worth it.

In medical school when we are learning the physical exam, we are taught about the power of touch. Touch can calm you. It lets you know that someone notices your pain. When I talk to the refugees, I try to touch them. Sometimes I am afraid to touch them, especially when we first arrived, but I know they need to be touched. My need to help them overwhelms my fear of being too personal with someone I met just five minutes ago. It is one of the most powerful experiences to hear someone's

story of devastation and when they are weeping to reach out and gently squeeze their arm, or hold their hand, or put your arm around their shoulders. You cannot help but weep yourself. You do not need an interpreter for that. When they see you crying, the storyteller knows that you understand the pain that they have been through. When you listen to their story, you take some of the pain away.

SETH GOLDBARG
CLASS OF '01

MAY 5

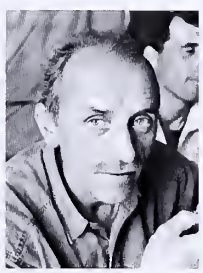
As medical students, we tend to fixate on the care that we can give to treat an illness, to cure an infection, to ease the pain of a disease. Here in Senekos we see battered souls in need of healing. We meet children starved for attention and parents struggling to do all they can for their families. Fifteen-year-olds have become the heads of households. Old men weep as their sons tell their stories to us.

We are with a group of refugees who have survived the physical trauma of the flight from Kosovo and the border crossing into Macedonia. They have before them many long, hot days confined to a fenced-in camp with only their few possessions as diversion. Passports and papers confiscated, homes looted and burned, relatives missing, and their country in turmoil, the people of Senekos seem to survive by living in the moment.

Without a sense of identity, how can they begin building community? No one can predict when this crisis will end or what will happen when it does. With this in mind, I have been speaking with my Yale classmates about trying theater here. They agree that it might be a good way to bring people together and get them to use their talents within the confines of Senekos.

MAY 8

Kadrush is a 28-year-old teacher who is thrilled by the idea of putting on a play. He seemed skeptical at first, but he picked out *Cinderella* (*La Perhitura* in Albanian) from among several children's books and has gathered together three university students who were begging for something constructive to occupy them. They wrote the script, cast eight children in the roles and are about to begin rehearsals in one of the unoccupied vaccination tents above the camp.



The man pictured above left rented out his home to workers who were documenting human rights abuses in Kosovo for the Organization for Security and Co-operation in Europe. When they left, he fled his village, fearing retribution from his Serbian neighbors. He told Sharon Chekijian that he spent several days in hiding, living on his tractor out in the countryside and sneaking back to his cousin's home at night to collect food and supplies. He later drove the tractor to the border and entered Macedonia as a refugee.

Many of those fleeing the violence crossed the border at Blace (above center), where a silent crowd of refugees awaited permission to enter Macedonia, a former Yugoslav republic that is now an independent state. The somber mood gave way to elation in Senekos, especially among young people, but the joy was at times short-lived.

Chekijian encountered the woman at left while assisting with a tent-to-tent survey of the camp population's medical needs. The woman had lived in a small farming village in Kosovo for all of her 90 years. "I lived through World War I and World War II but this was worse," she told Chekijian. "This time it was so bad that even the cows ran away."

MARGARET BOURDEAUX

CLASS OF '02

MAY 10

What happens to a dream deferred?
Does it dry up
like a raisin in the sun?
Or fester like a sore—
And then run?
Does it stink like rotten meat?
Or crust and sugar over—
like a syrupy sweet?
Maybe it just sags
like a heavy load.
Or does it explode?
—Langston Hughes

Technically, I had spent my day collecting data for a nutritional assessment of the pediatric population of the Senekos Refugee Camp. But that description, while accurate, belied the reality of the task: bending on one's knees in the muddy gravel and reading off the weights and heights of squirming, indignant children who would not be still for too long. The weighing and measuring of these refugee children had also proved unexpectedly therapeutic for their mothers—women with hardened faces and creases around their mouths, mothers deeply worried about their children. They insisted that I write their children's measurements down for them on slips of brown, recycled paper. It took some time for me to understand their eagerness for this documentation: These little slips of paper were the only written proof that their children existed. Birth certificates, baby pictures and immunization records had all been burned, stolen or left behind in the course of their forced exodus. And what documentation it was! Slips of paper that recorded the physical space their children occupied in this world—space that had almost been violently denied them. Every centimeter a defiance! Every kilogram hope for future growth.

Hope, in fact, was what I needed now. I was talking with Gazmend, one of our interpreters, in Kapan An, an Albanian-owned bar tucked away in the Turkish section of Skopje, the capital of Macedonia. Gazmend had just returned from a meeting with a Kosovo Liberation Army commander who turned up in Skopje two days ago. Gazi was set on joining the KLA when his work with us was finished. Through persistent, heated discussion, I had been able to cast some doubt in Gazi's mind about his plan, but I was afraid this meeting would seal his resolve. It turned out quite the opposite—the KLA commander had been very discouraging. "He said that if I joined the KLA I would be dead in two weeks," Gazmend reported. "Go somewhere and study, learn something that will help rebuild our country," he had told Gazmend. I was relieved, but not as much as I thought I would be. Gazmend's face was in his hands as he mulled over the commander's advice. "But who cares if I die?" he finally exploded. "At least I will have done something!"

I understood Gazmend's desire to fight. Seven years ago, just after he finished his second year of medical school at age 20, Serb soldiers knocked on his door and informed him that he had been conscripted into their army and that he was to come with them immediately. He grabbed the conscription notice from their hands and ran—and kept running for two years before settling in the western Kosovo town of Pec and opening a dress shop. After Kosovar businesses were deemed illegal by the Serb government in late 1997, Gazmend went to work in Kosovo for the Office of Security and Co-operation in Europe, an organization that documented human rights abuses. Working out of Pristina, he donned a bulletproof vest and drove through combat zones investigating atrocities. Six weeks ago his American boss had entered the office and announced that he and the rest of the expatriate staff had to evacuate due to the

Gazmend (above left), an interpreter for the group who was eager to fight for a free Kosovo but unsure of the wisdom of doing so, had lost everything as well. Weighing a young child in his family's tent, Margaret Bourdeaux collected data for an assessment of the nutritional status of the children in the camp. Parents, many of whom had been stripped of their identity papers and other documents while leaving Kosovo, were eager to have their children's measurements recorded and set down on paper. Opposite page: A 14-year-old child's drawing of his village documents its destruction.


Ardindac Alvi KL VII elindver
13.4.1985 ngoi Forusoqji.

escalating violence. He wished all the Kosovars luck finding their way out of the country. Gazmend packed up his mother and father and sent them ahead to Macedonia. He followed weeks later after a brutal journey through burned villages, sniper fire, and the burial of a travel companion who did not survive.

But Gazmend did not want to fight, as I had thought. He wanted to contribute, to do something that mattered. Gazmend would much rather face the Serb military than the cold terror of a wasted life. He was 27. He had no diplomas, no transcripts, no way of leaving Macedonia, no way of working after his job with us was finished. He was a talented leader and resourceful thinker, and he knew it. But what now? As I looked at Gazmend and at the other young refugees who populated the darker corners of the bar, I wished I could give them slips of paper with the measurement of their potential in the world written upon them. How does one treat this kind of stunting, this malnutrition of the soul?

The KLA commander was right: go study, go learn how to write constitutions, create school systems, care for the sick, and heal communities. However, these young refugees cannot create the opportunities to learn these skills out of thin air. Educational opportunities can be provided only by those of us in the international community who care enough to do so. And as I look at Gazmend considering his choice between a future of violence and a future of dreams deferred, I know that we do not have much time.

PAMELA PERRY, M.D.

MAY 14

The students are really proving what they are made of. Their work is important, useful, and they appear to be deeply moved by the experience. The depth of Emine's emotion must be incredible. We have found three sets of her relatives, each very loving and caring. The concept of family among ethnic Albanians reminds me so much of my own parents and nine siblings.

I think everyone is now realizing how short four weeks really is. The weather is HOT, and we are expecting more refugees at Senekos any day. I am having a ball with the kids. Moussa is by far my favorite. He is an 11-year-old boy who witnessed a Serbian soldier cutting an Albanian man's throat. Moussa has had nightmares for three weeks. When he sees me coming, he wants to arm-wrestle or play whatever game I have in mind. He reminds me so much of my nephew Max.

SETH GOLDBARG

MAY 18

We bought red and purple sheets of material in Skopje yesterday, and a seamstress in the camp is making costumes. We have a crown for the princess and we found a plastic sword in the old market in Skopje. Today, volunteers built a crude but sturdy stage over a drainage




Keeping young people engaged was a primary goal of the Yale students, who had few set duties at the camp and the freedom to be inventive. Seth Goldbarg cleared the way for a young director and his cast of eight children to put on a production of Cinderella *(left), securing an outdoor location for the stage and organizing prop-hunting trips to the Macedonian capital of Skopje. With few structured activities, the 15- to 18-year-olds in the camp had little to do until the medical students organized soccer and volleyball games. They set up leagues and arranged for the use of a sports facility several kilometers from the camp. Pamela Perry (right), the preceptor and only physician in the Yale group, befriended a young relative of Emine Alijaj.*

Walking outside the camp, students Sharon Chekijian and Vivian Lombillo noticed a group of villagers resting and talking in a back garden, and were invited in to chat. The local people, during the course of a month, had watched their tiny Senekos grow to accommodate thousands of homeless Kosovars from across the border. With no language in common, the villagers conversed with the Yale students with smiles and gestures and said goodbye with a gift of eggs.

ditch from scrap plywood, the most visible location in the camp. Erfan, my invaluable assistant and friend, even strung up a curtain from one of his family's blankets. Kadrush and the students helped design the flyers that we put up to advertise the performance. The names of the actors and writers are proudly written on every sheet, which we posted on the community bulletin boards.

MAY 19 Hundreds of people, mostly children, watched *La Perhitura* today while the sun set behind the stage over the snowy mountains of the Kosovo border. Every face wore a smile as Cinderella, with a beautiful dress and flowers in her hair, slipped her foot into the glass (or in this case, black plastic) slipper. Ramadan, who played the prince's young steward and, at age 14, has an incredible command of English, promised that this was only the beginning of dramas in Senekos and that he personally intends to direct one every two weeks.

EMINE ALIJAJ, R.N., P.A.-C

MAY 22 Today Vivian and I returned to Stenkovac and found two more of my cousins. They are hoping to come to New York to see my family. Last week, I met another cousin, Mergim, and his wife and children. They are living in an apartment in Skopje. [Mergim returned to Kosovo to find his home destroyed. He planned to return to Macedonia in late June and then make the journey to Kosovo one final time.]

PAMELA PERRY, M.D.

MAY 23 We are going home. I cannot believe the time has come to leave! Last night was so emotional. I stayed up until 3 a.m. with Moussa's family, talking, dancing and laughing. My final goodbye at the camp was so emotional! After hugging all of the kids who walked me to the gate, I started crying and we all just stood there weeping for what seemed like ages! Moussa would not let go of my hand. He was so sweet. I hate saying goodbye. ***YM***

A month after the group's return, Emine and Margaret returned to Senekos to spend the summer working in the camp. Emine took a three-month leave of absence from her job in the YNHH Emergency Department to work with Doctors of the World. Margaret returned as a Wilbur Downs fellow investigating malnutrition in the refugee population and exposure to diarrhea and upper-respiratory infections.

FACULTY NOTES

❶ U.S. Department of Health and Human Services Secretary Donna E. Shalala has named **Kim Bottomly**, Ph.D., professor of immunobiology and dermatology, as one of five appointees to the National Advisory Allergy and Infectious Diseases Council, the principal advisory body of the National Institute of Allergy and Infectious Diseases. Bottomly's research focuses on the factors that regulate CD4 T-cell differentiation and function, especially as regards the pathogenesis of asthma. Bottomly has served on the NIH Immunobiology Study Section and on several committees of the American Association of Immunologists.

Thomas E. Brown, Ph.D., assistant clinical professor of psychiatry, was the keynote speaker in February for the National Attention-Deficit/Hyperactivity Disorder (ADHD) Conference in Stuttgart, Germany. Brown also presented the Department of Psychiatry grand rounds at the Goethe University Medical School in Frankfurt. His topic was "Working Memory and Executive Function Impairments in ADHD."

The following Yale faculty have been elected to membership in the Connecticut Academy of Science and Engineering: **Yung-Chi Cheng**, Ph.D., Henry Bronson Professor of Pharmacology and director of the developmental therapeutics program at the Cancer Center; **David A. Kessler**, M.D., dean of the School of Medicine and professor of pediatrics, medicine and public health; **Michael H. Merson**, M.D., dean and professor of epidemiology and public health; **Dieter G. Söll**, Ph.D., professor of molecular biophysics and biochemistry; and **Peter B. Moore**, Ph.D., the Eugene Higgins Professor of Chemisty and professor of molecular biophysics and biochemistry.

❷ **Myron Genel**, M.D., professor of pediatrics, received the Abraham Jacobi Memorial Award in April at the annual meeting of the American Academy of Pediatrics. The award is presented by the Academy and the American Medical Association to "a pediatrician who has made notable contributions to pediatrics on a national level." Genel (at left in photo with AAP President Joe Alpert) received the award in part for his efforts to bridge the gap between the pediatric specialty and the general medical community.

❸ The School of Medicine has received a $500,000 unrestricted cardiovascular/metabolic research grant from Bristol-Myers Squibb, to be supervised by **Richard Lifton**, M.D., Ph.D., chair of genetics, professor of genetics and medicine (nephrology) and a Howard Hughes Medical Institute investigator. Lifton's research in hypertension has led to the identification of more than a dozen genes that regulate blood pressure. The grant was announced on March 31 at a reception for Lifton, (pictured with Bristol-Myers Squibb's Anders Hedberg, left) who leads a team of researchers who have found mutations in genes that alter blood pressure by changing salt and water reabsorption in the kidney.

Lawrence C. Kaplan, M.D., associate professor of pediatrics and director of the Disabled Child Care Program and the Center for Children with Special Health Care Needs, was chosen one of 30 fellows for Zero to Three's Leaders for the 21st Century program. Zero to Three is a national nonprofit organization of pediatricians and child development specialists.

Paula Kavathas, Ph.D., associate professor of genetics and immunobiology, and **William B. Stewart**, Ph.D., associate professor of surgery and chief of the section of anatomy and experimental surgery, were honored with Ivy Awards in May. The Elm and Ivy Awards are given in recognition of efforts to strengthen the relationship between Yale and the city of New Haven. Kavathas created the Science Education Outreach Program to strengthen science education in New Haven. Stewart

helped to establish a program of bringing students from Career High School to anatomy laboratories at the medical school, where they are taught by medical student volunteers.

The National Alliance for Research on Schizophrenia and Depression (NARSAD) has announced the recipients of its 1999 Distinguished and Young Investigator Awards. From Yale, **Kenneth K. Kidd**, Ph.D., professor of genetics and psychiatry, received the Distinguished Investigator Award. The recipients of the Young Investigator Awards were: assistant professors of psychiatry **Walid M. Abi-Saab**, M.D., J.D.; **Aysenil Belger**, Ph.D.; **Robert Berman**, M.D.; **Jingshan Chen**, M.D., Ph.D.; **Cheryl M. Corcoran**, M.D.; **Benjamin Druss**, M.D., M.P.H.; **Masahiro Fujita**, M.D., Ph.D.; and **Gerard Marek**, M.D., Ph.D.; instructor in psychiatry **C. Bruce Baker**, M.D.; postdoctoral fellows in psychiatry **Gerard Sanacora**, M.D., Ph.D.; **Kelly A. Stein**, Ph.D.; **Nicholaas P.L.G. Verhoeff**, M.D., Ph.D.; and **Erica Weiss**, M.D.; postdoctoral fellow in genetics **Naoya Murakami**, M.D., Ph.D.; and assistant professor of neurology **David S. Russell**, M.D., Ph.D.

Richard W. Kim, M.D., surgical resident in cardiothoracic surgery, was named a Baxter Research Fellow for 1999-2000 by the Thoracic Surgery Foundation for Research and Education for his research investigating new techniques in gene therapy and cardiac transplantation.

Sunita Maheshwari, M.D. (M.B.B.S.), clinical instructor in pediatrics (cardiology), was awarded the Laennec Society Young Clinician Award by the American Heart Association in November at its 71st annual meeting in Dallas. The award was given for the best clinical presentation in a special session of the Laennec Society for Clinical Cardiology that was conducted at the meeting.

Richard A. Marottoli, M.D., associate professor of medicine (geriatrics), received an Outstanding Research Award in the field of aging and health care for seniors and long-term care in May for his research identifying risk factors associated with driving safety and interventions for the older driver and their families. The award was presented as part of a celebration of Older American's Month hosted by Connecticut Community Care Inc.

W. Ian McDonald, Ph.D., professor adjunct of neurology, presented the Helen Wilshire Walsh Lecture titled "The Dynamics of Multiple Sclerosis" in June at Yale. Ms. Walsh was a supporter of neurology research and had a long-standing interest in improving the lives of people with disabilities. McDonald has made many contributions to the diagnosis and understanding of multiple sclerosis and has used magnetic resonance imaging and spectroscopy to probe its evolution in humans.

Lynne J. Regan, Ph.D., professor of molecular biophysics and biochemistry, was awarded the fourth annual Herbert W. Dickerman Award from the New York State Department of Health's Wadsworth Center. She was selected for the award in recognition of her achievements in elucidating rules underlying protein folding, as well as for her contributions in the areas of protein design and prediction. Regan visited the center this spring, presented a lecture and met with staff scientists. The Wadsworth Center is devoted to the biomedical and environmental sciences.

Stephen G. Waxman, M.D., Ph.D., professor and chair of neurology and professor of pharmacology and neurobiology, was given the Wartenberg Award, the highest honor bestowed by the American Academy of Neurology. The award was presented in April at the annual meeting in Toronto. Waxman is founding director of the PVA/EPVA Neuroscience Research Center at the VA Connecticut Healthcare System's West Haven campus.

❹ **Robert M. Weiss**, M.D., professor of surgery (urology) and in the Cancer Center, has been appointed interim chair and chief of the Department of Surgery. Weiss has served on the faculty for more than 30 years, most recently as chief of the section of urology. He is the recipient of an NIH Merit Award, a trustee of the American Board of Urology and a member of the American Association of Genito-Urinary Surgeons. Weiss succeeds Ronald Merrell, M.D., who will chair the Department of Surgery at the Medical College of Virginia in Richmond.

NEW BOOKS

Understanding Cancer: A Patient's Guide to Diagnosis, Prognosis, and Treatment, by C. Norman Coleman, M.D. '70, The Johns Hopkins University Press (Md.), 1998.

Web Style Guide: Basic Design Principles for Creating Web Sites, by Patrick J. Lynch, director, Yale Center for Advanced Instructional Media, and Sarah Horton, Yale University Press, 1999.

Henry F. du Pont and Winterthur: A Daughter's Portrait, by Ruth D. Lord, research affiliate in the Child Study Center, Yale University Press, 1999.

Recursive Partitioning in the Health Sciences, by Heping Zhang, Ph.D., associate professor of public health and in the Child Study Center, and Burton Singer, M.D., Springer-Verlag (N.Y.), 1999.

Prescriptions for Living, by Bernard S. Siegel, M.D., HS '61, HarperCollins (N.Y.), 1998; paperback edition, Fall 1999.

The Match goes online, but students prefer old-fashioned envelopes

The Internet proved no match for snail mail as scores of students gathered in Harkness Hall on Match Day, March 18, to receive the plain white envelopes that would tell them where they'd been accepted for residencies. Rather than wait until 1 p.m. and find out by logging on to a computer, students preferred to share their joys, and occasional disappointments, with their classmates at noon.

The medical school, said Cynthia Andrien, assistant dean for student affairs, has no plans to change the annual rite of passage for medical students. "I think the fun is the envelopes," Andrien said as she prepared to deliver them to students. Accompanied by Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '90-93, associate dean for student affairs, Andrien wheeled a cart bearing the letters into the mailroom shortly before noon.

A few minutes later she stepped out and students poured in, only to emerge a moment later, tearing open their envelopes. "Oh, my God!" shouted Nnemdi Kamanu, who matched at her first choice, primary care medicine at the University of San Francisco - General Hospital. She hugged Clovene Campbell, who also matched at her first choice, a residency in pediatrics at Massachusetts General Hospital. All 92 students in the class found residencies, Andrien said, and 73 percent matched to their first choice and 97 percent

1999 residency placements for Yale medical students

The Office of Student Affairs has provided the following list, which outlines the results of the National Resident Matching Program for Yale's medical school graduates. Some names appear twice because the graduate is entering a one-year program before beginning a specialty residency. The transitional designation is a one-year program with three-month rotations in different specialties.

CALIFORNIA

Alameda County Medical Center, Oakland
Danica Barran, emergency medicine

California Pacific Medical Center, San Francisco
Victoria Grass, medicine

Cedars-Sinai Medical Center, Los Angeles
Kristin Bager, internal medicine

Santa Clara Valley Medical Center, San Jose
Yvanne Lui, transitional

UCLA Medical Center
Jason Merritt, internal medicine
Karen Purcell, abstetrics and gynecalogy
Lisa Skinner, internal medicine
Maie St. John, surgery, otalaryngalogy

UCLA – Neuropsychiatric Institute
Michael Bradsky, psychiatry

UCLA – San Fernando Valley, Sepulveda
Robert Chiang, medicine
David Gershfield, medicine

University of California – Los Angeles
David Gershfield, neuralogy

University of California – San Francisco
R. Alisan Adcock, psychiatry
Mariel Eliza, surgery
Jessica Haberer, internal medicine
Alexander Kaa, anesthesialogy

University of San Francisco – General Hospital
Nnemdi Kamanu, internal medicine/ primary

CONNECTICUT

Greenwich Hospital
Alexandra Cohen, medicine

Hospital of Saint Raphael, New Haven
Jeffrey Hart, transitional
Alexander Kaa, medicine

Yale-New Haven Hospital
Senai Asefaw, internal medicine
Kristen Aversa, obstetrics & gynecalogy
Deena Berkawitz, pediatrics
Tamar Braverman, internal medicine
Jahn Chang, internal medicine
Hally Craig, internal medicine
Caraline Dumant, psychiatry
Lawrence Etter, medicine
Jeffrey Hart, aphthalmalogy
Eric Hughes, internal medicine
Zachary Leitze, arthapaedics
M. Grey Maher, surgery, uralogy
Nicole Rabidau, internal medicine
Richard Tarres, pathalogy
Steven Williams, surgery
Meher Yepremyan, medicine

DISTRICT OF COLUMBIA

George Washington University
Minh Tran, neurasurgery

National Capital Consortium
Jan Meyerle, internal medicine

HAWAII

University of Hawaii, Honolulu
Matthew Lawrence, medicine

ILLINOIS

McGaw Medical Center – Northwestern Univ., Chicago
Kenneth Kim, plastic surgery

MARYLAND

Johns Hopkins Hospital, Baltimore
Kerri Cavanaugh, internal medicine
Daniel Rathbaum, surgery, otalaryngalogy

Johns Hopkins Hospital, Sinai, GBMC, Baltimore
Camille Hyltan, ophthalmalogy

Johns Hopkins University, Baltimore
Michael Schlasser, surgery, neurasurgery

University of Maryland, Baltimore
Jashua Brader, emergency medicine

MASSACHUSETTS

Beth Israel Deaconess Medical Center, Boston
Cyrus Komer, internal medicine
Debby Lin, internal medicine
Alisan Ziman, abstetrics & gynecalogy

Boston University Medical Center
John Carr, internal medicine
Jennifer Chiu, internal medicine
Dennis Lee, dermatalogy
Ruth Potee, family practice

Brigham & Womens Hospital, Boston
Jesse Flaxenburg, internal medicine
Lifei Gua, plastic surgery
Michelle Pinta, internal medicine
Jeang Yaan, surgery

Cambridge Hospital
Suruchi Chandra, medicine
Jerry Dashen, internal medicine/ primary

Carney Hospital, Boston
Beth Murphy, medicine

Harvard Medical School
Jeang Yaan, uralogy

Massachusetts Eye & Ear Infirmary, Boston
Matthew Lawrence, ophthalmalogy

Massachusetts General Hospital, Boston
Clavene Campbell, pediatrics

matched to one of their top three choices. "No one went below their fourth choice," she said.

Nationally, according to the American Association of Medical Colleges, 94 percent of medical school seniors received a first-year residency program, with 80 percent matching at one of their top three choices.

Notification via the Internet was a novelty this year, and no doubt useful to far-flung applicants. But not all availed themselves of the computer service, even if it involved a lengthy trip. "There is something giddy about being here and seeing so many smiles," said Steven Jacoby, who came from New York City to learn he was accepted for a residency in internal medicine at Columbia-Presbyterian Medical Center there.

"There was no way that I was going to sit alone in Boston and log onto the Internet to discover where my residency training would take place," said Ruth Potee, who drove to New Haven to be with her classmates for the ceremony. She was accepted at her first choice—a residency in family practice at Boston Medical Center, the first such offering in the city. "I like the idea of being in a new program," Potee said. "You get to blaze your own trail."

Gale Zucker (4)

1

Nina Eisenberg, pediatrics
Daniel Kamin, pediatrics
Rasemarie Pezzulla, pediatrics
Michelle Sanders, pediatrics
Sujatha Singaracharlu, pediatrics/adult and child psychiatry

Massachusetts General Hospital / McLean, Boston
Suruchi Chandra, psychiatry
Beth Murphy, psychiatry

New England Medical Center, Boston
Elaisa Falzarana, pediatrics

Tufts / New England Eye Center, Boston
Meher Yepremyan, aphthalmalagy

NEW YORK

Einstein / Montefiore Medical Center, Bronx
Alisan Days, pediatrics/primary

Hospital for Special Surgery
Jahn Kaski, arthapaedics

Long Island Jewish Medical Center, New Hyde Park
Tamara Kass, medicine

The Mount Sinai Hospital, New York
Richard Lyn-Caak, medicine/pediatrics
Debarah Steinbaum, pediatrics/primary

New York Presbyterian Hospital – Columbia
Steven Jacaby, internal medicine
Tamara Kass, dermatalagy
Obinwanne Ugwanali, orthapaedics/research

New York Presbyterian Hospital – Cornell
Christapher Aiken, psychiatry
Deanna Chin, diagnastic radialagy
Jahn Kaski, surgery
Sandra Santiaga, diagnastic radialagy

New York University Medical Center
Alexandra Cahen, dermatalagy
Yvanne Lui, diagnastic radialagy

St. Vincents Hospital, New York
Deanna Chin, medicine
Sandra Santiaga, transitianal

SUNY – Health Science Center at Brooklyn
Victaria Grass, dermatalagy
Grace Karting, abstetrics & gynecalagy

NORTH CAROLINA

Duke University Medical Center, Durham
Lawrence Etter, dermatalagy

OHIO

Cleveland Clinic Foundation
Lee Akst, surgery, atalaryngalagy

The University Hospital, Cincinnati
JaAnne McDanaugh, emergency medicine

OREGON

Oregon Health Sciences University, Portland
Jahn Rugge, family practice

PENNSYLVANIA

Albert Einstein Medical Center, Philadelphia
Camille Hylton, transitianal

Allegheny University Hospitals, Philadelphia
Alisan Partnay, emergency medicine

Children's Hospital of Pennsylvania, Philadelphia
Tanya Fraehlich, pediatrics

Hospital of the University of Pennsylvania, Philadelphia
Dennis Lee, medicine
Jashua Pierce, general surgery
Angela Valandes, medicine/primary

Wills Eye Hospital, Philadelphia
Rabert Chiang, aphthalmalagy

University Health Center – Pittsburgh
Daniel Hall, general surgery
Paul Leang, surgery, atalaryngalagy

TEXAS

Baylor College of Medicine – Houston
Sherri Sandifer, pediatrics

VERMONT

University of Vermont / Fletcher Allen, Burlington
Ursula McVeigh, internal medicine

VIRGINIA

Portsmouth Naval Medical Center
Scatt Hines, transitianal

WASHINGTON

University of Washington Affiliated Hospitals, Seattle
Matthew Mealiffe, internal medicine
Shahram Salami, general surgery
Meena Thayu, pediatrics

Students greeted the news of their placements with smiles, hugs and tears.

1 ***Clovene Campbell and Michelle Sanders learned they were both accepted for pediatrics residencies at Massachusetts General Hospital in Boston.***

2 ***Cynthia Andrien, assistant dean for student affairs, distributes the notification letters shortly before noon.***

3 ***Leo Otake, a student in the M.D./Ph.D. program, hugs Heather Nye, a 1998 graduate who postponed her match until this year.***

4 ***Lynda Kauls, who graduated last year, returned to celebrate with friends Matthew Mealiffe and Bruin Rugge, who started medical school with her.***

2

3

Pioneer in G proteins urges students toward careers in research

The speaker at this year's Student Research Day warned his audience of the perils of spending too much time in the lab. "It is very addictive," Robert J. Lefkowitz, M.D., cautioned students when he delivered the 12th Annual Farr Lecture in May. "One doesn't realize one is addicted until one is put in withdrawal."

His tongue-in-cheek warning couldn't have come on a better day, one that celebrates Yale's long tradition of student research. The school's thesis requirement, which sets Yale apart from other medical schools, began in 1839, said John N. Forrest Jr., M.D., HS '70, professor of medicine and director of the Office of Student Research. "What makes it work," Forrest said, "is the faculty-student pairs. It's a great synergy."

Lefkowitz, professor of medicine and biochemistry at Duke University Medical Center and an investigator for the Howard Hughes Medical Institute, described "G Protein-Coupled Receptors and Their Regulation" in his speech. He said he moved between clinical work and research before settling on research as a career. His groundbreaking work on G protein-coupled receptors in 1970 has led to the development of precise and effective drugs. "Drugs which target these receptors," he said, "either as agonists or antagonists, probably represent the largest and most useful class of therapeutic agents. Understanding the properties of these receptors in molecular detail holds great promise for developing novel targets and novel therapeutic strategies."

This year 62 students displayed posters or made oral presentations of their research projects, which ranged from studies of informed consent in pediatric emergency cases to novel methods of gene therapy. "It is not the number of research projects that is important," said Dean David A. Kessler, M.D., "it is the effort towards gaining knowledge, towards asking fundamental questions. That is what this day is all about. Curriculum changes will come and go, but what we celebrate here today is part of who we are and what we do."

Five students delivered oral presentations of their award-winning theses: Obinwanne Ugwonali, "The Role of White Yams in the Increased Incidence of Multiple Births in Southwestern Nigeria"; Angelo Volandes, "Film Documentary as Ethnography: Tempering Medical Ethics with Patient Stories"; Senai Asefaw, "Stimulation of Myocardial AMP-activated Protein Kinase by AICAR Increases Cardiac Glucose Uptake and Causes GLUT4 and GLUT1 Translocation In Vivo"; Steven Jacoby, "Analysis of Structure and Function in the Na-K-Cl Cotransporter"; and Maie R. St. John, "The Role of LATS in Mammalian Tumorigenesis, Development and Cell Cycle Regulation."

Peter Casolino (3)

(Clockwise) Robert Lefkowitz, who delivered the 12th annual Farr Lecture, listens as Ma... Maragh describes his research on Student Research Day in May. Maragh's thesis topic w... osteoclast function and bone mass in knockout mice; Tamara Koss answers a question about her research on the breast cancer drug tamoxifen; Students and faculty crowd t... halls of the Jane Ellen Hope Building to view the student poster exhibit.

STUDENT NOTES

Randy R. Kidd, a history of medicine graduate student, received a Prize Teaching Fellowship award for excellence in teaching. Undergraduates and faculty nominate graduate students for this high honor at Yale. Kidd also will teach an independent course, which he designed, titled "The Scientific Revolution," at Yale College in Spring 2000.

Caroline Harada, a second-year medical student, was honored with an Ivy Award in May. Harada was chair of the Committee Overseeing Volunteer Services (COVS) of the University's health professional schools and was an active volunteer in four programs within COVS. The Elm and Ivy Awards are in recognition of efforts to strengthen the relationship between Yale and the city of New Haven.

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Student-led course helps clinicians with their Spanish

Imagine being sick and helpless in a hospital, surrounded by strangers in white jackets, stethoscopes hanging from their necks. Then imagine you can't tell them what's wrong. You speak and they look back, uncomprehending. They speak and their words are so much gibberish.

That is the case for many patients in hospitals that serve large minority and foreign communities. To remedy the problem, students offer a 10-week course, once each semester, that teaches the rudiments of Spanish for medical practitioners. The course is open to students in medicine, nursing, public health and the Physician Associate Program. "When I try to use Spanish," said Michelle Sanders, M.D. '99, "patients really appreciate the effort."

Students organized the course about six years ago, with support from the Office of Student Affairs and the Committee for the Well-Being of Students. This year, the course, under the direction of fourth-year M.D./Ph.D. student Michael Singer, has some innovations. Singer, who studied Spanish in high school and as an undergraduate at Yale, has created a Web page (habibi.med.yale.edu) with a course description and tutorials. For the first time, the students have been divided into beginner, intermediate and advanced levels. Singer persuaded the student affairs office to increase the budget to add a stipend for a second teacher, Diana Bojorquez, a medical student from California who teaches the intermediate course.

Singer also has offered students a chance to apply what they have learned. For advanced students, a typical class includes a textbook lesson in a hospital conference room followed by a visit to Spanish-speaking patients on the wards. The last class of the semester in April took four students to the room of a middle-aged Puerto Rican patient. In their halting Spanish, the students ascertained that she had come to the hospital complaining of stomach pains and vomiting that started a few days before and that she was diabetic. "Do others in your family have diabetes?" "Is the pain worse at certain times of day or night?" "Do you feel better or worse when you eat?" The questions continued, veering from her condition to her personal and family medical history.

The patient, who also speaks English, had volunteered to meet with the students to help them practice Spanish. For patients who speak no English, the hospital maintains an interpreters' service.

The students said they have found patients receptive to their efforts to learn Spanish. Ultimately, they believe, it will benefit patients to have caregivers who speak their language and can help them feel more at ease in an unfamiliar and perhaps frightening environment. "They really appreciated that we were making an effort to communicate with them in their own language," said Marjorie Trotter, who is in her first year of the Physician Associate Program.

Education gets high marks, but students worry about safety

While 90 percent of students rated the quality of education at the medical school as good or excellent, they also remain concerned about security, particularly in parking lots and on streets leading to the main campus. The Committee for the Well-Being of Students reported its findings from an annual survey to the Medical School Council on April 15. The survey was based on responses from 277 students in the medical school, public health and the Physician Associate Program. "Most people are very satisfied with the quality of education," said Ben Smith, co-chair of the committee. "Most students view the administration as concerned about them and responsive to their needs."

Although most also gave high marks to security efforts, it remained a top concern. Only 58 percent of public health students rated security as good or excellent, compared to 95 percent of PA students and 84 percent of first-year medical students. "A lot of us feel our end of campus gets neglected at night," said public health student Kathy Witgert. She said public health students would like to see a nighttime foot patrol and scheduled bus stop in front of the public health building on College Street so students could wait inside, rather than on the street.

A related complaint was the high cost of secure parking near the medical school. The report recommended better lighting of parking lots and adjoining roads, more foot patrols at night, change machines for parking meters, and incentives for car-pooling, such as reduced parking rates.

Jack Gundrum, director of security for the medical school, said that in response to the concerns outlined in the students' report a periodic foot patrol has been added at night to LEPH and College Plaza. Parking, however, is a harder problem to address. "Parking is at a premium," he said. "There is certainly adequate parking, but it comes at a cost."

Other topics of concern to students were prices of meals at cafeterias, rare instances of discrimination based on gender or sexual orientation and verbal abuse on medical rounds. The Office of Student Affairs is establishing a program to make peer counseling available to students who wish to discuss verbal abuse or other forms of student mistreatment.

Students help students find their way to a college education

YALE COMMENCEMENT 1999

For 10 weeks this winter and spring, high-school students from New Haven and nearby communities gave up their Saturday mornings to come to the medical school to learn about HIV, nutrition, drug abuse, domestic violence and other health issues. They attended a series of lectures prepared by minority students like themselves and designed to encourage them to go to college. "One of the keys to this program is the interaction with other students from backgrounds that are similar to theirs," said David LaBorde, a second-year medical student who coordinated the program this year. "It is something that medical students are committed to, to make sure that students who come after them have the same opportunities they were privy to."

The Health Professions Recruitment and Enrichment Program (HPREP) was created in 1989 by the Student National Medical Association and started at Yale five years later. "The whole idea is to foster mentorships between local high school students and medical students in the same regions and cities," said Eboni G. Price, a fourth-year medical student at Johns Hopkins, a member of the SNMA who co-chairs HPREP at the national level. The program has spread to 60 chapters around the country. "Our predominant goal is to get them into college and support them in whatever career choice they decide."

On a Saturday morning in March, Karl Lozanne, a second-year medical student, stood on the stage in the Hope Building auditorium and asked 40 high school students what they eat and how they eat it. "How many individuals are going to eat their first meal at 11 o'clock today?" he asked, referring to the pizza and sodas on the menu for lunch. Hands shot up all over the auditorium. "That's not healthy," Lozanne said before beginning a talk on the basics of healthy eating. After a lecture on nutrition and exercise, the students had lunch and then broke up into small discussion groups.

Since its inception in 1994, the Yale program has also offered tangible help to college-bound students, providing $18,500 in grants to 13 students. An interest in health or medicine is not a requirement. The course is designed to encourage a range of abilities. "Things like critical thinking and writing skills have broad applications in any field they go into," said Damani Piggott, a second-year student who taught the HPREP course this year and served as president of Yale's SNMA chapter last year.

John Curtis

Fourth-year medical student Richard Lyn-Cook discussed nutrition with students from New Haven-area high schools this spring as part of the Health Professions Recruitment and Enrichment Program.

3

Melanie Stengel (3)

2

FACULTY AWARDS

Bohmfalk Prize:
Dr. James Jamieson (basic sciences)
Dr. Barry Wu (clinical sciences)
Healthcare Foundation of New Jersey Humanism in Medicine Faculty Award:
Dr. Karen E. Brown
Dean's Medical Education Farr Prize:
Dr. Robert H. Gifford
The Leah M. Lowenstein Prize:
Dr. Shanta E. Kapadia
The Francis Gilman Blake Award:
Dr. Barry Wu
The Betsy Winters House Staff Award:
Dr. Stephen Kavic

STUDENT HONORS AND PRIZES

Parker Prize:
Michelle M. Pinto
Miriam Kathleen Dasey Award:
Ruth A. Potee
Norma Bailey Berniker Prize:
Sherri D. Sandifer
Dean's Prize for Community Service:
Alison L. Days

At commencement, candidate Dole addresses health care concerns

In a commencement speech that touched on gun control, Kosovo and advances in medicine and biology, Elizabeth Dole urged the Class of 1999 to devote time to public service and to maintain a concern for the needy.

"Twenty years from now," said Dole, past president of the American Red Cross, former cabinet secretary and current presidential candidate, "American physicians will not—must not—be practicing the same medicine they are today. Meanwhile, however, some things will stay the same. Patients will still need to be listened to with concern and attention. The helpless will still need our special care."

Dole was the graduating class's choice to deliver the keynote address at the medical school's commencement ceremony on May 24. Dean David A. Kessler, M.D., who worked with Dole when he headed the Food and Drug Administration, praised her commitment to public service, noting that as transportation secretary she had made the roads safer by requiring additional brake lights on vehicles. As leader of the Red Cross, he added, she had transformed the way the nation protects its blood supplies. "Let there be no doubt," he said, "that when a patient in our hospital, in any hospital, needs a transfusion, that blood is safer because of Elizabeth Dole."

Although Dole never mentioned her own campaign to win the Republican Party's nomination for the presidency, she alluded to it in her speech. The budget of the National Institutes of Health should be doubled over the next five years, she said. "We should have the same commitment from our next president, whoever she may be," she added.

Mindful of her audience, she linked her stands on issues of the day to medicine. "For years we have had safety caps on medicine that might cause injury to children," she said, holding up an aspirin bottle and a gun trigger lock. "Why not protect children with safety locks on guns?"

She also called for expanded health care coverage to protect the 43 million Americans without health insurance and for changes in the relationship between physicians and health insurers. "We must ensure that our health care providers have the freedom and the flexibility to provide the best possible care," she said.

At Commencement in May, former cabinet secretary Elizabeth Dole was honored with the Peter Parker Medal in recognition of her "outstanding leadership and dedication to the health and safety of our nation's citizens, as well as to the people of the world."

1 ***Dean Kessler sheltered Dole from the rain as they led the commencement procession.***

2 ***Students waited to receive their diplomas under the tent on Harkness Lawn.***

3 ***Smiles and hugs greeted graduates at the ceremony's end.***

Healthcare Foundation of New Jersey Humanism in Medicine Student Award:
Ruth A. Potee
Campbell Prize:
Michelle M. Pinto
Perkins Prize:
Michelle M. Pinto
Merck Book Awards:
Angelo E. Volandes
Meena Thayu
Lange Book Award:
Lawrence Etter
M.D./Ph.D. Award:
Alexandra B. Cohen
Eric A. Hughes
Connecticut Society of American Board of Obstetricians and Gynecologists:
Kristen R. Aversa
New England Pediatric Society Prize:
Tanya E. Froehlich
Society for Academic Emergency Medicine Award:
Joshua S. Broder
Connecticut Society of American Board Surgeons Prize:
Shahram Salemy
Peter A. T. Grannum Award:
Obinwanne F. Ugwonali
Sherri D. Sandifer
Camille M. Hylton
Lauren Weinstein Award:
Paul Huang (posthumously)
Richard X. Lyn-Cook
Connecticut Academy of Family Physicians Award:
Ruth A. Potee
J. Bruin Rugge
Winternitz Prize in Pathology:
Danica N. Barron
Michelle M. Pinto
Endocrine Society Medical Student Achievement Award:
Ursula A. McVeigh
The Courtland Van Rensselaer Creed Award:
Richard X. Lyn-Cook
National Medical Fellowship (NMF) James H. Robinson, M.D., Memorial Prize in Surgery:
Obinwanne F. Ugwonali
ACP-ASIM Internal Medicine Award:
Nicole C. Rabidou
National Health Service Corps Certificate of Recognition:
Alison L. Days
Jennifer B. Griffiths

1999

Hold fast to ideals and integrity, public health students urged

Melanie Stengel (3)

Graduating public health students listened to speakers including classmate Cari Jo Clark and Dean Michael Merson as they waited to receive their diplomas at Commencement. (Right) James Jekel received the Award of Excellence in Teaching during the ceremony. The hourglass was a playful reference to his habit of using an egg timer to keep student presentations brief.

AWARDS AND HONORS

Award for Excellence in Teaching:
James Jekel, M.D., M.P.H.

SCHOLARSHIPS AND FELLOWSHIPS

Wilbur G. Downs International Travel Fellowships:
Ibilola Abike Fashoyin
Rajesh Gupta
George Levon Melikian
Timothy Myshrall
Nicole C. Rabidou

James A. Hamilton Scholarships:
Natasha Devi Goburdhun
Anthony Jerome Giovanni Pacheco

Kathleen Hara Howe Scholarship:
Audra Nicole Boscoe
Mary Florence Ricciuti

Merit Scholarships:
Stacey Rebecca Grill
Sofia S. Kennedy

Richard H. Schlesinger Fellowships:
Kathleen Anne Harris
Anthony Jerome Giovanni Pacheco
Sarah Helen Stanton

John Devereaux Thompson Scholarships:
Scott Christopher Durbin
Katharine Ellen Witgert

E. Richard Weinerman Fellowships:
Magdalena Cerda
Cari Jo Clark
April Celeste Cohen
Christina Y. Kim
Kristin Mattocks
Pamela S. Nelson
Thomas Horton Riess

At a time of great and varied challenges to public health, Michael H. Merson, M.D., dean of public health, urged the Class of 1999 to hold fast to its courage and principles.

"When you accept your diplomas today," he told the 118 graduates, "I ask you to remember that you have a new responsibility in public health. Class of 1999, be proud to be entering a profession that has accomplished so much for our nation."

Merson offered his comments in place of Margaret A. Hamburg, M.D., Assistant Secretary for Planning and Evaluation at the federal Department of Health and Human Services. Heavy rains and fog on Commencement Day made it impossible for her flight from Washington to land in New Haven.

Student speaker Cari Jo Clark told her classmates upon graduation they were no longer peers, but colleagues. "We are now a complex network of health professionals who will most likely benefit from knowing each other," she said. "The very nature of public health has brought us into contact with interesting, inspiring and dedicated people."

James Jekel, M.D., M.P.H. '65, Charles Edward A. Winslow Professor Emeritus and Lecturer in Public Health, received the Award of Excellence in Teaching. As he came forward to accept the award he brandished an oversized hourglass, a gift from students poking fun at his tendency to time student presentations with an egg timer.

Alumna Muriel Wolf receives Yale Medal

Pediatric cardiologist **Muriel D. Wolf**, M.D. '59, HS '60, was among five Yale alumni to receive the Yale Medal at a dinner in April. The medal is the highest honor bestowed by the Association of Yale Alumni in recognition of outstanding volunteer service to the University.

"A sense of responsibility leavened by infectious enthusiasm characterizes your outstanding contributions to the Yale community," reads the award citation, which praises Wolf for her leadership as the first woman president of the Yale Club of Washington, D.C. "You ensured that the club offered a wide spectrum of events and activities appealing to young people, minorities, women and alumni of the graduate and professional schools as well as those of Yale College."

The AYA recognized Wolf for her work as president of the Association of Yale Alumni in Medicine, as a member of the AYA Board of Governors, and as chair of the Committee on Women at Yale.

Wolf, a resident of Washington, D.C., is associate professor of pediatrics at George Washington University School of Medicine and was recently named senior pediatrician at Children's National Medical Center.

A volunteer's view of devastated Honduras

Retired oncologist **Robert W. Frelick**, M.D. '44, spent Christmas and New Year's in Honduras, providing medical relief in the wake of Hurricane Mitch, which devastated a swath of Central America late last year. He left his home in Wilmington, Del., to travel as a volunteer on a medical mission sponsored by Church World Services. From Dec. 20 to Jan. 2, the team traveled over back country roads through deep valleys, fording swollen streams to reach outlying villages. Throughout, he saw the hurricane's toll of ravaged highways, lost harvests and ruined homes. "They had four and a half years' worth of rain in nine days," said Frelick, who before retiring served as a consultant to Delaware's Department of Public Health and reviewed oncology programs for the National Cancer Institute.

Their mission took them first to El Sauce, one of three villages they visited in the northwestern corner of the country. Traveling with a cook, a driver and supplies of food and water, they rode in a four-wheel-drive truck, two team members up front in the cab, the rest in the back on top of the luggage and medical supplies. Frelick's teammates included an internist from Los Angeles who had worked in Mexico, a nurse-clinician who had spent 12 years in Guatemala, a nurse from Seattle who spoke survival Spanish, a bilingual nurse from Indiana whose church took care of her four children while she was away, and an intensive care nurse from North Carolina.

On arrival they set up a clinic in a two-room schoolhouse and started seeing patients at 1:30 p.m. By the time darkness fell they'd seen 100 patients, some of whom had walked for hours to reach the clinic. Common ailments were bronchitis, asthma, headaches, diarrhea, heartburn, dermatitis, cataracts, intestinal parasites, malnutrition and anemia.

That first day set the pattern for the trip—a journey over difficult roads, setting up a clinic, treating patients until dark, sharing a meal of rice and beans, then sleeping on camping gear in a common bedroom, usually the makeshift clinic itself. "Nobody complained about the lack of amenities," Frelick said, adding, "The biggest problem they had was my snoring."

Medically, however, they lacked the support to which they were accustomed. They worked without electricity, refrigeration or running water, and sometimes without supplies such as tetanus toxoid or Pepto-Bismol. In one clinic the only sink available for washing hands became useless after it sprang a leak. Despite the lack of facilities, the team managed to treat patients' chronic diseases. They dispensed medications for some ailments and arranged for serious cases to be treated in hospitals. But throughout the mission Frelick wondered whether his patients' poverty would enable them to receive appropriate treatment. He doubted that one patient with large varicose ulcers would be able to keep her legs clean and elevated. He also wondered whether mothers would follow his advice on the proper preparation of infant formula to prevent diarrhea.

"I just couldn't get over how well the doctors and nurses worked together," said Frelick, noting that their only time off from medical care came on New Year's Day when they made an excursion to the ancient Mayan city of Copan. "The fact that we could work so well together without knowing each other ahead of time was really nice."

ALUMNI NOTES

30s

John P. Ferguson, M.D. '39, of Springfield, Mo., writes to say that he is now living in Palm Desert, Calif., for five months of the year so that he can play more golf; he gets out two or more times a week. Ferguson says he is enjoying retirement and usually takes a cruise or a foreign trip once a year.

40s

Jack S. Blaisdell, M.D. '40, continues to practice orthopaedics in Sandpoint, Ind., and is adjusting to the loss of his wife of 61 years, Famie.

Robert E. Carroll, M.D. '42, of New York City, was selected as the 1999 Man of the Year by the Culver Military Academy in Indiana. Carroll was a 1934 graduate of the academy.

Hunter H. Comly, M.D. '43, of San Diego, Calif., traveled to Tahiti this spring and hopes to take a cruise around the world next winter.

David Geddes, M.D., HS '48-49, of Santa Ana, Calif., is now a clinical professor of psychiatry at the University of California, Irvine, College of Medicine.

50s

1 **James A. O'Neill Jr.**, M.D. '59, the John Clinton Foshee Distinguished Professor of Surgery at Vanderbilt University School of Medicine, was elected in February to serve as president of Southeastern Surgical Congress at its annual meeting in Tampa, Fla. His one-year term will begin in February 2000. O'Neill, who is surgeon-in-chief at Vanderbilt and chair of the section of surgical sciences, will also serve as a member of the Congress's Continuing Medical Education Committee.

60s

2 **David W. Barry**, M.D. '69, chairman and chief executive officer of Triangle Pharmaceuticals, received the Award for Distinguished Service to Industry, Commerce or Education in April from the Yale Science and Engineering Association. Barry was recognized for his work in virology and pharmaceutical development—pioneering the development of the herpes drug acyclovir and leading a team that discovered AZT, the first treatment for HIV. Barry served as deputy director of the Division of Virology of the National Food and Drug Administration's Bureau of Biologics and as vice president of research, development and medical affairs at Burroughs Wellcome in North Carolina before founding Triangle Pharmaceuticals in 1995.

3 **Allen I. Goldberg**, M.D., HS '68-70, served as president of the American College of Chest Physicians during 1998-99. Goldberg is professor of pediatrics and director of the section of home health at Loyola University Medical Center in Chicago.

Neal L. Maslan, M.P.H. '64, was recently listed in *The Global 200 Executive Recruiters*, a book by Nancy Garrison Jenn on the world's top executive recruiters, and John Sibbold's new edition of *The New Career Makers*, published by HarperRow.

4 **Stephen C. Schimpff**, M.D. '67, HS '67-69, was named chief executive officer of the University of Maryland Medical Center in March. The medical center is a private, nonprofit corporation encompassing the hospital, children's hospital, cancer center and shock trauma center. Schimpff, who previously headed the cancer center and has been the executive vice president of the University of Maryland Medical System for the last 14 years, is a professor of medicine, oncology and clinical pharmacy.

In celebration of the 20th anniversary of the founding of the American Council on Science and Health (ACSH), the journal *Technology* has designated the first volume of 1999 a festschrift—a special collection of essays in honor of the two ACSH founders. They are **Elizabeth M. Whelan**, M.P.H. '67, and Fredrick J. Stare. The volume is entitled *Human Health.*

70s

After 14 years as professor and chair of the Joint Center for Radiation Therapy at Harvard Medical School, **C. Norman Coleman**, M.D. '70, has moved to the National Institutes of Health. He is the director of the newly established

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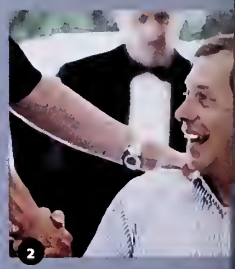
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He healed the heel of Joltin' Joe

"I must have confidence and I must be worthy of the great DiMaggio who does all things perfectly even with the pain of the bone spur in his heel. ... Do you believe the great DiMaggio would stay with a fish as long as I will stay with this one? ... I am sure he would and more since he is young and strong. Also, his father was a fisherman. But would the bone spur hurt him too much?"

—from The Old Man and The Sea, *by Ernest Hemingway, 1952*

AP/Wide World Photos

Jae DiMaggia (abave center) is surraunded by jubilant teammates after winning Game 2 af the 195a World Series, the year befare heel spurs forced him ta retire fram baseball. "If I had met Rack Pasitana 50 years ago," he said later, "I never wauld have ended my career." Positano (belaw), a padiatrist with a public health degree from Yale, became a friend of DiMaggio and organized his memarial service in April at St. Patrick's Cathedral in New Yark.

Growing up in Brooklyn's Bensonhurst section, **Rock G. Positano**, D.P.M., M.P.H. '89, lived in awe of Joe DiMaggio, the legendary batter and center fielder who started playing with the New York Yankees in 1936. Heel spurs ended DiMaggio's career in 1951 and the "Yankee Clipper" endured the discomfort until 1990, when he walked into Positano's office at the Hospital for Special Surgery. That visit marked the beginning of a personal and professional relationship that lasted until DiMaggio's death at 84 in March of lung cancer. "He took a liking to me," recalled Positano, "and more importantly, I got him well." Positano fitted a strap he had devised onto DiMaggio's foot to ease swelling and allow healing to begin. Years later, Positano recalled, he sat in George Steinbrenner's box at Yankee Stadium with DiMaggio and others when "Joe took his shoe off, pointed to his heel and said, 'If I had met Rock Positano 50 years ago I never would have ended my career.' "

DiMaggio, he said, not only respected his competence, but also had a soft spot in his heart for Yale. DiMaggio's son had attended Yale College and the Yankee slugger counted among his friends A. Bartlett Giamatti, the late baseball commissioner and former Yale president. Positano, 40, studied public health at Yale because of his interest in foot disorders as occupational injuries.

Positano dined with DiMaggio regularly as part of a group of five or six friends who gathered when the baseball great was visiting from his home in Florida. DiMaggio, Positano said, encouraged him to write his textbook, *Disorders of the Heel, Rearfoot, and Ankle*, published recently by Churchill Livingstone and which Positano co-authored with Chitranjan S. Ranawat, M.D. Positano was the subject of a *New York Times* profile that focused on his friendship with DiMaggio. It ran on April 23, the day of the memorial service Positano organized at St. Patrick's Cathedral in New York. "It was a tremendous undertaking, but I did it with great love," he said.

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Radiation Oncology Sciences Program, which includes a number of responsibilities. One duty will be to serve as a special advisor to the director of the National Cancer Institute, Yale College alumnus Richard Klausner. Coleman and his wife, Karolynn, will be living in Somerset, Md.

5 **Joseph Zaccagnino**, M.P.H. '70, president and chief executive officer of Yale-New Haven Hospital (YNHH) and Yale New Haven Health System, received the Torch of Liberty Award from the Connecticut Anti-Defamation League (ADL). The award, the highest honor bestowed by the organization, was presented at a dinner in April attended by 750 of Connecticut's most influential leaders. The ADL recognized Zaccagnino (center, with Rob Leikind and Marvin Lender, right, of the ADL) for his efforts and accomplishments in the areas of diversity, community-building and children's health care. Past recipients of the award include Yale University President Richard Levin, U.S. Sen. Christopher Dodd and YNHH board member John Lahey, who is the president of Quinnipiac College.

80s

Michael D. Burg, M.D. '87, of Durham, N.C., writes to say: "After more than eight years in a community emergency medicine practice, I'm engaged in an emergency department fellowship and a teaching faculty development fellowship at Duke. I'll be transitioning to an academic emergency medicine practice next year."

6 **Robert S.D. Higgins**, M.D. '85, surgical director of the Henry Ford Health System's Thoracic Transplantation Program, had an incredible year in 1998. He was named to an endowed chair, earned Medicare approval for the lung transplant program he founded at Henry Ford in 1993, and led a team of surgeons from Henry Ford and Children's hospitals in Detroit in their first pediatric heart transplant. Higgins also performed a transplant last August on one of Michigan's youngest heart recipients, 10-week-old Stephanie Gossage.

90s

Michelle Andrews, M.D., HS '90, an attending physician at the Cincinnati Sports Medicine and Orthopaedic Center, was elected to the board of trustees of the Women's Sports Foundation, a national nonprofit organization dedicated to increasing opportunities for girls and women in sports and fitness.

5

6

Helen L. Egger, M.D. '91, a postdoctoral fellow in mental health service systems and research at the University of North Carolina at Chapel Hill and Duke University Medical Center, was chosen as one of 30 fellows for Zero to Three's Leaders for the 21st Century program. The two-year Solnit fellowship which honors Yale professor Albert J. Solnit, M.D., is funded by grants from The Robert Wood Johnson Foundation and philanthropist Irving Harris. Egger will focus her work on developing a tool for diagnosing post-traumatic stress disorder in young children. Zero to Three is a national nonprofit organization of pediatricians and child development specialists.

What did the Yale System mean to you?

We're preparing an article on "The Yale System Through the Decades" and invite letters, thoughts and memories from alumni. In particular, we would like to explore which essential threads of Yale's approach to medical education have remained unchanged over the years, as well as the evolution of the tradition from generation to generation.

Letters should be brief, no more than 250 words, and touch on one major facet of the Yale System specific to the era in which the author experienced it as a student, faculty member or in some other capacity. Please send letters to Editor, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612 [or via e-mail to ymm@yale.edu] and include a daytime phone number. A representative selection of essays will be published in a future issue.

JOHN DONNELLY

John Donnelly, M.D., of West Hartford, Conn., died February 18. He was 84.

Born in England, Donnelly received his medical degree in 1938 from the University of Liverpool Medical School and his diploma of psychological medicine in 1948 from the Maudsley Institute at the University of London. In 1949 he joined the staff of The Institute of Living in Hartford and was named medical director in 1956. From 1965 until 1984 he was psychiatrist-in-chief and chief executive officer of the institute. He also served on state and national advisory boards and chaired a number of task forces for the American Psychiatric Association.

In addition to his position at the institute, Donnelly was at the Yale School of Medicine as an assistant clinical professor of psychiatry from 1952 until 1963, an associate clinical professor of psychiatry from 1963 until 1968 and a lecturer from 1968 until 1980. He also served as professor of psychiatry at the University of Connecticut School of Medicine.

JOHN C. HOOVER

John C. Hoover, M.D. '46, died March 16 at the Hackensack (N.J.) University Medical Center. He was 79.

Hoover was born in Connecticut and was a World War II Army veteran. He was a former medical director and staff member of the Hackensack University Medical Center and a former president of the Bergen Pines Hospital Medical Board in Paramus. Hoover lived in Wyckoff, N.J., for the past 27 years and was retired from his practice as an orthopaedic surgeon.

ROBERT A. KRAMER

Robert A. Kramer, M.D. '55, HS '55-56, a prominent pediatrician in the Hartford area, died April 23. He was 68.

Kramer was a leader in the treatment of behavioral and psychiatric problems of adolescents and children. He remained an active member of The Compleat Pediatricians, a group of Yale-affiliated physicians who treat medical problems in the context of children's social, family and emotional environments. Kramer was a regular participant in the breakfast meetings The Compleat Pediatricians hold twice a month to discuss cases.

After graduation from the School of Medicine, and a residency in pediatrics and a fellowship in child psychiatry at Johns Hopkins Hospital, Kramer had a private pediatric practice in Baltimore until 1968. During his career he was vice president for medical affairs and medical director at the Newington Children's Hospital, director of the division of child and adolescent behavior and professor of pediatrics at the University of Connecticut School of Medicine, and clinical professor of pediatrics and surgery (orthopaedic) and rehabilitation at the Yale School of Medicine.

Kramer was a founder of the Adolescent Drug Dependency Service at the University of Connecticut in 1970 and the Child and Adolescent Psychiatric Service at Mt. Sinai Hospital (Hartford) in 1974. At the time of his death, he was executive vice president of the Newington Children's Hospital Foundation, Inc.

JOHN B. OGILVIE

John B. Ogilvie, M.D. '34, died at his home in Riverside, Conn., on May 1. He was 89.

Born in New York City, Ogilvie graduated in 1931 from Yale College and in 1934 from the School of Medicine. During World War II, he was a captain in the Army's 9th General Hospital Unit from New York Hospital, serving as a surgeon in New Guinea and the Philippines. After completing his residency at New York Hospital, Ogilvie moved to Stamford, Conn., where he practiced general surgery until he retired in 1987.

During his career he served as surgeon-in-chief at Stamford Hospital from 1966 to 1972 and as president of the local YMCA from 1960 to 1965. Ogilvie served on the Development Board and the Dean's Council at Yale School of Medicine.

The son of Scottish immigrants, he remained appreciative of Yale's generosity to him as an undergraduate and medical student. Although he contributed to other projects, including the construction of the Cushing/Whitney Library and the Boyer Center for Molecular Medicine, his largest gifts to the school were for financial aid. He made a point of getting to know the students who benefited from his scholarships, regularly taking them to lunch for pep talks.

His enthusiasm for Yale was such that he could rally his classmates during fund-raising campaigns, urging them to meet the financial challenges of both Yale College and the medical school. No major fund-raising committee was established at the medical school without his participation. During the past 10 years he made monthly visits to the alumni and development offices to counsel staff on securing gifts to the school. He was credited with reinvigorating the Association of Yale Alumni in Medicine and in 1994 became the first recipient of the Peter Parker Medal for outstanding service to the School of Medicine.

IN MEMORIAM

The School of Medicine has received notification of the death of the following persons:

David G. Borden, M.D. '43, 6.28.98
Phillip G. Couchman, M.D. '40, 8.15.88
Norman L. Cressy, M.D. '39, 1.25.99
Wynant Dean, M.D. '40, 1.23.99
Robert M. Edwards, M.P.H. '65, 3.22.99
Marcia Fite, M.D. '37, 1.20.99
John C. Hoover, M.D. '46, 3.16.99
Rose Iannotta, M.P.H. '60, 1.14.99
Carrold K. Iverson, M.D. '51, 3.10.99
Moshe Lahav, M.D., HS '69-72, 7.30.98
James Peter Murphy, M.D. '39, 1.13.99
John Frazier Snyder III, M.D. '53, 1.24.99
Robert N. Taylor, M.D. '30, 9.19.91

Our generations

In 1960, a woman entering medicine had all the normal hurdles to overcome and then some. So what's it like for her daughter?

By Diane K. Shrier, M.D. '64

Lydia and Diane Shrier

When my oldest daughter, Lydia, was four years old, she announced that she wanted to be a nurse when she grew up.

"Why not a doctor?" I asked.

"Women can't be doctors," Lydia replied.

This was an idea she had picked up in nursery school, although I, her mother, had practiced medicine her entire life. We had a talk, and I mounted a re-education campaign. At age 10, Lydia was determined to become a physician; today she is one, with a promising career in academic medicine ahead of her.

Since her graduation from medical school in 1991 and her residency at Yale, we've had the opportunity to compare notes about the experiences of women in medicine. Despite significant differences in our professional lives—it is clearly much easier for women today—there are remarkable similarities and many obstacles yet to overcome.

I grew up in the 1950s when 95 percent of women got their M.R.S. along with their B.A. or B.S. and most stayed home to raise a family. When I entered medical school in 1960, women were openly discouraged from applying and limited by quota. A pamphlet handed to many female applicants bore the title "Why Would a Nice Girl Like You Want to Become a Doctor?" I was warned that no one would marry me, and that if I did manage to have a family, my children would be emotionally damaged by my career.

I was determined to prove that I could indeed do it all. Fortunately Adam, my husband-to-be, was ahead of his time in wanting to be one half of a dual-career couple. We married while he was a graduate student at Yale, just after my first year of medical school in St. Louis. There was no question in those days that I would be the one to transfer, and, despite my breaking the quota on women, Yale ultimately accepted me as a second-year student. We started our family soon afterward. Jonathan was born in my last year of medical school, Lydia and Catherine followed during my specialty training, and David after I entered practice. We were young and energetic, and we managed.

Others have written about gender discrimination in academic medicine. For my generation, it was a matter of overcoming attitudes that seem ludicrous today, but were taken for granted at the time. "You're taking a man's place," we were told, either directly or in dozens of more subtle ways. But it has been a wonderful life and I wouldn't give up any of it, except perhaps for the difficulties in finding and keeping good child care.

Lydia had a very different experience. As a Yale undergraduate, she knew many young women who were planning careers in medicine. About 40 percent of her class at Albany Medical College were female. During her pediatric residency back at Yale, she was strongly mentored by faculty who nurtured her ambitions for a first-rank academic career. At Boston Children's Hospital, where she trained in adolescent medicine and is now on the Harvard faculty, her division chief is a woman, as are the majority of her colleagues.

Yet, while Lydia tells me I am her role model, I tell her she only followed the career half of the model. She is not yet married and has no children. She has choices: to marry or not, to live with someone or not, to have children or not, to delay having children into her 30s or beyond. It's a different world—and in most respects far better for a woman who wants to make her own choices. But in some ways it is harder to have so many choices.

One day during a long walk together, Lydia and I talked about what could be learned from mothers and daughters in medicine and whether this might be a useful group to study. Many male physicians have followed in their fathers' footsteps, and a good bit is known about that parent-child pattern. Much less is known about the mother-daughter pairing. We've located more than 100 such pairs in medicine around the nation and are embarking on a long-term study to learn more about the lives of these women physicians of different generations.

We're very curious: What has changed over the years for women in medicine? What has stayed the same? What facilitates or inhibits a child following her mother into the field? We also wonder about the future. Though women now make up nearly one-quarter of all physicians in this country, they account for a much smaller percentage of leaders in medicine. Is it different for women whose mothers are physicians? Can these women stand on their mothers' shoulders? Do they have knowledge that can be useful to other women in medicine?

We hope to locate as many mother-daughter pairs as possible, and we welcome your interest (not to mention the names of additional pairs). For Lydia and me, it's a welcome chance to learn a little more about ourselves and our colleagues, and maybe what we discover will help make life better for all women in medicine.

Diane K. Shrier, M.D. '64, is a clinical professor of psychiatry and pediatrics at George Washington University Medical Center and a psychiatrist in private practice. She can be reached via e-mail at diane.shrier.med.64@aya.yale.edu or by fax at 202-965-2942. Her daughter Lydia A. Shrier, M.D., M.P.H., HS '91-94, contributed significantly to this article.

Continuing Medical Education at Yale

For information on the following programs, please contact the Office of Postgraduate and Continuing Education, Yale University School of Medicine, 333 Cedar St., P.O. Box 208052, New Haven, CT 06520-8052. Tel: (203) 785-4578. Web: http://info.med.yale.edu/CME/

September 15-19
(Wednesday-Sunday)

The 23rd Yale Physician Assistant Certification/ Recertification Preparatory Conference
Harkness Auditorium
course director Christiane Nockels, P. A.–C.

September 17
(Friday)

The Yale Glaucoma Symposium
Sheraton Four Points Hotel
Waterbury, CT
course director M. Bruce Shields, M.D.

September 25
(Saturday)

Asthma Update for the New Millennium
Foxwoods Resort & Center
Ledyard, CT
course directors Alia Bazzy-Asaad, M.D.
Hilary Cain, M.D.

October 2
(Saturday)

Treating Depression through the Life Cycle
Hope 110
course director Robert M. Berman, M.D.

October 6
(Wednesday)

Intensive Workshop on the Difficult Airway/Instrumentation
New Haven
course director William Rosenblatt, M.D.

October 15
(Friday)

2nd Annual Frisbee Stem Cell Symposium
Omni Hotel, New Haven
course director Edward L. Snyder, M.D.

October 21-23
(Thursday-Saturday)

Yale Conference on Women's Health and Fitness
Omni Hotel, New Haven
course director Peggy DeZinno, R.N.

October 22
(Friday)

Diabetes
New Haven Lawn Club
course director Rosa E. Hendler, M.D.

October 29
(Friday)

Changing the Risk: Women and Heart Disease
Fitkin Amphitheatre
course directors Teresa L. Cauiin-Glaser, M.D.
Frans J.Th. Wackers. M.D., Ph.D.

November 5
(Friday)

Osteoporosis
New Haven Lawn Club
course director Karl Insogna, M.D.

November 12
(Friday)

Yale Ophthalmology Cornea Update
Yale Eye Center, Boardman 307
course director M. Bruce Shields, M.D.

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