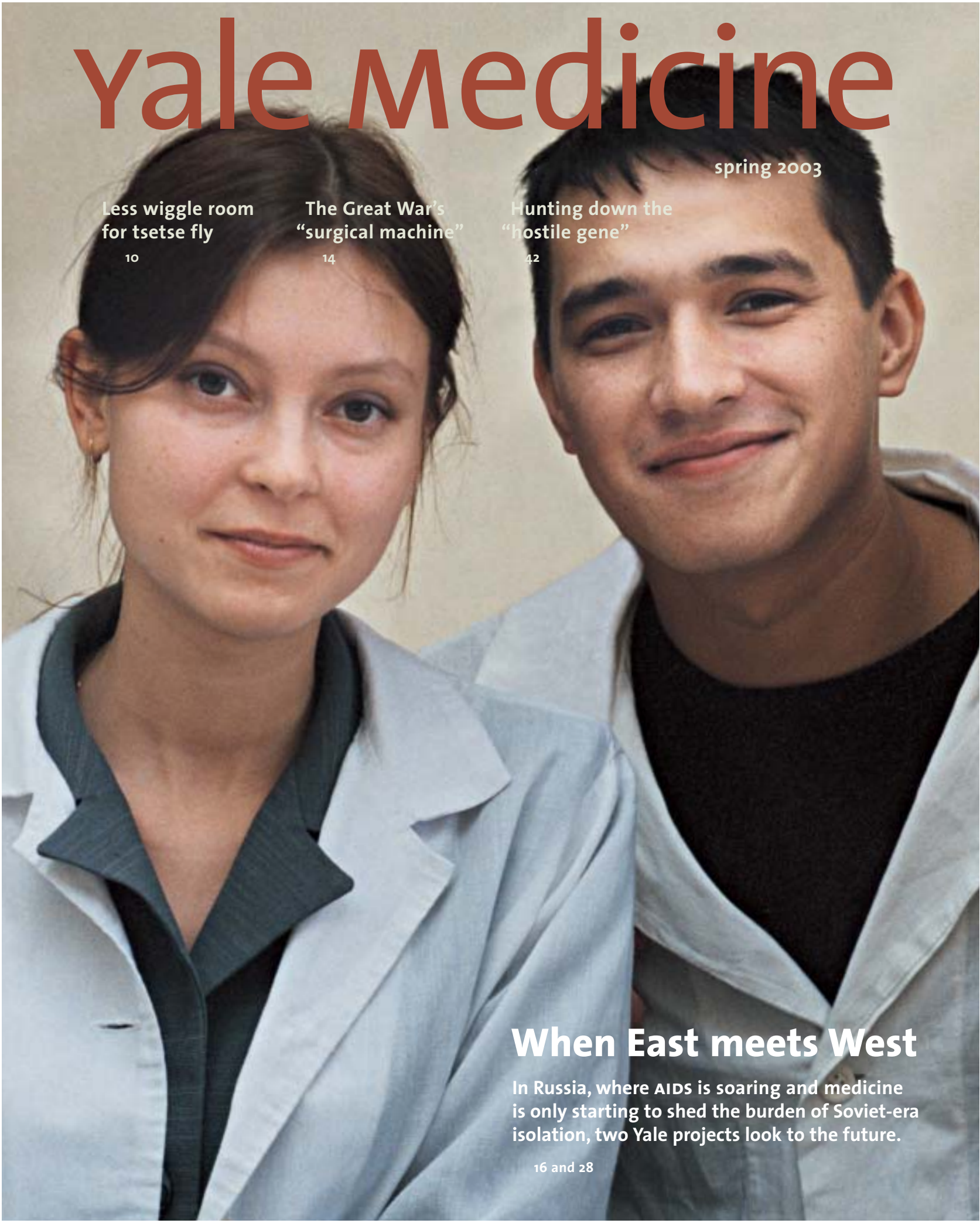
yale medicine

spring 2003



When East meets West

In Russia, where AIDS is soaring and medicine is only starting to shed the burden of Soviet-era isolation, two Yale projects look to the future.

Yale Medicine

SPRING 2003

CONTENTS

ON THE COVER

Young medical students such as these, studying at the No. 1 Republican Hospital in Kazan, represent the future of Russian medicine, which is emerging from decades of Cold War isolation.

THIS PAGE

Medical students pore over books and an anatomy sample as they prepare for class at the Kazan State Medical University. *Photographs by John Curtis*

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On our website, readers can submit class notes or a change of address, check the alumni events calendar, arrange for a lifelong Yale e-mail alias through the virtual Yale Station and search our electronic archive.

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Support and passion give hope for the Yale System

On behalf of the students who spent many hours stuffing envelopes and debating the current state of the Yale System, I'd like to personally thank all of the alumni who so eloquently described the significance of the System in their testimonials. Your support and passion give me hope that the Yale System will persist for many years to come. Reading your responses reminds me of exactly why I came to Yale Medical School. Additionally, I'd like to applaud the entire staff of *Yale Medicine* for tackling and publishing such a highly debated issue.

After sitting through many meetings and informal discussions regarding the issues that have been raised in our mailing and in the recent article in *Yale Medicine* ["Everyone Loves the Yale System. ...," Autumn 2002], it is clear that many questions are yet to be answered about the future of the System. Therefore I highly encourage all alumni and friends of the Yale System to continue to be involved and interested in the shaping of the Yale System throughout the 21st century. Your support will be invaluable in ensuring the existence of the System for generations to come (especially for my grandchildren, who will undoubtedly want to attend Yale Medical School!).

Nick Countryman, Class of 2004
New Haven

Discussion belongs in an alumni magazine

I think *Yale Medicine* has become progressively better in the last few years. The article by Gerry Burrow on Winternitz and the discussion of the Yale System were especially interesting and belong in an alumni publication, as do the many articles on cutting-edge activities at Yale.

Herbert J. Kaufmann, M.D. '59
Mount Kisco, N.Y.

An interesting program in store for Alumni Weekend

I'd like to take advantage of the pages of *Yale Medicine* to remind my friends and colleagues of Alumni Weekend on Friday and Saturday June 6 and 7. Over the course of three days you'll have an opportunity to visit the new education and research building at 300 Cedar Street, which began filling up with scientists and laboratories in the spring. On Saturday, our symposium will feature discussions of *Infectious Disease's Impact on Society and Public Safety*.

Festivities will start on Friday with the traditional New England Clambake and continue Saturday with private class gatherings. Our hospitality tent on Harkness Lawn will be open for respite and refreshments and a chance to meet current medical students who will be happy to assist you with any special requests you may have.

For all of us Alumni Weekend is a time to celebrate our accomplishments and share insights and reflections with one another.

Francis Coughlin, M.D. '52
New Canaan, Conn.

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Editor-in-Chief
Michael Kashgarian, M.D.
Professor of Pathology and Biology

Publisher
Jane E. Reynolds
Associate Dean

Editor
Michael Fitzsousa
Director of Publications

Associate Editor
John Curtis

Contributing Editors
Sharon McManus
Karen Peart
Cathy Shufro
Jacqueline Weaver
Marc Wortman, PH.D.

Contributors
John Dillon
Susan Froetschel
Jennifer Kaylin
Nancy Ross-Flanigan
Anne Sommer
Anne Thompson
Ilene Wong

Copy Editing
Anne Sommer

Office Manager / Editorial Assistant
Claire M. Bessinger

Senior Administrative Assistant / Website Coordinator
Cheryl R. Violante

Design
Daphne Geismar

Production Consultant
Joe Maynard
Yale RIS

Printing
Wallace Andrews–Connecticut

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Abbreviations commonly used
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Address correspondence to:
Editor, *Yale Medicine*
P.O. Box 7612
New Haven, CT 06519-0612
Telephone: 203-785-5824
Facsimile: 203-785-4327
Electronic mail: ymm@yale.edu
Website: http://info.med.yale.edu/ymm

A new world view

This issue's cover stories from Russia mark a new chapter in *Yale Medicine*'s efforts to report on the activities of Yale doctors around the globe. For several years now, the magazine has provided glimpses of medicine and life abroad through the eyes of traveling medical students, residents, professors and alumni in its "Letter from ..." series. This time, we report directly from the former Soviet Union on two major Yale initiatives in medical education and public health.

That we can bring you these stories is testament to the skill and stamina of the two journalists who traveled last fall on assignment to Kazan and St. Petersburg—and a bit of good timing. Contributor Anne Thompson was working in The Associated Press' Berlin bureau during the German elections in September and was able to travel from there to Kazan, site of a decade-long exchange with the Department of Internal Medicine. Associate Editor John Curtis photographed her report from the Tatar capital, where Yale faculty, experts in clinical investigation and evidence-based medicine, are helping their Russian counterparts reconnect with Western science following more than 70 years of near-isolation.

Timing worked again in our favor when we learned that Public Health Dean Michael Merson would be in St. Petersburg the following week to hammer out details of Russia's first master of public health degree training program, focused largely on infectious and chronic disease prevention. Curtis hopped on an overnight train to Moscow, then a second one to St. Petersburg, and saw firsthand how faculty from New Haven are working with scientists there to stem the spread of AIDS in Russia, home of one of the world's fastest-growing epidemics.

In these turbulent times, both stories reflect the tremendous interest at Yale in the larger world around us and the ways in which we can influence it as a force for knowledge and human progress. It's worth noting that the ways in which that interest is expressed can be explored through a new university website launched in March. "Yale and the World" (www.world.yale.edu) is the university's central resource for information about international programs and contains a searchable database of faculty research around the world. There you'll find the projects in Kazan and St. Petersburg along with hundreds more in medicine, health and science across the globe. It's a growing list and one we hope will stimulate your own global thinking. If you have an international project brewing, we'd like to know about it. I hope you'll drop us a line.

Michael Fitzsousa
michael.fitzsousa@yale.edu

SECOND OPINION BY SIDNEY HARRIS

ROBERT LISAK (2)

TOP Residents Ashwin Balagopal, Dan Negoianu and Karen Kelley cheer as they score a point in the Quiz Bowl that pitted them against alumni at the first-ever reunion of internal medicine house staff.

ABOVE Samuel Kushlan moderated the match between residents and alumni.

Nothing trivial about house staff reunion

More than 225 former residents in medicine return to New Haven for program's first reunion.

What is the name of the dog on the Cracker Jack box? How many movies did Tracy and Hepburn make together? Who was the first TV sitcom couple to share a double bed? How many points did Kareem Abdul-Jabbar score during his NBA career?

In the intellectually rigorous world of medical scholarship, you might not think this information would matter to the well-trained resident in Yale's Department of Internal Medicine. But these facts proved vital at the first alumni reunion of house staff and fellows, held on campus October 25 and 26.

Free of the stress and exhaustion that dogged them during their residency years, more than 225 alumni—spanning the decades since 1935—showed up to reconnect with classmates and faculty and revisit the place where they launched their careers. "It's very sentimental," said Sanjivini G. Wadhwa, HS '00. "When I talk to [fellows from other programs] they describe horrendous, nightmarish times. I don't remember it that way. I remember a faculty that really got to know us and made us feel we could achieve something."

Robert H. Gifford, M.D., HS '67, had a similar experience. "It was like a big family," he said. "It was a very enriching and supportive place."

Welcoming the alumni gathered in the Fitkin Amphitheatre, Dean David A. Kessler, M.D., noted the dual role residents played. "You were students learning medicine and—whether it was as colleagues teaching fellow students, or residents teaching medical students or faculty teaching everybody—you were our teachers at the medical school. You are all part of the Yale family," he said.

Ralph I. Horwitz, M.D., then-chair of the Department of Internal Medicine (See *Faculty*, p. 38), praised Yale's residency program, saying, "The house staff program has helped to shape American medicine through the contributions of its students, its residents, its fellows and its faculty." He also expressed concern for what he sees as an erosion of the doctor-patient relationship. When he needs to seek out a resident, he said, the last place he looks is the patient's room. "We must unburden doctors from their clerical duties and return them to the bedside," he said.

But the seriousness was leavened by many lighter moments, most notably Quiz Bowl, a Trivial Pursuit-type contest between two teams of alumni and one composed of current house staff. Questions ran the gamut from popular music (In what year was "Duke of Earl" released?) and sports (What's the width of a football field?) to geography (After Toronto, what's the largest city in Canada?) and popular culture (In *Gone with the Wind*, how many months passed during Melanie's pregnancy?) Questions about the medical school (What year was it founded?) stumped current house staff and alumni, while queries about the human body (How many permanent teeth does an adult human have?) were easily answered.

Who won? The house staff team's correct answer to the question—How many states border Florida?—put them over the top. But it didn't seem to matter, thus confirming what one returning alumnus said about the place: "There was very little one-upmanship. You were always made to feel you were part of the team."

—Jennifer Kaylin

The answers to the trivia questions are as follows: Bingo; nine; Lily and Herman Munster; 38,387; 1962; 53 1/3 yards; Montreal; 22; 1810; 32; two. Although during the Quiz Bowl the Munsters were credited with being the first sitcom couple to sleep in the same bed, according to the Morty's Fun Facts and Useless Information website, that distinction properly belongs to Darrin and Samantha Stephens in Bewitched.

In regions where resources are scarce, a gap between patients and treatment

The approximately 400 New Haven-area residents who stepped into a 48-foot tractor-trailer parked outside the School of Public Health for three days last October entered a world where treatable infectious diseases go unchecked because lifesaving medications are unavailable.

The trailer was home to AccessEXPO, a traveling exhibit that is part of the Access to Essential Medicines Campaign launched in 1999 by the international humanitarian aid group Doctors Without Borders. After almost a year in Western Europe, AccessEXPO attracted nearly 15,000 visitors in the United States between March and November 2002.

Through photographs, text, video, sound, and interaction with medical field volunteers and staff, the exhibit personalizes the crisis in access to essential medicines. Visitors spin a "Wheel of Misfortune" to be "stricken" with one of five diseases—sleeping sickness, kala azar (visceral leishmaniasis), HIV/AIDS, tuberculosis or malaria. A card titled "Your Situation" describes symptoms and concerns, family health history, obstacles to obtaining treatment, and other personal circumstances, such as living and working conditions. Visitors continue through the exhibit, learning about the history and nature of these diseases, their death rates, available treatments, the state of research and development for medicines and a host of other information. A ticking clock underscores the death rates for these diseases: every eight minutes someone dies from sleeping sickness; every 10 minutes someone dies from kala azar; and every minute five people die from AIDS, four die from TB and two children die from malaria. Visitors finish the tour with a "consultation" with a Doctors Without Borders volunteer about "their" disease and prognosis. Before leaving, visitors may sign a petition urging the U.S. government and the Pharmaceutical Research and Manufacturers of America (PHRMA) to make research and development of medicines for neglected diseases a priority.

The World Health Organization estimates that more than 14 million people die each year from infectious diseases, 90 percent of them in developing countries. For people in poor countries, the medicines they require either are too expensive or have gone out of production, often because they're not considered profitable for sale to poor countries.

Mario Garcia, M.D., M.P.H. '02, who worked with Doctors Without Borders from 1990 to 1995, assisted with the exhibit at EPH in October. Garcia, who served as a medical coordinator and country manager for health programs in Brazil, Bosnia, Nicaragua and Belize, said the exhibit conveys the gap between research and patients' needs. He characterized the issue as one of "access vs. excess." "Pharmaceutical research in Europe and the United States creates prosperity," he said. "But with this prosperity comes responsibility. You cannot develop products only for the people who can pay."

The pharmaceutical industry does provide assistance to those in developing countries, according to Jeff Prewhitt, a PHRMA spokesperson, including $1.5 billion in medicines to sub-Saharan Africa in 2001. "We take our charitable responsibilities around the world seriously, and we are heavily involved in a number of philanthropic programs," Prewhitt said.

AccessEXPO's tour of nearly 30 U.S. cities included stops at the American Public Health Association annual meeting in Philadelphia, Pa., and the American Medical Students Association convention in Washington, D.C., in March. It will conclude its tour in Washington in May, when the petitions will be delivered.

Commenting on the impact the exhibit may have on public health students at Yale and elsewhere, Garcia said it "shows that there are other needs, other ways to make a difference as a public health practitioner."

—Anne Sommer

TERRY DAGRADI

Mario Garcia spent seven years with Doctors Without Borders in Brazil, Bosnia, Nicaragua and Belize. A 2002 public health alumnus, Garcia helped organize the group's exhibit at Yale in October.

With an eye on outcomes, doctors work on perfecting the art of the interview

Robert C. Smith, M.D., SC.M., told the 45 physicians at a workshop on interviewing skills last fall that he was about to demonstrate either an unskilled patient interview or an artful one. Afterward, he would ask the audience at the Yale faculty development workshop to judge which type he'd done.

Smith then interviewed a doctor posing as a patient with debilitating back pain. Smith extended his hand to the patient but did not introduce himself or greet the patient by name. When the patient began telling his story, Smith launched into a series of yes-or-no questions about the back pain but asked nothing about three other problems the patient mentioned: insomnia, worries about work and marital friction. Smith asked the audience: "Which sort of interview was that?"

"The regular one," replied one physician in the audience in Hope 216—and everyone laughed.

Smith, a professor of medicine and psychiatry at Michigan State University, specializes in helping physicians improve upon that "regular" interview, the one in which, according to studies, physicians interrupt patients after a mean time of 18 seconds and miss 94 percent of problems linked to psychosocial distress. Smith argues that it is unscientific to focus solely on problems that are biomedical in nature. By largely ignoring psychosocial problems, physicians collect biased and incomplete data. The study of the interview, Smith said, "has brought the scientific method to the doctor-patient relationship."

TERRY DAGRADI

Rebecca Brienza shakes hands with Michael Farrell during a role-play at a workshop designed to improve physicians' interviewing skills. Robert Smith, who led the workshop, and Laura Ment look on.

Smith taught the group how to conduct a more balanced interview, one that allows doctors to elicit and absorb the patient's story while still meeting the doctor's need for concrete information about the patient's history of disease. Smith reported that research has shown that when physicians conduct skilled interviews, patients are more satisfied, compliant and knowledgeable; less likely to introduce last-minute "doorknob" complaints; and less likely to sue or to "doctor-shop." Smith said skillful interviewing also improves outcomes: cancer patients live longer, blood pressures drop, surgery patients recover more quickly and perinatal outcomes are better.

Auguste H. Fortin VI, M.D., who directs the psychosocial curriculum for Yale's primary care residency program, said that learning Smith's technique for patient-centered interviewing "revolutionized my practice of internal medicine." He said patients began telling him they felt better simply because they'd seen him. Interviewing is central to the physician's work, said Frederick D. Haeseler, M.D., FW '76, who directs the primary care clerkship and established an interview skills program at Yale in 1993. Haeseler said the average primary care physician conducts at least 100 patient interviews each week and more than 150,000 in a career, underscoring the need for students to learn how to communicate with patients both efficiently and effectively. "You really need to make connections with patients quickly," he said.

Smith advised the group to begin by making the patient feel welcome, stating how much time is available (generally 15 minutes) and negotiating an agenda for using that time. ("When it's crushing pressure on the chest radiating to the jaw, you say 'We'll deal with that first, not the discolored fingernail,' " Smith said with a laugh.)

He told the physicians to listen to the patient's story during the patient-centered portion of the interview, by asking "focusing" questions. Next, when the patient has told his or her story, the physician should ask "emotion-seeking" questions and express respect and support. As Fortin put it, "Get an emotion on the table and handle it with empathy." The doctor should inform the patient when it's time to shift to the doctor-centered part of the interview, in which the doctor controls the conversation.

Smith's approach saves time, according to Haeseler, because patients tell more coherent stories and make connections between physical symptoms, psychosocial factors and their experience of the illness, connections that might otherwise be collected piecemeal. Studies have proven the efficiency of including a patient-centered segment in the interview, according to Smith.

After Smith's talk, workshop participants practiced interviewing each other, as well as actors trained to portray patients. Margaret J. Bia, M.D., FW '78, said she was delighted that so many physicians had taken time off to learn how to build relationships with patients. "It's getting harder and harder to do in the toxic atmosphere of the business model in which we're all practicing medicine," she said.

The purpose of the workshop was to train physicians to teach interviewing skills when they mentor Yale medical students in the "Doctor-Patient Encounter" course and in clinical clerkships. Smith said Yale was one of the few medical schools in the nation to teach interviewing skills to medical students not only in the first year but also in the third and fourth years, when students work with patients.

—Cathy Shufro

At Yale conference, calls for a "Marshall Plan" to fight HIV and AIDS

Children growing up in Massachusetts can expect to live almost 100 years; a child in southern Africa is likely to die by 35. Alex de Waal, D.PHIL., co-director of Justice Africa, a nonprofit human rights group, said this difference between his own children's prospects and those of African children is symptomatic of "an inequality in the right to life ... that we have never witnessed before." de Waal was one of 14 speakers from four continents at a November conference held at Yale, "HIV/AIDS as a Threat to Global Security." The conference was organized by Yale College seniors Genevieve Tremblay and Ziad Haider with sponsorship from several interdisciplinary research groups at Yale. About 70 people attended.

A central theme of the conference was that AIDS imperils global stability by destroying families, disrupting economies and cutting short the lives of teachers, health care workers, farmers and political leaders. Although major epidemics are poised to erupt in India, China, Central Asia and Eastern Europe, nowhere is the possibility of destabilization more threatening than in Africa.

The "secondary impact" of AIDS in Africa, de Waal said, may be even more devastating than "the terrible figures" showing that HIV has infected up to 30 percent of the population in some countries. A wave of social and economic disruptions is "just beginning to crash over southern Africa," he said. People won't live long enough to pay off mortgages. Women who know how to survive by foraging during famine will grow too sick to transmit that knowledge. University-educated young people will die a decade into their careers. He compared Africa under these circumstances with a university led by student leaders instead of seasoned academics.

The world needs a "Marshall Plan" to respond to the "catastrophe," said Paulo Roberto Teixeira, M.D., an AIDS program director in Brazil, which distributes its own generic anti-retroviral drugs gratis. The burden of the epidemic "is a global responsibility," said Teixeira. "It's very clear that rich countries will have to pay the bill. Rich countries are rich because they drain the majority of resources from the rest of the world."

Indeed, Western countries are not paying their share, said Stephen Lewis, United Nations Special Envoy for HIV/AIDS. UN Secretary-General Kofi Annan's campaign for an annual AIDS budget of $10 billion has brought in only 5 percent of that during three years of trying. Lewis said the United States has contributed less than $1 billion of its $2.5 to $3 billion share, based on its gross national product. [In his State of the Union address in late January, President Bush announced a commitment of $15 billion to fight global AIDS over the next five years, including $1 billion for the UN fund, a portion critics called inadequate.]

Women with AIDS, children in tow, ask Lewis, "Why can't we have the drugs that you have?" He has no answer. "I don't understand what in God's name is happening. ... We talk about [AIDS] endlessly, and we are losing millions of lives every year that we don't have to lose. That's what's so astonishing: we're just losing lives and we don't care. ... And I'll never understand—to my dying day—I'll never understand it."

—Cathy Shufro

et cetera ...

WHEN PFIZER COMES TO TOWN

Nearly two decades ago, vacant land on Frontage Road was designated a potential site for private ventures in biotechnology and the health sciences. In February, that vision bore its first fruit with the announcement of plans for a $35 million clinical research unit by Pfizer Inc., the world's largest pharmaceutical company. During a ceremony in the Medical Historical Library attended by the governor, the mayor and Yale's president, Pfizer CEO Hank McKinnell, PH.D., unveiled plans for a 60,000-square-foot facility that would employ more than 40 staff and provide 50 inpatient beds for Phase I clinical trials. Pending approvals, construction is to begin in the fall. The proximity to Yale, its research capabilities and its scientists made New Haven the company's first choice. "The informality of that interaction," McKinnell said, "is going to spawn ideas that neither of us may have had."

—Michael Fitzsousa

TOBACCO FUNDS UP IN SMOKE

The $246 billion tobacco settlement was supposed to help fund anti-smoking programs, but most states are using little or none of their windfalls for that purpose and aren't making up the deficit with other monies either, a Yale researcher has found. The study, authored by Cary P. Gross, M.D., assistant professor of medicine, found that in 2001 states received an average of $28.40 per person from the settlement funds, but dedicated only $3.49 per person to tobacco control programs. Published last fall in *The New England Journal of Medicine*, the study also found that tobacco control spending was lowest in states with the highest rates of tobacco use. Gross said research has shown that tobacco control programs are highly effective at reducing smoking rates. "What people need to realize is that the decision to use tobacco settlement money for other purposes comes at the cost of human life."

—Jennifer Kaylin

In autism study, it's all about the eyes

Watching subjects watch a film, researchers gain insight into social perception by people with autism.

When Yale scientists wanted to find out what people with autism looked at, they turned for help to Elizabeth Taylor and Richard Burton. The investigators used brief clips from the 1966 movie *Who's Afraid of Virginia Woolf?* and a baseball cap affixed with cameras to follow their subjects' eye movements.

"It's as if we can stand behind the eyes of a person with autism and see what they're looking at. They are looking at very different things than the rest of us," said Fred R. Volkmar, M.D., professor of child psychiatry, pediatrics and psychology, and principal investigator on the project.

Volkmar and colleagues reported the results of two similar experiments in the September issue of the *Archives of General Psychiatry* and in last June's issue of *The American Journal of Psychiatry*. As subjects and controls watched the movie on a computer screen and reacted to emotional scenes, the researchers monitored what each viewer saw, using an infrared camera that captured eye movements. The camera was placed on the bill of a baseball cap worn by the subjects. Another miniature camera on the hat recorded images in each subject's field of view.

The investigators found that the people with autism focused on individual features of the face, rather than the whole face. They looked at the mouth rather than the eyes, which contain many social clues. In fact, the control group looked at the eyes twice as often as did the group with autism. Those with autism also tended to focus on inanimate objects in the scenes they observed. The subjects with autism who fixated on mouths tended to have better social adjustment than those who concentrated on inanimate objects.

Volkmar said previous efforts to measure response to social stimuli tended to rely on still photographs. "That doesn't tell us much about what happens in the real world," he said, explaining the decision to use a movie. To eliminate distractions, the researchers looked for a movie depicting intense social interaction with a limited number of characters and few locations. "We didn't want *Rambo* and Sylvester Stallone and Arnold Schwarzenegger chomping up scenery," Volkmar said. "We were interested in a movie that focused on people and relationships."

The experiments yielded clues as to what people with autism observe and the strategies they use to understand situations. They also suggested possible interventions, Volkmar said, such as new methods of screening for children at risk for autism.

Volkmar and another Yale scientist recently received $11 million in grants to pursue their studies. Two grants of $5 million each came from the Collaborative Programs of Excellence in Autism and the Studies to Advance Autism Research and Treatment Centers Program, under the auspices of the National Institutes of Health. Another $1 million grant came from the National Institute of Mental Health, for a study by Ami J. Klin, PH.D., associate professor of child psychiatry.

—John Curtis

YALE CHILD STUDY CENTER

Investigators studying autism used clips from the 1966 movie *Who's Afraid of Virginia Woolf?* to measure the responses of people with autism to emotional scenes with few visual distractions. Subjects wore a baseball cap fitted out with cameras that tracked their eye movements.

Busing and better housing are found to have an impact on pedestrian safety

Analyzing New Haven accident statistics during a seven-year period, a Yale team has found that interventions by city officials helped keep children safe, even though some of those measures never had pedestrian safety in mind.

The researchers found that between 1992 and 1999 the number of children hit by vehicles plummeted from 223 to 87. They attributed the decline to five policy moves instituted in those years, two of which weren't intended to prevent accidents.

Research began when Thomas S. Renshaw, M.D., chief of pediatric orthopaedics, noticed that the city had an alarmingly high rate of pedestrian accidents involving children. With Jon C. Driscoll, M.D. '95, Gregory A. Merrell, M.D., and Linda C. Degutis, DR.P.H. '94, an associate professor of surgery (emergency medicine) and public health, Renshaw approached city agencies. "They clearly were interested in doing something about the problem, and did have some things in the planning stages," Degutis said.

After comparing the statistics of children involved in pedestrian accidents in 1992-93 to those for 1998-99, the team found that several factors that could have figured into the decline—population, the number of parks, and traffic speed and volume—hadn't changed much between 1992 and 1999.

So what did change?

The city launched two separate campaigns in the 1990s to make the streets safer. One was a public service message that included mass mailings and billboards to promote safe driving. The second encouraged police officers to write more tickets to people driving recklessly. In 1999, police wrote 22 percent more tickets than they had the year before.

Also during this time, traffic safety became a regular part of the curriculum in the New Haven public schools. The schools also undertook a massive increase in busing—not for safety, but for integration. Bus ridership rose from 35 percent in 1992 to 73 percent in 1999, the study said. Moreover, more pupils were picked up at home instead of at a bus stop. The Yale team estimated that this lowered the number of accidents in two ways: children were crossing fewer streets and getting home later. "They're on the bus instead of playing in the streets," Renshaw said.

The city also started decentralizing its public housing in 1990. The largest high-rise development, Elm Haven on Dixwell Avenue, was torn down in 1999 "because of the crime and [because we're] trying to provide decent, sanitary housing," said Diane Jackson of the New Haven Housing Authority. "I don't think we sat down and said, 'We need to do this to take care of the statistics from accidents happening in the area.'"

Yet that's exactly what happened. Five children were struck at an intersection adjacent to Elm Haven in 1992, more than on any other street in the city. In 1999 there were none.

"The decrease in injuries is an unintended positive consequence of these actions," Degutis said. "We certainly can't take credit for making the change, but are pleased that it has appeared to have an effect."

The research was published in the May 2002 issue of *The Journal of Bone and Joint Surgery.*

—John Dillon

JOHN CURTIS

Although reducing accidents was not the project's primary goal, the construction of new housing along New Haven's Dixwell Avenue in the mid-1990s led to a lower incidence of accidents involving cars and pedestrians.

et cetera . . .

A STEP AGAINST SMALLPOX

Travels abroad led James L. Hadler, M.D., M.P.H. '82, to seek inoculations against smallpox at least four times before 2003. His fifth vaccination in January landed him in full color on the pages of newspapers around the country. As head of smallpox preparedness planning for Connecticut and state epidemiologist at the Department of Public Health, Hadler became one of the first civilians to receive the vaccine under the Homeland Security Act.

Hadler's vaccination was part of stage 1 of the program, in which up to 400,000 front-line health care providers may volunteer for inoculations. These vaccinations, Hadler said, would help set the stage for handling an emergency. "We will have a core of responders who are ready to roll. We will have experience with the vaccine. We will have people trained and experienced in administering the vaccine. We can initiate a response much more quickly than if we didn't have this core of people," Hadler said.

—John Curtis

NEW APPROACH TO OVARIAN CANCER

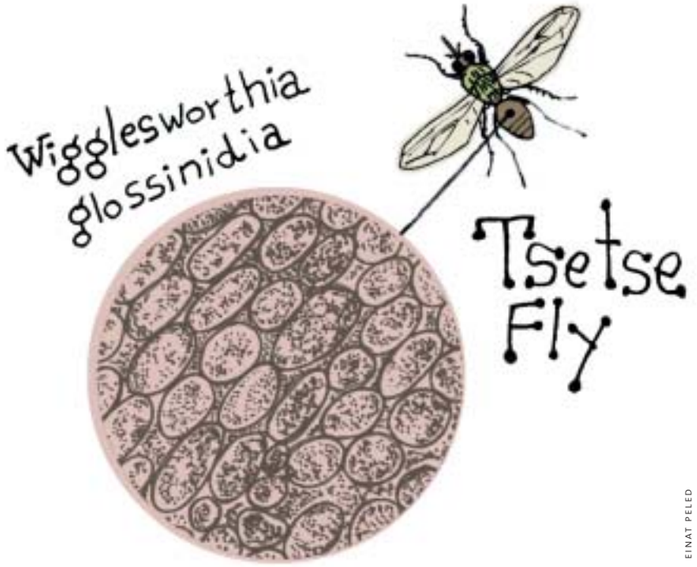
The School of Medicine has joined in an international study of a new drug, phenoxodiol, that unblocks receptors needed to destroy ovarian cancer cells. Yale is the only U.S. institution participating in the Phase II clinical trial. "This is a completely new approach in the treatment of ovarian cancer," said Gil Mor, M.D., PH.D., assistant professor of obstetrics and gynecology, who is leading the study along with Thomas J. Rutherford, M.D., PH.D., associate professor of gynecologic oncology. "We are finding that phenoxodiol is able to induce cell death in ovarian cancer cells that proved to be resistant to the effects of all other drugs, including those presently in use for the treatment of ovarian cancer."

The Yale study will enroll about 40 women for 12-week treatment cycles. The drug is being tested by Yale for Marshall Edwards Inc., a subsidiary of Novogen Ltd.

—John Curtis

In microbe's genome, a potential target

Wigglesworthia **exposes chink in the armor of deadly tsetse fly, route for attacking sleeping sickness.**



EINAT PELED

As genomes go, the sequence of the lowly bacterium *Wigglesworthia glossinidia* doesn't carry quite the clout of the human genome or even that of the mouse. But tiny as the bug's gene collection may be—a mere 700,000 base pairs, compared to humans' 3 million—it's not at all trivial. Details of *Wigglesworthia*'s genetic code, deciphered by Yale's Serap Aksoy, PH.D., and co-workers and reported in the November 2002 issue of *Nature Genetics*, could lead to new approaches for dealing with a deadly disease that has been nearly impossible to control.

Wigglesworthia causes no illness itself. But in a complex, interdependent relationship that has evolved over the past 100 million years, the bacterium has come to live only in the gut of the tsetse fly. And it's the blood-sucking tsetse fly that transmits a parasite responsible for sleeping sickness, a disease that caused severe epidemics in the last century and has been on the rise in southern Africa in recent years. An estimated 500,000 people currently have the disease, which is fatal without treatment with highly toxic drugs. Animals, too, are affected, with some 3 million head of livestock dying from the animal form of the disease every year. Infection of livestock has severely limited development and cattle raising in large parts of Africa.

"There are no vaccines and few effective drugs for treating sleeping sickness," said Aksoy, an associate professor in the Division of Epidemiology of Microbial Diseases at the School of Public Health. "Vector control has been the major strategy employed for controlling the disease, and yet everything that's being used for vector control is very inefficient and environmentally unsound. So it's very crucial that we develop new approaches."

That's where *Wigglesworthia* could prove useful. Like many organisms, tsetse flies need vitamins to reproduce, but blood—their dietary mainstay—is notoriously low in vitamins. Previous research suggested that *Wigglesworthia* somehow helps supplement the fly's diet, Aksoy said. "It was shown that if you eliminated the bacteria by antibiotic treatment, you aborted the fly's fertility, and that supplementing with vitamins could restore fertility very slightly. That suggested that *Wigglesworthia* might be supplying vitamins to the fly, but no one really knew which vitamins or how extensive the requirement was."

By decoding the *Wigglesworthia* genome, Aksoy and co-workers learned exactly which vitamins the bacterium produces for its host. They repeated the earlier experiments, first using antibiotics to clear *Wigglesworthia* from the flies and confirming that the flies became infertile, then supplementing the flies with the very vitamins that *Wigglesworthia* produces. This time, the flies' fertility was fully restored.

The results suggest that finding ways to wipe out *Wigglesworthia* in the field might drastically reduce tsetse fly populations, helping to curb the spread of sleeping sickness.

"This opens a whole new avenue for us," said Aksoy. "Before, the avenues for controlling the disease were based on targeting the parasite in the human or targeting its biology by interfering with insect functions, but now we have another target that we can aim at to reduce fly populations."

Another observation Aksoy's team has made in the lab underscores *Wigglesworthia*'s pivotal role. "We find that during their development in the fly, the parasites aggregate in very large numbers around the gut cells where *Wigglesworthia* live, suggesting that the parasites might also be obtaining nutrients from these bacteria," said Aksoy. "Now we're studying *Wigglesworthia* gene expression in both parasite-infected tsetse flies and uninfected flies, trying to understand what the bacteria might be provisioning to the developing parasites."

In addition to *Wigglesworthia*, the researchers are studying two other bacteria that live in tsetse flies. The commensal *Sodalis glossinidius* also lives in the gut, and its genome sequence is near completion, while *Wolbachia* is found in the insect's ovaries. "They're all very compartmentalized, and they seem not to get in the way of one another in terms of tsetse biology, so we're interested in how this all fits together—how the insect is able to maintain homeostasis or harmony, in association with all these bacteria." In addition, Aksoy's team is engineering *Sodalis* and *Wolbachia* to express foreign genes, in hopes of making tsetse flies resistant to infection with the disease-causing parasites.

"We're hoping," said Aksoy, "that eventually all of our studies with *Wigglesworthia* and the other bacteria will lead to novel control strategies whereby we can render tsetse flies incapable of parasite transmission."

—Nancy Ross-Flanigan

Measuring energy expended by nerve cells, Yale team finds it's all in a day's work

For the first time, a team of Yale scientists has quantified the link between the work neurons perform for sensory or cognitive tasks and the energy they expend.

"These results could later contribute to more targeted treatments for certain brain disorders, where brain imaging is involved," said Fahmeed Hyder, PH.D., assistant professor of diagnostic radiology.

The team's work could also change approaches to the use of data from functional magnetic resonance imaging (fMRI). It has been common practice for neuroscientists to take fMRI images from a baseline phase and compare them to images obtained during the performance of the task. The result is a difference map which shows where tasks have led to increased brain activity.

"If all they look at are these differences from baseline, then they're ignoring an important fraction of the total work required for brain function and perception," Hyder said. "Not everyone starts at the same baseline. Even in our animal experiments, which were done under very well-controlled conditions, there are still slight variations in the baseline, and incremental changes from baseline alone can't accurately reflect the amount of energy used. Only the total energy used can reflect the total activity within a region."

Hyder and his colleagues measured the firing of neurons in the brains of rats as the neurons sent electrical signals from one region to another. Then they varied the workload for neurons in a specific brain region. By using fMRI to measure local energy use, they were able to estimate the energy the neurons expend when the workloads are varied.

Hyder and colleagues published their findings in two papers in the *Proceedings of the National Academy of Sciences* in September.

—John Curtis

et cetera . . .

IT'S A FLY'S LIFE (AND A LONGER ONE)

Fewer calories may mean longer life, and Yale scientists working with colleagues at the University of Connecticut may have found a way to mimic a reduction in calories even when food intake remains constant. In a study published in the journal *Science* in November, the scientists reported that inhibiting the enzyme Rpd3 histone deacetylase extends the life span of fruit flies. The enzyme may play a key role in regulating hundreds of genes whose expression is linked to caloric intake. "If you decrease the level of the enzyme without eating less, you still get life span extension," said Stewart A. Frankel, PH.D., senior author of the study and an associate research scientist in pediatrics. "The trick is to find specific drugs to target this enzyme."

—John Curtis

HOPE FOR THE SLEEP-DEPRIVED

Narcoleptics and those who are sleep-deprived may find comfort in a recent study by Yale scientists. According to research published in the journal *Neuron* in December, hypocretin neurons, a class of peptide neurotransmitters that originate in the hypothalamus and whose absence causes narcolepsy, have been found to interact with other cells and start a chain of events that ultimately excites the hypocretin system. This knowledge may lead to ways of harnessing this system to enhance arousal, and possibly improve cognitive abilities at times of day when people become drowsy. "It's like turning on the ignition in a car, which in turn activates a number of different automobile circuits," said Anthony N. van den Pol, PH.D., professor of neurosurgery, whose team observed the activity of GFP-tagged hypocretin neurons in the brains of transgenic mice. "These studies may point us in a direction to help people who have to work long hours or at unusual times of the night. Maybe there is a way to facilitate their performance and cognitive state using the hypocretin system."

—John Curtis

About My Hair: A Journey to Recovery

by Marcia Reid Marsted, M.P.H. '88

Capelli d'Angeli Press (Canton, Conn.) 2001

"First I am a photographer. Periodically, I am a cancer patient." These are the opening lines of Marsted's book. Following surgery for uterine cancer, chemotherapy was necessary to reduce the possibility of a recurrence. She was told to expect baldness, and as a working artist she decided to record the changes that occurred as a series of photographic self-portraits.

The emphasis in Marsted's book is on the importance of a positive attitude and a reliance on self-motivation. What had begun as a way of coping became a record of a journey.

The Book of Jesse: A Story of Youth, Illness, and Medicine

by Michael Rowe, PH.D., associate clinical professor of sociology in the Department of Psychiatry and co-director of the Yale Program on Poverty, Disability and Urban Health

The Francis Press (Washington, D.C.) 2002

The Book of Jesse tells the story of a young man's illness and death as seen through the eyes of his father. It also tells a story of parents and children, doctors and patients, and high-technology medicine. Rowe does not flinch at discussing medical miscalculations and mistakes, but avoids sensationalism in his rounded portrayal of life on an intensive care unit. This book will appeal to those who have experienced the death of a loved one, those who are fascinated with both the promise and the peril of high-tech medicine, as well as other medical professionals concerned with the relationships between patients and their doctors.

Pediatric Psychopharmacology: Principles and Practice

edited by Andrés Martin, M.D., associate professor in the Child Study Center and of psychiatry, Lawrence Scahill, M.P.H. '89, associate professor in the Child Study Center, Dennis S. Charney, HS '77, and James F. Leckman, M.D., Neison Harris Professor of Child Psychiatry in the Child Study Center and professor of pediatrics

Oxford University Press (New York) 2002

This comprehensive text reviews principles of neurobiology and the major psychiatric illnesses of childhood and presents the major classes of psychiatric drugs, as well as complementary and alternative somatic interventions and naturopathic approaches. The book also discusses broad population-relevant topics such as regulation and policy, pharmacoepidemiology and the importance of sound ethical principles for clinical investigation.

Whispered Prayers: Portraits and Prose of Tibetans in Exile

by Stephen R. Harrison, M.D. '81

Talisman Press (Santa Barbara, Calif.) 2000

Inspiring narratives combined with 100 exquisite duotone photographs bring to life the inner experiences of Tibetan refugees. These tales of extraordinary journeys are skillfully interwoven with commentaries on the nature of humankind.

A Yale Guide to Careers in Medicine & the Health Professions: Pathways to Medicine in the 21st Century

edited by Robert Donaldson, M.D., former dean and David Paige Smith Professor Emeritus of Medicine, Kathleen Lundgren, M.DIV. '95, and Howard Spiro, M.D., professor emeritus of medicine

Yale University Press (New Haven) 2003

This book will interest anyone pondering a career in medicine or a related health profession and contains the firsthand advice of men and women working in the health field today. They describe how and why they made their career choices and what the journey has been like.

More than 70 medical and health professionals, including physicians, biomedical researchers, nurses, chiropractors, medical sociologists and others represent many viewpoints and speak from different stages of their careers. The distilled wisdom of this group conveys more comprehensively and openly than ever before what it means to choose a career in medicine.

The descriptions above are based on information from the publishers.

SEND NOTICES OF NEW BOOKS TO
Cheryl Violante, *Yale Medicine,* P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to cheryl.violante@yale.edu

NANCY COBB
"There is no closure. There's an opening. ..."

Accompanying someone on the journey toward death is "an incredible luxury," said Nancy H. Cobb, speaking at a lecture sponsored by the Program for Humanities in Medicine in January. "It's an incredible gift ... a kind of gestation period before someone dies. It's a holy and spiritual time." Cobb, an actress and writer, wrote *In Lieu of Flowers: A Conversation for the Living* after watching her mother die at The Connecticut Hospice in 1996. Cobb's mother had initially asked her daughter to help her end her life but forgot that request as her Alzheimer's progressed. Cobb is grateful: watching her mother die gradually "granted me an extraordinary and tender farewell, and my mother a final measure of grace." Cobb said that enduring the death of a loved one is a maturing experience and that seeking closure is misguided. "There's no closure. There's an opening, and we're cracked open." She said "unexpressed grief" creates barriers between doctors and patients and urged members of the audience to share their "seminal stories" of witnessing death. "We're all dying to talk," she said.

—Cathy Shufro

IRVING WEISSMAN
Nailing down the language of stem cell biology

Two words that rarely pass the lips of Irving L. Weissman, M.D., in public are "embryo" and "clone." He has reason for caution. In January, when Stanford University announced that Weissman would lead a privately funded stem cell research project, some press accounts gave the false impression that his research was directed toward reproductive cloning. As the first scientist to isolate hematopoietic stem cells, Weissman has a long history in the field and believes that both the public and many researchers misuse the terminology. "Those [are] two terms we ought to have an understanding about," he said at a talk at the medical school in January. "Otherwise we can't discuss this issue."

Like most of the scientific community, Weissman is adamantly opposed to reproductive human cloning. He is concerned, however, that the government will ban what is commonly known as "therapeutic cloning," or the use of nuclear transfer techniques to seek treatments for disease. "If you are in a position of authority to enact a ban on this kind of research, you are responsible for the potential lives that are lost," he said.

—John Curtis

WAN YAN HAI
A tragedy of HIV exposure in rural China

Last August, Chinese authorities detained a mild-mannered, bespectacled physician named Wan Yan Hai and held him for almost a month. His crime? Helping to inform the world of an emerging HIV/AIDS crisis in the Chinese hinterlands. During a visit to Yale sponsored by the Yale-China Association in December, Wan told the tragic story, which was the subject of a series of articles in *The New York Times* last year. Impoverished farmers who had sold their blood were reinjected with pooled red blood cells after the plasma had been removed. The pooled blood product was derived from many donors and was not screened for pathogens. "Many, many experts believe there are at least 1 million infected with HIV in Henan province," said Wan, one of China's leading AIDS activists. "I believe it is 2 million, maybe even more. In most of the villages, people got infected by blood selling." Wan received a 2002 Award for Action on HIV/AIDS and Human Rights from the Canadian HIV/AIDS Legal Network and Human Rights Watch and a separate award from the International League for Human Rights.

—John Curtis

JOHN CURTIS (4)

FRANCIS FUKUYAMA
A structure to accommodate therapeutic cloning

Following close behind biomedical advances are moral quandaries, said Francis Fukuyama, PH.D., a political scientist at Johns Hopkins University, a member of the President's Council on Bioethics and the author of *Our Posthuman Future: Consequences of the Biotechnology Revolution*. Speaking at the Bioethics and Public Policy Seminar Series in January, Fukuyama called for a new regulatory approach to issues such as human cloning. Although therapeutic cloning is desirable, he said, allowing it would make reproductive cloning harder to ban.

"There is a short-term need to establish some sort of regulatory structure to permit therapeutic cloning to go ahead," he said. "In the longer term, the reason you need to think about the broader regulatory structure has to do with the prospect of nontherapeutic uses of biomedicine, some of which are here already and some of which will be coming down the pike in the next few years. ... Is it legitimate to use these techniques to choose boys over girls or vice versa? If there's a way of preventing a biological predilection for homosexuality, is that something that's legitimate for parents to choose?

"I think there are areas where more regulation, rather than less, is called for."

—John Curtis

“A surgical machine”

With World War I raging, a Yale professor looked to France and Henry Ford to systematize treatment on the battlefield.

By Susan Froetschel

ABOVE The men and women of the Yale Mobile Operating Unit No. 39. Flint is seated in the front row, center.

TOP Tracks of narrow-gauge railroads, with open cars, ran directly from the front to the receiving wards of French hospitals and some units such as Yale Mobile Operating Unit No. 39. The railroads delivered ammunition to the front and removed the wounded on stretchers with shock absorbers. The last German forces surrendered and ended the war on November 11, 1918, with 8 million dead and 21 million wounded.

RIGHT Flint headed to the Western Front in 1915, before the United States entered the war, to practice his surgery skills under the most intense circumstances. Later, when he returned with his own unit, Flint had urged his teams to minimize notes and rely on sketches and photos. “For example, one man actually had 75 wounds ... written description would have been tedious and difficult,” Flint explained. “In the present war, 70-75 percent of all wounds are by artillery, liable to infection.”

World War I brought mechanized warfare to the battlefield, and with it carnage on a scale never seen before. To deal with the mass casualties in the trenches of Europe, a Yale professor turned to those keystones of American industrial might, the assembly line and mobility, to deliver lifesaving medical care to American troops at the frontlines in a new way.

The mobile medical units born during the Great War were the innovation of Joseph Marshall Flint, M.D., Yale’s first full-time professor of surgery. Flint volunteered as a surgeon on the Western Front in France in 1915, two years before the United States joined the war, both to provide care and to learn. Based on what he witnessed there, Flint proposed a unit unlike any on U.S. military organizational charts: a compact organization that would move with battles and treat the most serious casualties.

Flint came to Yale in 1907 and supported “whole-time” clinical training that combined research, teaching and clinical care. As a professor of anatomy, the 1900 graduate of Johns Hopkins was an unconventional choice to head the surgery program. Perhaps to prove his surgical skills to his colleagues, Flint signed on as surgeon for an Athens hospital during the Greco-Bulgarian War in 1913, then served as a wartime surgical chief in Passy, France. There, he observed mobile war units originated by the French.

With the United States contemplating war, Flint proposed a new kind of unit: it would be “a surgical machine on the Ford Factory principle which has a sufficient operating capacity to care for all of the cases at one time,” he wrote in a report to the government from the front. The report, along with other papers pertaining to Flint’s work, are in the Manuscripts and Archives collection of the Yale University Library.

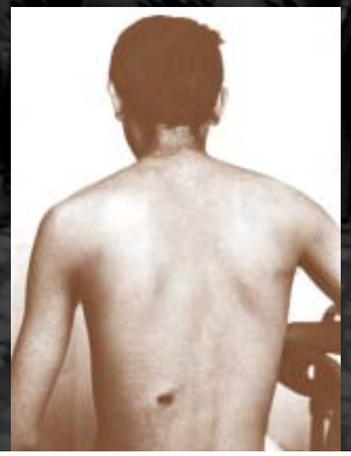
At its 1917 Commencement, in an era when universities sponsored military units, Yale announced a $250,000 grant to fund the Yale Mobile Operating Unit No. 39—the first such unit for the American Expeditionary Forces and a prototype for other mobile units. Yale doctors, nurses and would-be ambulance drivers bombarded Flint with applications. He warned his 15 officers, 19 nurses and 80 enlisted men that the new unit faced unknown dangers. Indeed, the ship carrying the Yale unit zigzagged through wreckage in the Irish Sea before being attacked by submarine on September 14, 1917. Flint, then 45, wrote with uncharacteristic emotion: “No amount of training or propaganda could have equaled this experience in developing detestation of inhuman methods employed by the enemy.”

Flint prepared meticulous plans for the unit: patients arrived by truck or train, moving through wards—shock, X-ray and operating tents—in one direction only. The one-way system minimized not only confusion, but infection. “The organization of the wards was such that no patient could be neglected,” Flint explained.

Heading to the front in April 1918, the unit worked in trenches within sight of the Germans. It witnessed its most intense activity with the St. Mihiel offensive in autumn 1918. “Patients began to arrive by truckloads,” wrote orderly Stanley Daggett, a 1917 alumnus of Yale College. During the first 24 hours of one battle, the unit admitted 170 cases requiring surgery.

Flint received the Distinguished Service Medal for his research and service. Returning from Europe with a chronic infection, he resigned from Yale in 1920. He died in 1944, as Yale’s 39th General Hospital Unit regrouped in the Pacific, caring for the wounded of World War II.

Susan Froetschel teaches writing for the Yale Minority Medical Education Program.



RIGHT Housed in a tent, the 39th’s operating room was sparse, but Flint was known for surgical innovations that increased efficiency and decreased infection. After operations, wounds were left open and packed with sterile gauze. About 48 to 72 hours later, another culture was taken before the wound was closed with a retarded primary suture. “This resulted in enormous savings of life and reduced hospitalization time,” Flint wrote.

JOSEPH MARSHALL FLINT AND STANLEY DAGGETT COLLECTIONS, MANUSCRIPTS & ARCHIVES, YALE UNIVERSITY LIBRARY

When East meets West

By Anne Thompson
Photographs by John Curtis

For much of the 20th century, Russian medicine was cut off from the international scientific community by the isolation of the Cold War. As it begins in earnest to reconnect, a Yale collaboration in Tatarstan is helping to break down old barriers. A letter from Kazan.

To appreciate the sea change under way at Kazan State Medical University, one needs a swift history lesson, a tour of the 189-year-old school that shows what this seat of learning once was and what it hopes to be. A good place to start is inside the wood-paneled anatomy theater, where 19th-century instructors dissected cadavers before audiences of medical students (and the occasional Russian aristocrat permitted to watch from the balcony above). Around the room, glass display cases hold dozens of jars containing organs, limbs and fetuses, a collection of odd specimens that once belonged to Peter the Great.

Down the hall in a classroom, students wearing white caps and lab coats study under a mural depicting great healers from antiquity alongside esteemed medical professors from 19th-century Kazan. The painting shows men standing around a cadaver, those on the left side wearing ancient robes and turbans. Among them are Ibn Sina, the 11th-century Iranian philosopher who wrote *The Canon of Medicine*, and Galen, the ancient Greek who first diagnosed a patient by taking a pulse. There's Nikolai Ivanovich Pirogov, the Russian scientist famous for developments in battlefield medicine during the Crimean War, and next to him are three former chiefs of the Kazan anatomy faculty: Aristov, Tankov and Lesgaft.

These pieces of art and artifact testify to a long and substantial history and an era when the medical school was internationally renowned. "In 1880, Russian science was at the level of all Europe," says Valerii Albitski, M.D., PH.D., chief of the university's department of medical ethics, history and law. He is standing across campus in the school's museum, which also pays homage to this chapter in Russian history. The walls are lined with the portraits of scientists and physicians from a prerevolutionary epoch when Russian doctors led many of their fields. Ivan Petrovich Pavlov won the Nobel Prize in 1904 for his research on the effects of the nervous system on the gastrointestinal tract, and Ilya Illyich Mechnikov's work on the immune system earned him the Nobel four years later. The hero claimed by the city of Kazan, a metropolis of 1.1 million inhabitants 450 miles east of Moscow, is Alexandr Vasilyevich Vishnevski, who in the 1920s played a major role in advancing techniques for administering local anesthesia. He eventually became the Kazan medical school's rector, or dean, and his statue—along with those

Beneath a portrait of A.F. Agafonov, founder of Kazan's infectious disease hospital, Diljara Enaleeva gives a lecture to medical students on pediatric infectious diseases.

EINAT PELED

Most large cities in Russia have their own kremlin, a citadel and seat of government power. From the gates of the kremlin in Kazan, a view of the Republic of Tatarstan's State Museum.

of Lenin and the writer Pushkin—stands on the sprawling city campus of large, Soviet-era buildings.

Russian medicine changed after the fall of the czars and the sealing off of the Soviet Union that began under Stalin and continued through most of the 20th century. Like other institutions, Kazan's medical school became isolated from international dialogue, and nearly a century after social and political revolution began fermenting in the old Russia, Russian medicine is still recovering from its aftereffects. "It's something of a Russian curse," says historian Albitski, "that we have to remake ourselves every 100 years."

While the paranoia of the Cold War did much to drive scientific achievement in fields crucial to the arms and space races, it also had the effect of curtailing inquiry that depended on scientific exchange with the West. The enormous social changes—the abolition of class-driven wealth and status, the equalizing of professions—meant less funding for established Russian institutions, including those that had supported medical research. Today, the physical environment of Kazan's medical university wears the scars of those years of deprivation. The dignified buildings of the rambling campus are dim and grimy from lack of maintenance. Students wear thick sweaters under their white lab coats. The heat is not on, even though it is early October and snowing. But step inside the classroom of surgery professor Arsen Kourbangaleev, M.D., and you'll see part of the latest "remaking" the historian is talking about.

It's showtime

Kourbangaleev, a lanky, soft-spoken man with a bushy moustache, hits the play button on a VCR, then appears on the screen dressed in green scrubs, sitting behind a desk and speaking in Russian. Soon, the image changes to the tiny blades of a laparoscopic instrument snipping away at fatty tissue. The procedure is the nephrectomy portion of a kidney transplant, and the video—a routine teaching tool for doctors in the United States—provides the first glimpse of laparoscopic surgery for many students in the classroom. Kourbangaleev learned laparoscopic technique after spending several months as an observer in New Haven three years ago, and made his own video on his return home with footage shot at Yale. The tape lasts only 30 minutes but it represents several decades of technological catching up with Western colleagues and a big step forward in the institution's efforts to rejoin the international medical community at full speed.

BELOW AND RIGHT Michael David, one of many Yale residents to spend time in Kazan, offers a class in evidence-based medicine to Russian residents.

Kazan State Medical University was founded in 1814, the same year Yale conferred its first medical degrees. It has a student body of 5,000, encompassing medicine, nursing, pharmacy, dentistry and social work, and a faculty of 650. (By comparison, Yale has 507 medical students and 1,330 full-time medical faculty members, many of whom are engaged primarily in basic research or clinical care, rather than teaching.) Medical education in Russia begins after secondary school and lasts six years.

Eager since the fall of communism to regain its previous status, Kazan's medical university has been active in seeking connections with the West. Kazan faculty have research affiliations with several European institutions, in particular the Catholic University of Leuven, in Belgium, and the medical school is working on setting up a program with East Carolina University, in Greenville, N.C. But Kazan's exchange with Yale is the main one, because it has continued for so long and is open-ended. For the past five years, Yale faculty and residents have gone to Kazan every year, and Kazan professors have come to New Haven and nearby Waterbury, Conn.

So far 30 Russians have come here, and 20 faculty members, residents and students from Yale, along with several administrators from St. Mary's Hospital in Waterbury, have gone to Kazan. The most recent visitors from Russia included a neurologist, an infectious disease specialist and two obstetrician-gynecologists, each of whom spent several months last fall following mentors at St. Mary's and Yale-New Haven hospitals and meeting with Yale faculty and house staff. Also this year, the School of Public Health became involved in the Kazan exchange and spon-

BELOW Arsen Kourbangaleev made his own video to teach the laparascopic surgical techniques he observed while at Yale.

BOTTOM Kazan State Medical University was founded in 1814, the year that Yale's medical school conferred its first degrees, and has 5,000 students.

An attending physician leads residents in rounds at Kazan's infectious disease hospital.

sored a faculty member from Kazan who is spending a year in New Haven.

Among those traveling from Yale to Kazan last fall was Jeffrey G. Wong, M.D., an associate clinical professor of medicine, who gave seminars designed to turn good physicians into good teachers. His trip in September was his third in two years. He was joined by two Yale residents in internal medicine, Michael Z. David, M.D., a resident physician and doctoral candidate researching the history of tuberculosis and its treatment in Russia, and Diana Nurutdinova, M.D., a native of Kazan who came to Yale on the exchange in 1998 and returned to New Haven two years later to continue her training in internal medicine and infectious diseases. David and Nurutdinova conducted research into the social history of patients at a tuberculosis hospital, poring over files to determine, for example, if they were smokers or HIV-positive.

They also taught a class in evidence-based medicine, an emerging field based in part on concepts developed at Yale by the late Alvan R. Feinstein, M.D. In the course, residents from Kazan learn how to formulate a clinical question, find relevant data by searching the medical literature, evaluate the data and make clinical decisions based on the best available evidence. Although the scarcity of medical journals in Kazan has been a major obstacle to the project, Yale's help in providing a small reference library and 11 computers with Internet access has made a large difference. Another focus of the exchange has been to establish team-based teaching on the wards for students and residents in Kazan, where clinical instruction is mostly classroom-based with little input from practicing physicians.

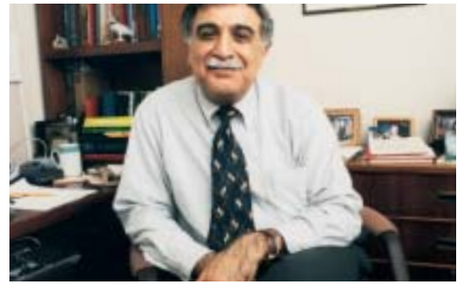
The program's success reflects a warmth among the participants that has grown over the past decade, says Asghar Rastegar, M.D., one of its main architects and Yale's associate chair of medicine. A visitor to Kazan is wined and dined, whisked to the ballet and museums and taken on outings down the Volga River or to the 17th-century monastery at Raifa. On this end, Russians spend considerable time with the Yale professors in New Haven and Waterbury and sometimes live with a faculty member during their stay. The socializing that goes on helps foster a trust that eases communication between members of two very different cultures.

"It's very important that our program with Yale is ongoing, because that means it works," says Nail Amirov, M.D., the Kazan medical school's rector. "Isolated visits of just

RIGHT On his first visit to Kazan, Asghar Rastegar, associate chair of internal medicine at Yale, sensed a deep desire for change.

MIDDLE The energy of young doctors and students in Kazan led Yale physician Majid Sadigh to join Rastegar in proposing the exchange.

FAR RIGHT Nail Amirov, rector of the medical school in Kazan, looks to Yale and other international institutions to help advance medicine in Tatarstan.



Russian and American doctors cemented their friendship and collaboration with meals and toasts.

Physician Jeffrey Wong has visited Kazan three times to train academic physicians to become better teachers.

one month wouldn't work, but over time, this has showed the advantage of what can be taken from the American system."

What can be taken, says Amirov, are strategies for better medical training. By seeing the American medical system firsthand, Kazan's faculty members fully grasp developments the Russian medical system missed during the Communist era. Further fueling the need to make up for lost time is the pace of social change in Russia. A growing consumer culture, the spread of information via the Internet and rising standards of living mean that Russian people want, and demand, more from their doctors—though there remains a sizable gap in expectations (See sidebar, p. 27). Private insurance is on the horizon, and people with money can go abroad for operations. Kazan, the capital of Tatarstan and a center of Russian culture and history—where the dramatist Maxim Gorky came of age, where Tolstoy and Lenin studied, where Nureyev danced—is relying on Yale and other international contacts to speed its development in medicine. "Fifteen years ago, this would have been impossible to imagine," the rector adds. "Back then, there was total isolation."

A cultural crossroads

The seeds of the Yale-Kazan program were planted in 1992, when Yale residents and faculty in internal medicine began participating in a program, funded by the U.S. Agency for International Development, to help modernize the former Soviet medical system. The grant, managed by the University of Rochester School of Medicine, enabled visits by American academics to 13 schools in Russia, Ukraine and Belarus. Representing Yale was Asghar Rastegar.

Rastegar, a nephrologist who joined the Yale faculty in 1985, had long wanted to visit the country that produced the literature of Dostoevsky and Tolstoy. In Kazan, he found a city rich in history and a culture shaped by a melding of European and Asian influences. Located near the confluence of the Volga and Kama rivers 600 miles north of the Caspian Sea, Kazan marks a crossroads of East and West. Its prehistoric settlements date back 100,000 years; modern habitation began in the eighth century when members of the ancient Bulgar tribes began to populate the Volga valley. Islam became the state religion in the 10th century and remained dominant until the invasion by Ivan the Terrible in 1552. But unlike the situation in the Caucasus 900 miles to the south, where Chechen rebels and Russia's military are fighting a brutal and protracted war, Tatarstan's ethnic groups have enjoyed a mostly harmonious coexistence for centuries. Forty-nine percent of the population of the Federal Republic of Tatarstan—one of 21 republics in the Russian Federation—is ethnic Tatar, a predominantly Muslim people who migrated to the region from the east. Most of the remainder, 43 percent, is Russian, with a tradition that is mainly Slavic and Christian. The tight interweaving of these two groups is apparent throughout the city, in a skyline punctuated by the crescent moon of Islam atop minarets, in the onion domes of Russian Orthodox churches and the city's Kremlin (a sprawling, walled government complex that soon will be 1,000 years old) and in the faces of its people. All this, along with the city's role as an active river port, creates a cosmopolitan setting that extends to the medical school.

"Out of all my contacts in Russia, Kazan was the only place where I sensed a clear desire for change," Rastegar recalls during an interview in his office in New Haven. "It wasn't expressed openly, but I sensed their desire to become what they were in the last part of the 19th century. They are very proud of what they were. I got that feeling in my meeting with the rector. All the other rectors in the other medical schools tended to be very formal, and they never moved on to the more personal questioning of 'Why are you doing this and what are you interested in?' These questions opened up the conversation to a different level."

A native of the ancient city of Shíraz in southwestern Iran, Rastegar has an easy charm and a gift for diplomacy. And his own history has given him empathy for people who have experienced political upheaval. After getting his medical degree at the University of Wisconsin and training at Penn in medicine and nephrology, Rastegar returned to Iran in 1973 and taught at Shíraz's medical school. He spent a sabbatical year at Yale in 1976-77 and returned home just in time for the start of the Islamic revolution that toppled the Shah and laid the foundation for the country's current political climate. Rastegar was expelled from his teaching job and briefly imprisoned for his activism for democracy. He left the country in 1983, settling at Yale two years later.

Lessons from the East

While a professor in Iran, Rastegar participated in several faculty and resident exchanges with Western institutions, including Yale. He saw how such projects could founder on cul-tural misunderstandings if the Western partner tried to impose its values or methods without consideration for the country it was trying to help. "One needs to make sure that advice is filtered through the reality of life," he says. "In my contacts with Kazan, I was very conscious that they are the ones who are going to solve their problems. But having contact with the best institutions abroad can energize the process of change."

So Rastegar began thinking about how an exchange could work. In 1997, he asked his Yale colleague Majid Sadigh, M.D., to go to Kazan. Sadigh, an associate professor of medicine, had been Rastegar's student and resident in Iran and experienced similar repression before coming to the United States. "Dr. Sadigh went [to Kazan] out of curiosity, with no expectations," says Rastegar. "He was captured by the phenomenal energy of the young people in Kazan and said, 'Let's do it.' "

Together, the two men hashed out the beginnings of the exchange proposal. The program grew with help from St. Mary's Hospital in Waterbury, which chipped in room, board and funding for travel for the Russians; Yale has provided books, journals and computer expertise to the medical university. Financial support for the exchange has come from individuals and organizations including the Waterbury Medical Society and the Jewish Federation of Waterbury. Yale's International Health Program has helped support Yale residents who choose to spend time in Kazan as part of their training. Rastegar will make his fifth trip to Kazan in June with Yale colleague Fredric O. Finkelstein, M.D., to lead the city's first international nephrology conference.

The direction in which much of the knowledge has been flowing during the initial years has been from west to east. But Rastegar sees many opportunities for American doctors to learn from their Russian and Tatar colleagues. The time-capsule effect of the Soviet era left intact systems of alternative medicine as well as a network of sanitoria used for rehabilitative medicine. Sick people in Russia often travel to the countryside to convalesce for weeks at a time, a therapeutic approach unthinkable under American managed care. "Their rehabilitation is much more holistic than ours," says Rastegar. "This area is fascinating to me, and there's no data on this yet to show." All it takes is for someone to get interested, he says, and the exchange program will adapt. With a core goal of "change through education," as Rastegar defines

Adelia Maxudova, one of the first Russians to participate in the exchange, is now an assistant professor at the medical school in Kazan. She has a deep commitment to Russian medicine and remains a passionate supporter of the international program.

For Diana Nurutdinova, who is spending three years at Yale as a resident, the international collaboration offered a chance to go home to Kazan for a visit. While in Kazan she stayed with her parents, Yuri Sokolov and Raisa Iskhakova, and got reacquainted with her cat, Kotya, and dog, Manya. Nurutdinova plans to return to Kazan to practice medicine after she completes her training in infectious diseases.

it, the Yale-Kazan project is wide open for whatever participants want to do, on either side.

Kourbangaleev, the surgeon who came over in 2000 as an observer, is a good example. "He really used his time here," says Rastegar. "We brought him here to learn how surgery is taught" on a basic level, but Kourbangaleev expanded the scope of his training to include laparoscopic procedures, and he now teaches those advanced methods at home with the help of the videos he made. "This was not the objective of the program," Rastegar says. "But that's what happens."

A different mentality

For now, the changes in Kazan are at a grass-roots level. Everyone, from the rector to the hospital residents, says the medical system needs to change, but the system is still centralized and any significant change would require support on the federal level. Hence, the Yale influence in Kazan has much to do with changes in attitude. That involves encouraging doctors and students to trust their judgment, think for themselves and not rely only on tradition and business-as-usual. Resident Michael David describes the goal of evidence-based medicine this way: "As a doctor, you "should always be curious, you should always be skeptical. You should always be conscious of what you're reading, where the source is. Never accept things blindly, which is the way many are taught to practice medicine. What we're teaching is a new mentality, a new approach to medical epistemology."

Another facet is expressing that independence of thought. This is rather radical in Russia, where medical education is largely based on a 19th-century German model in which the teacher is the ultimate authority. That history, plus the legacy of the Soviet era, means Russian medical students tend to keep their heads down. Even getting professors to speak up is a major hurdle, says Wong, the Yale faculty member whose course on teaching techniques relies on class participation and role-playing. But once they start participating, the professors seem to love it. "I've never experienced such teaching," says Yudina Guzel, M.D., PH.D., a lecturer in dentistry. "He talks to us like we're his equals. This is the way all teaching should be."

At one of the many dinners Wong attended during his stay, he raised his glass to the Kazan professors. "It's fairly difficult to imagine how to change what you've always been told to do," he told his Tatar and Russian hosts. "So I think it's very exciting that Kazan has started to make this step to be very progressive." Still, there remain differences between the American and Russian medical systems that no amount of cross-cultural goodwill can overcome.

Start with money. The medical system in Russia has little of it, and Russian doctors' salaries are a pittance compared with what U.S. doctors make. At a little under $100 a month, they provide barely enough to live on, much less buy a car or a house. The equipment at Kazan hospitals varies wildly. The No. 1 Republican Hospital, which serves all of Tatarstan, population 3.7 million, has only one MRI machine and one CT scanner. Meanwhile, across town, the Interregional Diagnostic Center has the latest state-of-the-art equipment, including a room for telemedicine conferences, but part of the building is still under construction.

And in a climate where entrepreneurs seem to have all the cash, some Russian doctors are abandoning medicine. Adelia Maxudova, M.D., assistant professor, has a car because her brother bought it for her. He left medicine to open a laser eye surgery clinic. Once he achieved financial security, he became the administrator of an ophthalmology clinic. But he does not practice medicine. Maxudova was in the first wave of Russians coming to Yale, and because of her time in New Haven she decided to specialize in nephrology. She is a passionate doctor and a passionate booster of the Yale exchange, yet she is frustrated with teaching. Some students at the Kazan medical school, she says, have no intention of actually becoming doctors. Because medical school starts after high school here, a medical degree in Russia can be like a U.S. undergraduate degree—a ticket to a profession that has nothing to do with your major.

"I get very upset about this sometimes," says Maxudova, sipping coffee in a Kazan café. "Often I talk to someone who says, 'My daughter wants to be a doctor.' I say: 'Do you realize what your child is going to make on a doctor's salary?' Under Soviet times, nobody was rich. Everybody was the same. Now the salary is so small. But the profession is still very prestigious."

So being a doctor in Russia is a labor of love: there's respect, but not much money. And it raises the touchy problem of whether Russian doctors who come to the United States via Yale will want to return to Russia. Rastegar says the program takes care to pick Russians who have compelling ties to home—young people in the middle of fellowships,

RIGHT Alexei Sozinov, deputy rector at the medical school in Kazan, understands physicians who wish to seek opportunities abroad. The nation's goal, he says, is to create an environment that will make them want to stay.

FAR RIGHT Physician Dmitri Tarassevitch, one of the participants in the Yale exchange, wants to take part in international medical programs before he settles down in Russia.

faculty members with prestigious positions or strong family connections. Participants have an unspoken contract with Yale not to exploit the exchange and a written contract with the university to return to Russia and work for at least three years. No one has broken that pledge to date, perhaps in part because of the way many of the physicians in Kazan regard a life in medicine in the United States. As one of the residents visiting Yale from Russia this winter put it, she would gladly live without a higher salary and access to modern medical technology in order to retain the strong family and community ties she has in Kazan.

Bringing it home

Yale resident Nurutdinova plans to bring some of the best of American medicine back to Kazan when she returns after completing a fellowship in infectious diseases. After graduating from medical school there in 1996, she started a residency in internal medicine (infectious diseases). Two years later, she visited Yale as part of the exchange program. Back in Kazan, she realized she wanted the more general medical training available in the United States. (In Russia, she says, medical students specialize quickly. "And my specialty is so broad-based, I need to know medicine really well.") "A residency in the United States is a really good opportunity to become a better physician," she says. So Nurutdinova took steps 1 and 2 of the United States Medical Licensing Examination at great expense and effort, applied to Yale's internal medicine residency program and got in. She'll complete the program in June at age 29.

After more than two years in New Haven, her trip back to Kazan in September for tuberculosis research was a welcome chance to see her family. Her next goal is to secure a fellowship at an American hospital where she can learn to write grants. But she plans to return to Kazan to do research on HIV/AIDS, a growing problem in Tatarstan. "You have to go to the United States and stay there for some time to realize the place you belong to is home," she said during her visit to Kazan. "I had this first surge of thinking that maybe I should stay in the United States. But I'm not going to be useful by staying there. That's not going to make sense with what I want to do with my life. Besides, I miss my family so much."

Another Yale exchange alumnus, urologist Dmitri Tarassevitch, M.D., wants to follow a similar path, at least the part that takes him back to the United States for a residency. But he is less tied to home. Reflecting on his goals in an e-mail, Tarassevitch described his frustration with Russia's lack of funding, good medical equipment and up-to-date research. His goals are wide-ranging. He hopes to participate in international programs, like those of Doctors Without Borders. And he, too, wants to settle in Russia—eventually. "I love my country, my people, teachers, friends, colleagues," he wrote. "The problems and needs of Russia are too familiar to ignore them. I would love to serve people and to know that people need me. But I would also like to be a man of the globe, not to confine myself to a narrow region with borderlines. Doctors must be like that, I believe."

Sitting at his desk in Kazan, deputy rector Alexei Sozinov, M.D., an associate professor of infectious diseases, is well aware of the potential for brain drain. He says he understands and accepts that students will be attracted to opportunities abroad. "It's life," he says. "Everyone wants to have a good life. And the residencies in the United States are the best in the world." More troubling is the potential loss of faculty. In the physiology department, for example, about 10 professors have left for the United States and Europe. But despite the risk of losing other faculty members, his commitment to international programs is strong, evidenced by his animated tone—not to mention the large collection of mugs from around the world that decorates his office. For one thing, the exchange of ideas and people will make Kazan State Medical University a stronger institution and a more desirable place to teach, study and do research.

Sozinov told a story: "Several months ago, President Putin met in St. Petersburg with students. Russian students asked him this very question about the problem of young, talented Russians wanting to get out. Putin says, 'Of course, we're concerned that young people with good educations are going to leave the country. It's a real loss, and it's even an economic loss. But we'll never use old measures to stop this process. We'll never close the country. Our goal is to make life in Russia much better so that doctors and teachers will want to stay here.' And I share these ideas 100 percent. I have the same point of view." **YM**

Anne Thompson, an international editor with The Associated Press in New York, was an AP correspondent based in Berlin from 1996 to 1999. She received her master of fine arts degree in painting from Yale in May 2002. John Curtis is a photographer and the associate editor of *Yale Medicine*.

BELOW Elvera Manapova, left, and Alla Selezneva spent part of the fall and winter at Yale-New Haven Hospital and St. Mary's Hospital in Waterbury.

From two traditions of medical education, the makings of "a perfect doctor"

From the role of technology in American medicine to the tone of the doctor-patient relationship and scores of other details, life in a hospital in the United States was an eye-opener for Russian doctors Elvera Manapova, M.D., and Alla Selezneva, M.D.

The two women traveled with a group of physicians from their native Kazan in the fall of 2002 to spend four to six months at St. Mary's Hospital in Waterbury and Yale-New Haven Hospital under Yale's exchange program with Kazan State Medical University. Russians participating in the exchange don't practice medicine—they only observe. But what Manapova and Selezneva saw gave them valuable ideas for how to do their jobs better when they get back to Russia, as well as a new level of appreciation for the skills they already have.

At first, there was some culture shock.

Start with the patients: American patients are far more engaged with their treatment than Russians. They're even a little bossy.

"I think it's because you can see something on television every five minutes having to do with doctors," said Selezneva, sitting with her colleague in an office at St. Mary's. "People are not so interested in medicine in Russia. They know a lot, but they are not so much concerned about every disease, because we don't have so much information about medicine in the mass media."

Manapova agreed: "Here patients ask so many questions. 'Doctor, do you think if I use this will I get that?' 'You're giving me this medication? I heard this could be bad for my health.' "

Also strange for them was the way that American doctors tell patients directly that they have fatal illnesses, instead of the Russian way of telling a patient's relatives, and the way the patients react.

"Here doctors easily say probably you have cancer, but it's OK," Selezneva said.

"Yeah, it's OK. Don't worry; you will live. We'll give you chemotherapy," said Manapova, amused.

"And patients are not depressed by this!" Selezneva exclaimed. "I see so many patients who have breast cancer, lung cancer, cancer of the brain, and they are not depressed. I do not know why. Either they believe so much that medicine will help them, or they take life like it is."

Selezneva, a neurologist, was already looking ahead to her return to Kazan, where she plans to apply her new, wider understanding of medication choices for various disorders. She also learned more efficient ways of using MR and CT scans, expensive and time-consuming back home at the No. 1 Republican Hospital, where there is only one of each machine. She learned at St. Mary's that it isn't necessary to run both scans for certain conditions, and can now be more selective about which to use.

But technology is not the ultimate answer for treating patients, both women realized. They were shocked by how infrequently American doctors do complete physical exams for patients, rarely having patients completely undress unless to check for skin cancer.

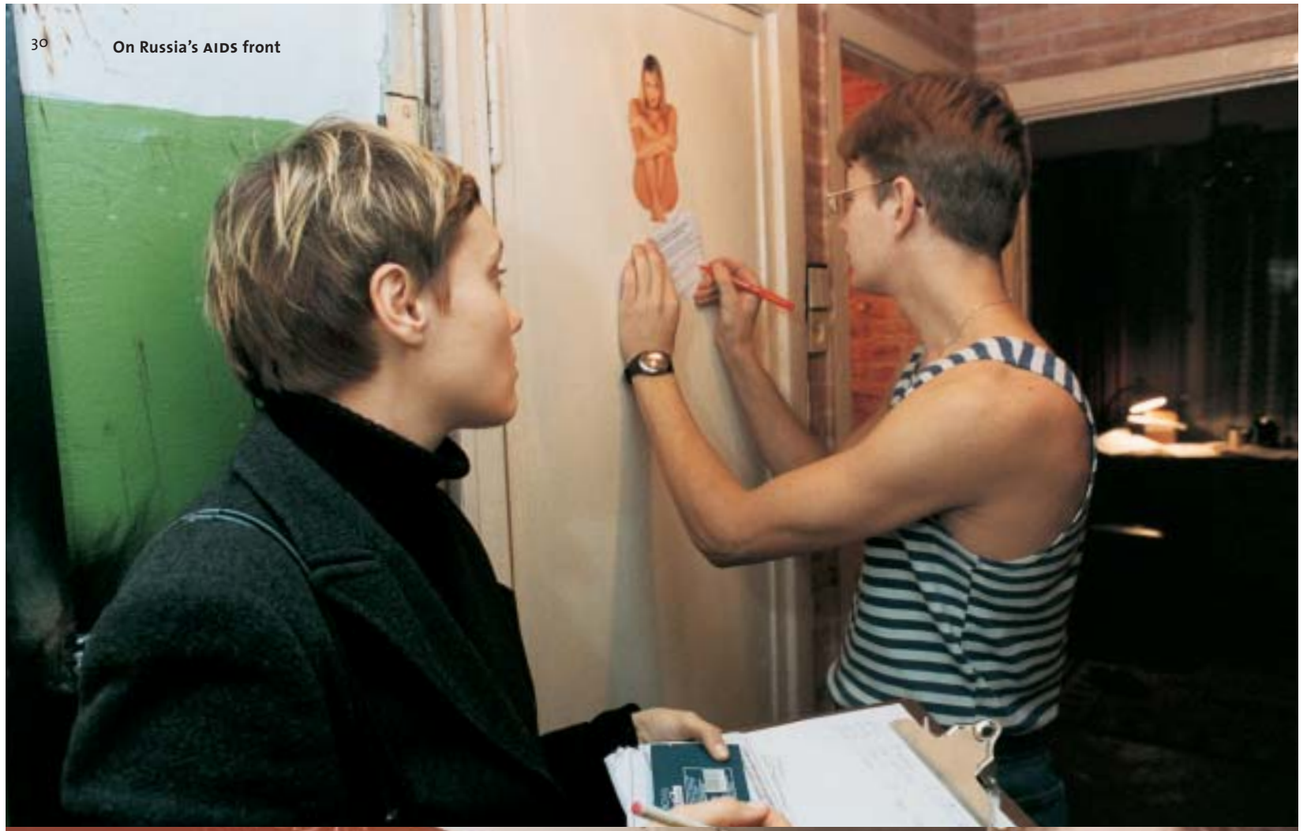
Testing reflexes, for example, is still such a time-honored procedure in Russia that Selezneva uses a reflex hammer she inherited from her great-grandfather. In this way, she's able to detect problems like tiny brain lesions based on nerve reactions. "You can suspect something faster, and there are things you can find out only through physical exams," she said. "You can feel them and see them. You just need to watch the patient."

Manapova, an infectious disease specialist, often uses the technique of percussion: gentle pounding on the patient's body with the hand and listening to the sound. A lung sounds different if it has fluid in it, she says, demonstrating soft, sharp raps with her hand on her own arm. "Even though we don't have equipment, we have smart doctors who are good at clinical diagnosis," she said.

The ideal, they agreed, is to have the best of technology but not to give up the old ways that work—perhaps the biggest lesson of their visit. "To combine all your techniques and skills, that would be perfect for patients, perfect for everyone," Selezneva said. "You'd be the perfect doctor, a god!"

On Russia's AIDS front

A dozen years after the fall of the Soviet Union, Russia is a focal point of the world's fastest-growing AIDS epidemic. Now Russian scientists and their counterparts at Yale are working to stem the tide. A letter from St. Petersburg.



OPPOSITE TOP Katya Chivilyova, left,a graduate student in sociology, interviewed a college student for the "popular opinion leader" study, which is designed to use existing social networks in the dorms to deliver AIDS prevention messages.

OPPOSITE BOTTOM Maria Vasianina and Fyodor Pogorelov, graduate students in psychology, compared notes on their survey. Nikolai Sokolov, right, an associate professor of sociology, was one of the team's leaders.

LEFT Psychology professor Alla Shaboltas trained at Yale and is supervising the students in the popular opinion leader study.

On a cool evening early last October, half a dozen graduate students of psychology and sociology began knocking on doors in a college dormitory in St. Petersburg, Russia, to ask the residents a simple question: "Whom do you talk to most?" As a reward for writing down the names of five people, each respondent received a chocolate bar.

Several hundred students live in the five-story dormitory at the Ioffe Physico-Technical Institute, which grants degrees in engineering, marketing and economics and boasts a Nobel laureate on its faculty. Yet despite the institute's prestige, the residence halls have no lights in the stairwells and only dim fluorescent bulbs to illuminate the hallways. A few students have quarters to themselves but most double or triple up, cooking on electric hotplates in their rooms or on gas stoves in the kitchens on each hallway.

The simple question about social contacts lies at the heart of a plan to reduce the spread of HIV/AIDS in St. Petersburg. The strategy is to use social networks within the dorms to raise awareness of the disease and the means of avoiding it. "There is a lot of risk in terms of sexually transmitted disease and HIV," says Alla V. Shaboltas, PH.D., an associate professor of psychology at Saint-Petersburg State University who is supervising the graduate students in their survey. Indeed, the group's initial findings indicate that 15 percent of dormitory residents carry a sexually transmitted disease and almost 1 percent are HIV-positive, suggesting high rates of unprotected sex.

And this is what worries Russian health officials. Until now, intravenous drug use has driven the AIDS epidemic throughout Russia. About 90 percent of those infected are drug users, and 80 percent of infections occur in
people younger than 29, according to a recent report by UNAIDS, the arm of the United Nations charged with developing AIDS prevention, research and treatment strategies.

Now the virus is poised to spread through sexual contact. By virtue of their age, dorm-dwellers are at the highest risk of infection in one of the countries at the heart of the world's fastest-growing HIV/AIDS epidemic. Government figures show that St. Petersburg, with a population of 5 million, has 16,000 HIV/AIDS cases. The real number is probably closer to 100,000, according to UNAIDS.

At the end of 1998, the number of HIV infections for all of Russia stood at slightly under 11,000, UNAIDS says. Halfway through 2002, federal health officials pegged the number at more than 200,000, an 18-fold increase that many believe severely underestimates the spread of the disease. Unofficial estimates run as high as 800,000 to 1.2 million.

Although the government and non-governmental organizations have gotten a few harm reduction and prevention programs off the ground in the last two years, UNAIDS believes they need to be expanded, that access to sterile needles and syringes should be increased and that stronger efforts should be made to reduce the risk of sexual transmission from drug users to their partners.

The survey, undertaken in collaboration with Yale's Center for Interdisciplinary Research on AIDS (CIRA) and the Medical College of Wisconsin's Center for AIDS Intervention Research (CAIR), is funded by the National Institute of Mental Health. It is one component of an international study taking place not only in Russian college dormitories but also in marketplaces in China, slums in Peru and communities in India and Zimbabwe. Roman Dyatlov, PH.D., an assistant professor of biology and soil science at Saint-Petersburg State University, is the project manager in St. Petersburg; the principal investigator is Wisconsin professor Jeffrey A. Kelly, PH.D., who originally developed the intervention model being evaluated in the study. CAIR scientists have shown its efficacy in reducing high-risk sexual behavior among various populations in the United States. Shaboltas, who heads the intervention group in St. Petersburg, is applying skills and knowledge she gained as part of the first wave of Russian psychologists, physicians and scientists to train at Yale's School of Public Health under a grant from the National Institutes of Health's Fogarty International Center.

International approach to a global threat

Since 1999, the Fogarty program has sent scientists from Saint-Petersburg State University and the Biomedical Center in St. Petersburg to train and study at Yale and the Medical College of Wisconsin. Thirty Russians have come to Yale and Wisconsin to learn epidemiological techniques and interventions. Four Yale scientists have gone to St. Petersburg to study the epidemic and implement research projects with Russian colleagues who have completed their training. Now researchers from both sides of the Atlantic are working together on public health projects, conducting and evaluating HIV prevention programs, provid-

Alexei Kozlov, left, founder of the Biomedical Center in St. Petersburg, and Michael Merson, dean of public health at Yale, have been working together for years on projects designed to slow the spread of HIV/AIDS in Russia.

Sitting at the mouth of the Neva River, St. Petersburg seems to have as many waterways as roads.

Natalia Khaldeeva, one of the first physicians in St. Petersburg to treat patients with AIDS, came to Yale for further training in infectious diseases.

The highly regarded Saint-Petersburg State University sits on the bank of one of the branches of the Neva.

ing case management of tuberculosis in Russian prisons and assessing the risk of contracting sexually transmitted diseases among drug users.

Yale public health faculty working at CIRA and scientists from CAIR first approached colleagues in St. Petersburg in 1997. "Our initial interest stemmed from the belief that Russia and other newly emerging democracies in Eastern Europe would soon confront a major HIV epidemic driven by injected-drug use and that HIV prevention research would be essential to ensure effective control efforts," says Michael H. Merson, M.D., dean of the School of Public Health, who before coming to Yale was director of the Global Programme on AIDS at the World Health Organization. "We were alarmed that the epidemic in Russia was going to explode." In St. Petersburg, and throughout Russia, health officials were already taking steps to contain the epidemic: St. Petersburg had a city AIDS center and a needle exchange similar to the one launched in New Haven in 1990. The concern was that the programs weren't reaching all who might need them and that more was required to make people aware of the risks they faced.

In 1997 Merson began talking with Andrei P. Kozlov, PH.D., a Russian microbiologist who had studied with Robert Gallo, M.D., one of the scientists credited with discovering HIV. Kozlov had also founded the Biomedical Center, a nonprofit research institute in St. Petersburg. In 1999, the first four Russian researchers came to Yale and Wisconsin.

Kovloz says he was interested in working with Yale because the collaboration would open the door to international funding for HIV/AIDS prevention work in Russia. Other programs would surely follow, he felt. And it would give Russian public health workers access to Yale's faculty and resources. "We needed the international expertise," Kozlov says. "We decided to think big and include people from different disciplines—biology, medicine, sociology, psychology, management, international relations and statistics. We trained an excellent group of people who are now leading the grants."

A migration of knowledge

The early trainees have returned to St. Petersburg and are beginning their own intervention and treatment studies. Russian scientists continue to travel to New Haven for training, and Merson is leading an effort by Yale with the support of several public health schools in the United States to implement the first university-based public health master's-level program in Russia (See sidebars, pp. 35 and 36).

Natalia A. Khaldeeva, M.D., PH.D., the only physician in the initial group of four to study at Yale, is in a unique position to trace the path of the epidemic in St. Petersburg. Originally trained in infectious diseases, she was one of the first doctors to treat AIDS patients in St. Petersburg in the late 1980s. "I can remember the first patients with AIDS," recalls Khaldeeva, noting that they numbered fewer than 100. "We knew them all by face."

Most of those early patients had become infected through sexual contact. By the mid-1990s, however, the demographics had changed. "We had more and more and more patients," says Khaldeeva, who after a year and a half at Yale returned to St. Petersburg to a new job as clinical director at the Biomedical Center. "Most new cases were detected among drug users. We started to count HIV patients in the hundreds and thousands. Before, we counted by tens."

While at Yale, Khaldeeva studied epidemiology and worked at the Yale AIDS Program, learning to apply antiretroviral therapies that remain scarce and costly in Russia. She returned to St. Petersburg in May 2001, and by October of last year, she had moved into her office at the Biomedical Center. For her re-entry grant, she had recently collected data for a study of 250 drug users newly diagnosed as HIV-positive. Her objective was to describe their clinical characteristics in order to improve their medical care and plan therapeutic and prophylactic measures. Her study also looked at differences in clinical manifestations related to age, sex, duration of drug abuse and immunologic status.

"Who are the newly infected?" she asks. "What clinical manifestations and comorbidities are present? We have to be prepared to plan for the future."

Khaldeeva is also playing a role in the center's efforts to find a vaccine against HIV/AIDS. She is examining differences in the functioning of the immune system in drug users and non-drug users. "We have to know those differences," Khaldeeva says, adding that investigators need to know how a vaccine will affect an immune system compromised by drug use. "The purpose of this study is to describe the clinical and immunological factors of the injecting drug user population. It is important because it is the population at highest risk."

Kozlov, who is leading the vaccine study, is well aware that an effective vaccine has so far eluded scientists. The virus's ability to mutate into new forms has been hard to overcome. But, he says, a vaccine must be pursued, along with other prevention and treatment efforts. Looking back to smallpox for a historical parallel, he cautioned that a quick fix is unlikely. A smallpox vaccine first became available in the late 1700s, but it took almost two centuries to eradicate the disease. "If tomorrow we had a 100-percent-effective vaccine," Kozlov says, "it would take us about 100 years to contain and eradicate the epidemic."

A crisis from abroad

Both drug use and AIDS were rare in Russia until the fall of the Soviet Union in 1991. Several factors coincided to bring about an epidemic first of drug addiction, then of HIV. Over the past 10 years world heroin production increased fourfold, according to UNAIDS, largely as a result of civil war in nearby Afghanistan. When warlords turned to opium production to finance their fighting, supplies of heroin traveled along new smuggling routes through Central Asia to Russia and Eastern Europe. The drug found fertile ground in a society that was struggling to reinvent itself after the collapse of the Soviet system, which had ruled for more than 70 years. Since the mid-1990s inflation has jumped from 7 to 22 percent and the percentage of those living below the poverty level has increased from 25 percent to about 40 percent. Almost 9 percent of the people are unemployed, according to the CIA's World Factbook 2002. Underemployment is rampant and many young people are disaffected by the poor economy and lack of jobs.

At first, according to Kozlov, there was official as well as societal denial that there could be a health crisis. "There could be no AIDS because Russian people had no sex," he says with more than a little irony. And the initial low infection rates and slow progression of the epidemic lulled health officials into a false sense of security. "It was so slow that

Yale researcher Nadia Abdala, left, will analyze blood samples for sexually transmitted diseases in order to determine the success of the popular opinion leader study in changing behavior. At the Biomedical Center in St. Petersburg last fall, Abdala consulted with microbiologist Marina Timofeeva.

it was not important." Stigma also played a role—AIDS was seen as affecting only people on the margins of society—drug addicts, prostitutes and homosexuals.

Now, there are two figures that bear watching, Kozlov says. One shows that 0.74 percent of college dormitory residents have HIV/AIDS. "That is very big for us. Among sexually active young people, almost 1 percent have HIV," he says. "The other figure from our studies shows that 37 percent of drug users have HIV."

Kozlov believes these figures show a need for greater awareness of the risks of AIDS and says Russia has begun mobilizing resources to prevent its transmission. "We are studying scientifically based interventions, we are training teams of researchers and social workers and we are working on federal programs which will involve the whole educational system from higher education to elementary education. This is our idea—to bring preventive messages to people," he says.

Behavior and prevention are on Shaboltas' mind as she applies techniques first developed for advertising in her survey of dormitory residents. "This idea is not new," she says. The model for her survey and the intervention that will follow were first used as marketing tools to encourage consumers to accept new products. Here they will be employed to nudge people into healthy lifestyles. Shaboltas' target is risky sexual behavior. "Our goal is to increase condom use and reduce unprotected sex with both casual and steady partners," she says.

Looking for leaders

Shaboltas' experiment on this fall night is more than a mere popularity contest. Her graduate students have spread out through the top two floors of the five-story building, asking students to put the name of a good friend on each of five cards. After a couple of hours of knocking on doors, Shaboltas is pleased with the results. Her students have collected more than 100 cards and found the dormitory residents generally receptive to the survey, despite those who write in Vladimir Putin.

Shaboltas' next task is to sort through the cards for the names that crop up most often. These are the students who will be designated, in the jargon of the survey, as popular opinion leaders. Shaboltas will then attempt to recruit them to a subtle program for increasing HIV/AIDS awareness. "We will go to these people and say, 'Would you like to do something for your community in HIV prevention and participate in training?' " she says. The training—five sessions of up to two hours—provides basic information on HIV and its transmission as well as advice on how to provide prevention messages in conversations with friends and neighbors.

To be effective, the opinion leaders need only be themselves. "They should behave naturally," Shaboltas says. "They should put prevention messages into everyday conversations, using a lot of their own experiences. They could say they have their own risk for HIV. They should not behave as experts. They should just talk."

Shaboltas and Dyatlov, working with CAIR's Anton Somlai, ED.D., plan to repeat the program at 20 dormitories, where 2,000 students are expected to participate in the study. Ten dorms will serve as controls, while the other 10 will undergo this intervention. Rather than rely on self-reported data to gauge results, the investigators have turned to hard science to determine whether behaviors have changed. Laboratory techniques including ELISA, PCR and Western blot will determine the presence of sexually transmitted pathogens.

Nadia Abdala, D.V.M., PH.D., an associate research scientist at Yale, is working with the laboratory at the Biomedical Center to analyze blood samples donated by volunteer participants in the survey—one at the start of the intervention and a second one a year later. "That is where we want to see a drop in risky behavior," says Abdala. "Studies in St. Petersburg have shown that people can be very misinformed about how HIV is transmitted, or they might have a negative attitude toward condoms or not know how to use condoms safely."

Such a marriage of the basic and social sciences, microbiology and psychology, is one of the main lessons Shaboltas brought back to St. Petersburg from Yale. "For us that was a new area," she says. "I had never been involved in collaborative work with specialists from other sciences. AIDS, because of its nature, is a multidisciplinary problem."

With Russian physicians and social scientists beginning to work together, Kozlov believes all these efforts are essential to fight the epidemic. "We must contain it," he says. "We have no choice." YM

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

Campaigns in the war on infectious disease

A total of eight Yale faculty members, CIRA scientists and researchers in St. Petersburg are working together on interventions and studies aimed at slowing the spread of AIDS and other infectious diseases.

Russian physicians and scientists trained at Yale and the Medical College of Wisconsin

Roman Dyatlov, PH.D., returned to St. Petersburg in 1999 and is manager of the popular opinion leader (POL) project that hopes to change the risky behaviors of dormitory residents.

Olga Bordkina, PH.D., a sociologist, is also working on the POL project and supervises master's and doctoral programs in HIV/AIDS prevention training.

Juliana Granskaya, PH.D., a psychologist, is working with colleagues to introduce a system to manage active cases of tuberculosis in inmates immediately upon their release from prison.

Olga Bogoliubova, M.SC., studies the role of community work in HIV prevention and HIV risks among homeless adolescents.

Yale faculty doing research in Russia

Michael H. Merson, M.D., dean of the School of Public Health, is principal investigator on an interdisciplinary project to train Russian scientists in HIV prevention research methods.

Nadia Abdala, D.V.M., PH.D., is studying levels of HIV and sexually transmitted diseases among intravenous drug users.

Kaveh Khoshnood, M.P.H. '89, PH.D. '95, is the mentor for many trainees at Yale and project director of the program aimed at keeping inmates involved in tuberculosis treatments after their release from prison.

Robert Heimer, PH.D., seeks to duplicate in the laboratory the steps commonly used in the manufacture of liquid opiates. Blood is sometimes used, raising the possibility of rampant HIV infection, but Heimer hopes to determine whether the virus survives the manufacturing process.

TOP Igor Gorlinsky, dean of soil sciences and biology at Saint-Petersburg State University, will head the first university-based multidisciplinary public health program in Russia.

ABOVE After receiving a public health degree at Yale last year, Svetlana Palamodova returned to St. Petersburg, where she is helping coordinate the new program and pursuing her own study of tuberculosis.

International effort fosters a new approach to public health training in Russia

Since an initial visit to St. Petersburg in 1997 to explore collaborative work on HIV prevention, Michael H. Merson, M.D., dean of public health at Yale, has made five trips across the Atlantic to support efforts to stem the AIDS epidemic in Russia. In October and January he traveled again to St. Petersburg on a different mission. Yale is helping to launch the first master of public health training program in Russia, to be based at Saint-Petersburg State University.

"It is really a recognition that there needs to be a strengthening of the public health work force to deal with HIV and other infectious and chronic diseases in Russia," Merson said on his return from a planning trip to St. Petersburg in October. "There is very little in the way of public health programs focusing on prevention in Russia."

According to Merson, public health has followed a different model in Russia than in other developed nations, including the United States. In Russia, public health practitioners are trained in medical schools as health administrators and managers. As the country faces an ever-increasing array of health problems, there is an urgent need for people trained in prevention programs and in epidemiology, the social and behavioral sciences, and public health.

"We have several epidemics," said Andrei P. Kozlov, PH.D., founder and director of the Biomedical Institute in St. Petersburg, and one of the partners in the initiative. "We have AIDS. We have TB. We have injection drug use. We have sexually transmitted diseases." He says life expectancy in Russia, currently 59 years, has dropped 20 percent in the past decade due to increased deaths from chronic disease. Those ailments include cardiovascular disease, diabetes, cancer and obesity.

The public health program envisioned in St. Petersburg would join experts from a variety of disciplines in a common goal. It would also run up against a longstanding belief in Russia that physicians must handle all aspects of health care. "Here people expect that if you are involved in anything having to do with health, you have to have medical training," said Svetlana Palamodova, M.P.H. '02, who returned to St. Petersburg last year after completing her graduate work at Yale. "They don't realize that for a lot of jobs you don't necessarily need to have a medical background, for example in social work, health administration or prevention work."

Since her return to Russia, Palamodova has been working on a study of tuberculosis. Because of her fluency in English and Russian and her knowledge of Yale, she has helped organize the new public health program.

The program would be the first to bring together Russian faculty from different departments to educate students in social and behavioral sciences and global health. "We have started to create a more open society. We are looking for new models," said Igor A. Gorlinsky, PH.D., dean of the faculty of biology and soil sciences at Saint-Petersburg and head of the university's institutional review board. Gorlinsky will head the new program. "We have to start multidisciplinary programs and projects. The most suitable place is a classical university with multidisciplinary potentials." The program will draw people from 12 faculties in the social and basic sciences to teach courses in biostatistics, epidemiology, environmental health sciences, health services administration and management, social and behavioral sciences, bioethics and global health. "These programs are very complex, and we need to involve people from psychology and other departments and specialties," Gorlinsky said.

Will it be difficult to build a new program from the ground up? Kozlov sees no major obstacles. "Many faculty members are already trained for this project," he said. "I see some technical problems. Who will teach epidemiology? Should we train this person at Yale? Maybe we should bring a teacher from Yale?"

Funding is expected from the Russian Ministry of Education, but other funds will be needed to cover the estimated $2 million cost of training faculty in the United States and providing computing facilities, reference books and journals.

Gorlinsky expects that it will take another year or two to set up the program and another two years for the first public health class to complete its studies. Details of the collaboration were agreed upon at a three-day workshop in January attended by Russian deans from many faculties at the university and representatives from Yale, Johns Hopkins, Emory, the University of Alabama, the State University of New York, the University of Illinois in Chicago, the University of North Carolina, three schools in Europe, various institutions in Russia and The Open Society Institute.

"This initiative is very important," Kozlov said. "[Saint-Petersburg] will set up a model for the whole country and through its associations with Russian universities will promote it in the whole country."

Unleashing the power of one

As a third-year student comes to learn, an individual can make a real difference in the fight against AIDS.

When I tell people that I'm doing research on AIDS in Africa, they tend to approve of what I do but pity me for doing it. These days, almost anything related to AIDS is rubber-stamped with importance, the very letters of the word boldly capitalized on magazine covers and front pages day after day. The press, however, invariably infuses its coverage of AIDS with a rhetoric of devastation, of doom, of impotence. A vaccine is still years away and it seems as though the combination of poverty, gender inequality and despotic governments makes the epidemic nearly impossible to combat. Thus, the pity lacing the approval does not surprise me. Every day when I think about the problem, I feel much as I do on Election Day—like a drop in the bucket, and I doubt I am alone. An increasing number of people inside and outside the health professions seem to be asking themselves, "What can I do?"

For physicians, the options might be obvious, but everyone has a role: the pandemic is inherently a multidisciplinary problem whose solution requires the dedication not only of health professionals, but also of economists, politicians, writers, actors, artists, manufacturers and advertisers. We all have something to offer, from the physician who can educate others how to treat HIV, to the mother who can counsel teens about sex, to the filmmaker who can make a video to distribute to people in rural areas. The trick to stimulating individual action is to understand our unique strengths and resources.

Here at Yale, several organizations promote global AIDS action. At the broadest level, the Yale AIDS Network is an interdisciplinary coalition of students and faculty that has sponsored lectures, petitions and protests. One of the founders of the group is Amy Kapczynski, the law student who famously petitioned for Yale and Bristol-Myers Squibb's release of the patent on the anti-retroviral drug d4T. Medical, nursing and public health students have their own group, the Health and Human Rights Committee, which has sponsored a symposium on AIDS in Africa, a movie night and a cultural show. And the Yale Project for Health Action has sent students to do AIDS education work in South Africa for three years in a row.

Over a dozen students have performed HIV/AIDS research abroad through the Committee on International Health's Wilbur Downs fellowships (See *To the Four Corners of the Globe* ..., p. 41), while faculty research at Yale ranges from work on a vaccine by John K. Rose, PH.D., and Nina F. Rose, PH.D., to trials by Gerald H. Friedland, M.D., which seek to overcome the barriers to anti-retroviral treatment adherence in Africa.

Nor is AIDS action limited to those in academic medicine. Private-practitioner volunteers are the lifeblood of the Nobel Prize-winning Doctors Without Borders, which distributes AIDS anti-retrovirals around the world, from Kenya to Guatemala. For physicians unable to make the trip abroad, New Haven pediatrician Ronald Angoff, M.D., HS '75, suggests asking drug representatives for names of top company executives. Angoff regularly e-mails key industry players to advocate expanded global distribution of drugs that block maternal-child HIV transmission. As citizens of the United States, we can take advantage of opportunities such as last December's World AIDS Day call-in to Congress. As consumers, we can do small things with our pocketbooks, like buying red ribbon pins at The Body Shop that contribute to the Global AIDS Fund.

Perhaps most importantly, we can simply talk about the AIDS pandemic. We Americans are apathy's children, so desensitized by the daily news that we can't even register the horror of 28 million people dying from a disease that in the United States is now considered a chronic illness. Talking about things, caring about things, is the first step in creating action. We must educate our children, make them aware of the effect that millions of deaths in the developing world will have on the world's economy, and on our collective consciences. If we can't make a direct difference, perhaps they can and will. If we are too old to mold our careers to the AIDS problem, they are not.

Ilene Wong is a third-year student at the School of Medicine.

BOB HAMBLY

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Chair of medicine becomes dean in Ohio

Search begins for replacement as Horwitz takes the reins at Case Western's medical school.

Ralph I. Horwitz, M.D., FW '77, a leader in the field of clinical investigation and chair of Department of Internal Medicine at Yale since 1994, has moved to Case Western Reserve University in Cleveland to head its medical school.

Horwitz also heads the new Case Research Institute, a joint project of the Case Western Reserve University and the University Hospitals Health System, and he is overseeing the establishment of a new M.D. program at the School of Medicine to train physician investigators. The Cleveland Clinic Lerner College of Medicine—born of an alliance between Case Western Reserve University and the Cleveland Clinic Foundation—will offer a five-year curriculum emphasizing clinical research. An inaugural class of 30 students will begin its studies in 2004.

Horwitz, who assumed the deanship of the 160-year-old medical school April 1, said he will be guided by "a powerful commitment to integrating public health into clinical medicine."

ROBERT LISAK

Ralph Horwitz

He plans to reshape the curriculum at Case Western Reserve medical school, which graduates 140 students each year. "I want to balance the biology of disease with the context of illness, to give priority to both the care of the individual patient as well as the health of the public." He plans to foster research "that cuts across the spectrum from fundamental biology on the one hand to the most integrated patient-based clinical research on the other."

Horwitz said his greatest satisfaction during 25 years at Yale derived from co-directing the Robert Wood Johnson Clinical Scholars Program, which trains physicians to conduct and evaluate patient-based research. Horwitz said the roughly 100 graduates of Yale's program have had "an enormous impact" in establishing the field of patient-oriented research. Horwitz's legacy to the department "will be compassion and rigor in the care of our patients, a spirit of vigorous scientific inquiry, and service to the larger community," said **David L. Coleman**, M.D., HS '80, chief of the medical service at the VA Connecticut Healthcare System in West Haven and acting chair of medicine.

Horwitz's wife, **Sarah M. Horwitz**, PH.D., also has a new job. Formerly an associate professor of epidemiology and public health at Yale, she is now a professor of psychiatry at Case Western.

The Horwitzes' journey west has historic parallels. Connecticut pioneers led by David Hudson settled in the Connecticut Western Reserve in 1799. Connecticut had claimed the Reserve, a tract in what is now northeastern Ohio, after the Revolution. Hudson helped found Western Reserve College in 1826. Modeled on Yale, it became known as "the Yale of the West": many early professors hailed from Old Blue, as did its second president, the Rev. George E. Pierce. It was Pierce who started the College of Medicine of Western Reserve College in Cleveland.

—Cathy Shufro

Linda Degutis

Joel Gelernter

Linda C. Degutis, DR.PH., associate professor of surgery (emergency medicine) and public health, and associate clinical professor of nursing, was elected in November to a four-year term on the Executive Board of the American Public Health Association (APHA) at the annual meeting in Philadelphia. APHA is the oldest and largest organization of public health professionals in the world.

Joel E. Gelernter, M.D., professor of psychiatry, **Robert Malison**, M.D., associate professor of psychiatry, and colleagues have been awarded a $1.6 million grant from the Fogarty International Center of the National Institutes of Health and seven partners. The grant, one of six new research and training grants made by the center, is to be used to conduct an international research-training program in the genetics of drug dependence. The Yale team will collaborate with the Faculty of Medi-cine at Chulalongkorn University in Bangkok, Thailand. The project will support Thai research fellowships for training in the United States and a one-month field exchange in Thailand for U.S. trainees.

Fadi G. Lakkis, M.D., associate professor of medicine (nephrology) and immunology, received the 2002 Young Investigator Award from the American Society of Nephrology (ASN) and the American Heart Association. The annual award, which recognizes investigators under the age of 41 for excellence and creativity in nephrology research, was presented in November at the ASN annual meeting in Philadelphia. Lakkis presented a plenary address describing his path-breaking studies on the mechanism underlying rejection of transplanted organs. He is the fifth Yale faculty member to receive the award.

Fadi Lakkis

Brian Leaderer

Theodore Holford

Curtis Patton

Nancy Ruddle

Tongzhang Zheng

Mark Schoenfeld

Jack Sinclair

The following appointments have been made at the School of Public Health: **Brian P. Leaderer**, M.P.H. '71, PH.D. '75, the Susan Dwight Bliss Professor of Public Health (environmental health), was appointed vice chair and deputy dean. His main responsibilities in this position will include overseeing the M.P.H. program curriculum and other departmental master's-degree programs, and developing and coordinating interdivisional research and training programs at EPH. **Theodore R. Holford**, PH.D. '73, professor of public health (biostatistics), and professor of statistics, has been appointed the Susan Dwight Bliss Professor of Epidemiology and Public Health. Holford, who specializes in the development and application of statistical methods in public health and medicine, has focused his research on how trends in cancer epidemiology are described. **Curtis L. Patton**, PH.D., professor of epidemiology (microbiology), will serve as the head of the Epidemiology of Microbial Diseases Division. **Nancy H. Ruddle**, PH.D. '68, associate professor of epidemiology, microbiology and immunobiology, and director of graduate studies in epidemiology and public health, was named the John Rodman Paul Professor of Epidemiology and Public Health. Ruddle is known for her discovery and analysis of lymphotoxin, a protein produced by T cells that aids in protecting the immune system and destroying tumor cells. **Tongzhang Zheng**, SC.D., associate professor of epidemiology (environmental health), will serve as the head of the Environmental Health Sciences Division.

University President **Richard C. Levin** received The Hill Development Corporation's Annual Courtland Seymour Wilson Community Builder Award for his efforts to build a partnership with the city of New Haven and, in particular, the Hill neighborhood. Also honored at a ceremony in December were Jorge Perez, president of the New Haven Board of Aldermen, and Charles Williams, principal of Hill Regional Career High School.

Levin was honored for several partnership efforts with the city: the Yale Homebuyer Program, which has helped more than 520 Yale employees buy homes in the city; a program that allows Career High students to take courses at the medical school; the university's efforts to promote a local biotech industry; and summer programs that bring more than 500 New Haven high school students to the Yale campus for academic and athletic activities.

Bernard Lytton, M.B.B.S., the Donald Guthrie Professor Emeritus of Surgery, has been named the first director of the Henry Koerner Center, which opened in January to serve retired faculty members.

Lytton, who attained emeritus status in 1999, was the master of Jonathan Edwards College for many years. As college master Lytton organized teas with distinguished visitors and oversaw the Tetelman Fellows program, which brings noted scientists and others to the college for lectures and conversation with students. Among the visitors during Lytton's tenure was the Dalai Lama, who came to Yale in 1991.

The center, which occupies the second and third floors of the Pierpont House at 149 Elm St., serves as a place for emeritus faculty to meet and work and remain integrated in the life of the university. The center's 600-square-foot furnished common room will have an adjoining 300-square-foot seminar room for teaching, conferences and discussion. There will be 12 offices with computers and telephones assigned by the director to those involved in undergraduate teaching and to those participating in the programs of the center.

The center's donors, Lisbet Rausing, senior research associate at the Imperial College of Science, Technology and Medicine, and Joseph Koerner, Yale College '80, professor of history of art at University College London, named it after Joseph's father, Henry, whose paintings appeared on more than 50 *Time* magazine covers.

Pasko Rakic, M.D., PH.D., the Dorys McConnell Duberg Professor of neuroscience and chair of neurobiology, and **Patricia Goldman-Rakic**, PH.D., the Eugene Higgins Professor of Neurobiology, jointly received the distinguished Ralph W. Gerard Prize in Neuroscience at the 2002 Society of Neuroscience meeting in November. The Society endows the prize to honor and recognize outstanding contributions to the field of neuroscience. Rakic's research is centered on the early developmental events in the cerebral cortex, such as neuronal proliferation and migration. Goldman-Rakic's focus is the cellular mechanisms of cortical function relating to learning and memory and to disorders of higher brain functions.

Mark H. Schoenfeld, M.D., clinical professor of medicine, is currently serving as president of the North American Society of Pacing and Electrophysiology (NASPE). The society's mission is to improve care by promoting research, education and optimal health care policies and standards. Schoenfeld also served on a joint committee of the American College of Cardiology, the American Heart Association and NASPE to define the guidelines for implantation of intracardiac arrhythmias.

Jack C. Sinclair, M.D., adjunct professor in epidemiology and pediatrics and a pioneer in the care and treatment of critically ill newborns, was honored in October by the creation of the Jack Sinclair Chair in Neonatology at McMaster University in Canada. Sinclair is a professor emeritus of pediatrics and an associate member of the McMaster University Department of Clinical Epidemiology and Biostatistics.

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Volunteers dish out a taste of hunger

At the annual auction for hunger and homelessness relief, a sampling of what it's like to be "food-insecure."

TERRY DAGRADI (2)

TOP A spare meal awaited some of those who attended a "banquet" that was part of the 10th annual Hunger and Homelessness Auction.

ABOVE As they entered the banquet, diners were directed to meals typical of those who are "food poor," "food insecure" or "food secure."

An invitation to a banquet usually conjures up images of heaps of sumptuous food, a decadent dessert and a cup of gourmet coffee, all proffered by a hovering staff of solicitous servers. But a jarringly different scene greeted participants at the first hunger banquet at Harkness Lounge last November.

"We're hoping to give people a little taste of what it might feel like to not have total food security," said Jena M. Giltnane, a second-year medical student who helped organize the event as part of the School of Medicine's week-long hunger awareness project. The banquet was part of the 10th annual Hunger and Homelessness Auction, which in past years has raised as much as $30,000 for local charities. The proceeds of this year's auction will benefit New Haven Home Recovery, SH, the Downtown Evening Soup Kitchen, Youth Continuum and Life Haven. In addition to silent and live auctions, activities this year included a flag football game, a canned-food drive and panel discussions on health, hunger and homelessness.

The hunger banquet, modeled on a program sponsored by Oxfam International to raise awareness about global hunger, tangibly illustrates the disparities in food access that exist among New Haven residents. Approximately 60 diners drew tickets from a box and, based on the numbers on their tickets, received one of three meal assignments. The first group lined up for a typical meal served at a soup kitchen: watery barley vegetable soup and a slice of Wonder bread. The second group got the kind of meal you might have if you had to buy it at the corner convenience store: processed macaroni and cheese and a packaged brownie. The third group had three entree choices: sirloin tips, grilled tuna or a vegetarian grinder, served by waiters and waitresses.

"I think I'm going to be hungry when I finish this," said Allison F. Carey, a first-year medical student seated at the soup kitchen table. "I couldn't imagine doing everything I need to do tonight, if this was all I had to go on," added Mary Beth Turell, another first-year student.

"Actually, this rivals what I lived on when I was a poor college student. It got pretty bad sometimes," said classmate Bobby Ndu, eyeing a forkful of macaroni. "Where's the meat, that's what I want to know."

Students at the three-entree table were dealing with a different kind of discomfort. "I'm feeling kind of guilty," said second-year medical student Bart C. Kenny, glancing at all the half-eaten entrees at his table. "The conditions of the haves and the have-nots are not usually so vividly juxtaposed. We thought about donating some of our food to the other tables."

That dawning awareness is just the kind of reaction organizers were hoping for: a heightened sensitivity to the hardships faced by area residents who struggle to get enough nutritious food for themselves and their families (called "food insecurity" by those who work to alleviate hunger). According to Giltnane, close to 80 percent of children attending New Haven public schools receive free or subsidized school lunches, and nearly 9 percent of city households are food-insecure.

Keynote speaker Nancy Carrington, executive director of the Connecticut Food Bank, told the audience that unlike global hunger, which often manifests itself in malnutrition and starvation, the problem in the United States is more hidden. Food pantries, soup kitchens and subsidized school meals have greatly reduced the threat of starvation, but food security—the economic and physical ability to get nutritious food—remains a serious problem.

"Eating should not be a privilege; it should be a right," she said.

—*Jennifer Kaylin*

To the four corners of the globe, studying mosquitoes, hookworms and alcohol

On the surface, both strains of *Anopheles arabiensis* look the same, and inside their bodies, both types of mosquitoes have the potential to carry the malaria parasite—killer of at least one million people each year. But public health student Randolph Cheung knows that the difference between the two strains of mosquitoes is significant: one type always dies when sprayed with DDT, while the other type sometimes survives.

In July, Cheung went to South Africa to identify some of the genetic variations between the two strains of *A. arabiensis.* He was one of 13 Yale graduate students who did research abroad last summer with funding from a Downs International Health Student Travel Fellowship. "They have gone literally to the four corners of the world," said Serap Aksoy, PH.D., associate professor of epidemiology and public health, at a symposium in October featuring talks and posters on research by the fellows.

Cheung's corner of the world was the insectary at the Department of Medical Entomology at the National Health Laboratory Service in Johannesburg, where he spent three months analyzing genetic differences between the two strains of malaria mosquito. Entomologists can use this genetic information to figure out which strains of mosquitoes are genetically similar to the newly resistant strain—and therefore most likely to develop resistance themselves. Once they know where those strains are located, South Africa's public health officials can give priority to killing resistance-prone mosquitoes.

Cheung searched for genetic differences between the strains by extracting their DNA and comparing polymorphisms at eight sites on the gene. When Cheung finishes characterizing those differences for his master's thesis, entomologists will be able to use that information to classify different types of mosquitoes. The only way to tell the difference without genetic methods, according to Cheung, is to see if two mosquitoes that mate produce healthy offspring. If not, they probably belong to different strains.

Cheung spent his hours outside the lab volunteering in the emergency department of a public hospital and enjoying the differences between South Africa and his native California. "Everything was interesting: the weather, the people, the language, the architecture, the music, the food." He described as "surreal" the radical disconnection between the impoverished Hillbrow neighborhood where he worked and the deluxe shopping malls 15 minutes' drive away in Santon.

Last summer's Downs fellows came from the schools of public health, medicine and nursing and from the graduate school. Fellows included Jessica Kattan, a second-year medical student who analyzed medical records in Paraguay to research patterns of leprosy transmission to children; public health student James Moore, who surveyed teenagers in South Africa to study how drinking alcohol affects their nutrition; and Gladys Y. Ng, also at the School of Public Health, who spent the summer in a laboratory in China to find out whether mice could serve as animal models for testing potential hookworm vaccines.

The fellowship was established in 1965 and later named in honor of its founder, Wilbur G. Downs, M.D., M.P.H., who died in 1991. Downs was a specialist in tropical medicine and infectious diseases, a champion of international travel for students and a formidable fly fisherman who was a professor at the School of Public Health from 1962 to 1971.

—*Cathy Shufro*

Hunting down the "hostile" gene

An expert in type A behavior looks to biology to better understand the body's response to stress.

By Cathy Shufro
Photograph by Jim Bounds

The tools that Redford B. Williams, M.D. '67, HS '69, FW '70, is using to "try to save the world" have changed, but his preoccupations have not. For his first study in psychosomatic medicine as a medical student in the mid-60s, he wheeled a hulking Goddert haemotonograph (an early automatic blood pressure monitor) down the halls of Grace-New Haven Hospital, using the machine to measure blood pressure in patients undergoing deliberately stressful interviews.

Four decades later, as head of the Division of Behavioral Medicine at Duke University Medical Center, Williams is using "a whole new toy," the technology of the genomics revolution, to study how genetic variations might help explain differences in the body's response to stress. Williams continues to explore the same questions that intrigued him as a student: why are some people more likely than others to mount sharp physiological reactions to stress? How might that lead to disease? How can harmful reactions be tempered by changes in the patient's attitudes toward others?

As for saving the world, or a few of its denizens, Williams has developed books and courses to train people to use the findings of mind-body researchers to manage their daily lives. He has written two mass-market books—*Lifeskills: 8 Simple Ways to Build Stronger Relationships, Communicate More Clearly, Improve Your Health* and *Anger Kills: 17 Strategies for Controlling the Hostility That Can Harm Your Health*—both co-authored with his wife, historian Virginia Williams, PH.D. Their company, Williams LifeSkills, offers corporate workshops and a videotaped course. They believe that people can improve relationships by monitoring their feelings and, when anger arises, evaluating whether to react or let go of their anger and accept the situation. A 1999 study by Yori Gidron, PH.D., a researcher in the sociology of health at Ben-Gurion University in Israel, of 22 men with heart disease and high scores for hostility, showed that the men who took a course similar to the Williamses' reported fewer hostile feelings and had significantly lower resting blood pressures than did controls two months after taking the course.

Williams helped to determine that not all facets of the intense Type A personality are hard on the body. The "toxic core" of Type A behavior is hostility, which he defines as a tendency to anger easily, to view others with cynicism and to express antagonism. Williams' insights apparently have broad appeal: in 1998 he presented findings on the mind-body connection at a conference on Tibetan medicine hosted by the Dalai Lama, who mentions Williams' work in his book *The Art of Happiness: A Handbook for Living*.

Williams sees behavioral medicine as "what real medicine ought to be, where you're concerned not only with the biomedical aspect of the patient's condition but also how the psychological aspects of the patient and his or her environment affect the biomedical aspects. It's being a good doctor."

He might just as easily have become a lawyer. The choice was made for him by chance when he came north to attend Harvard from rural eastern Virginia, where his father worked for the farm bureau and where he'd met his future wife in junior high school. He decided to try for a spot in a freshman seminar, partly because it would entitle him to "a stack pass to Widener [Library], more valuable than gold." Williams applied for two seminars, one in political science, the other in behavioral science. Being admitted to the latter and finding it engrossing "totally pushed me toward medical school." A flirtation with biochemistry during medical school ended after a summer lab job that consisted largely of grinding up dog livers. As a fourth-year student, Williams chose a Yale residency in internal medicine over psychiatry, realizing he was interested in medical rather than psychiatric illness.

Since then Williams has investigated a broad range of questions, including the link between depression and death rates for heart disease patients and the effects of high-demand, low-authority jobs on workers. He has studied how the life spans of poor children are affected by how their parents treat them, how hostile spouses contribute to depression in their mates and how having young children affects the stress levels of working women.

Common to all this research is the study of the effects of interpersonal skills and economic circumstances on an individual's physiology. The hypothesis, gradually being borne out by research, is that certain stances toward the world, such as viewing other people cynically or feeling socially isolated, correlate with physical reactions that increase the likelihood that a person will develop a new illness or that an existing illness will worsen.

Redford Williams is applying the tools of genomics to explain differences in how individuals respond to stress.

The mapping of the genome and the accompanying technology have provided a new dimension for exploring these mechanisms. "It's like a whole new world has been opened up," Williams says during a phone interview from his home in Hillsborough, N.C. He's working on a study of 1,000 people—500 with high ratings for hostility and 500 siblings—to look for genetic bases of hostility. And he recently completed a study published in *Psychosomatic Medicine* showing that a genetic variation could be linked to reduced serotonin function, which has been associated, in turn, with health-damaging behaviors such as aggression and impulsivity. Williams and his colleagues found that intense reactions to stress are associated with variations in the gene that regulates reuptake of serotonin after it has been released. Subjects with a fairly common polymorphism of the gene showed larger cardiovascular reactions to stress than did subjects without the variation. The variation is present in only about 30 percent of Asians, 57 percent of Caucasians and more than 70 percent of Africans and African-Americans, which makes Williams wonder if the polymorphism contributes to the high rates of hypertension among African-Americans.

Williams hasn't learned the laboratory skills fundamental to the new gene technology. "I couldn't do a PCR to save my life," he admits with a laugh. His role, he says, has been to view health and behavior globally, "to see the forest," and to undertake studies with the help of experts in genetics and pharmacology.

Part of seeing the forest has been recognizing the practical implication of his research findings: that people need guidance to correct harmful attitudes and behavior patterns. Williams says helping people change "has until now been a craft," mastered by some therapists and bungled by others. With their course, he and Virginia Williams "are trying to take behavioral interventions and treatment and package them in ways that doctors anywhere in the country can even prescribe and count on their patients getting the same interventions." There's a therapeutic basis for prescribing such training, says Williams, because patients who are depressed, anxious or lonely are less likely to take medications or stick with other medical regimes than are their more contented counterparts. The National Heart, Lung, and Blood Institute of the National Institutes of Health is supporting a randomized clinical trial that is testing the efficacy of "LifeSkills" training for reducing high blood pressure.

Williams is not immune to the risks he studies. "I still have this hostile personality type, and I still mess up occasionally. But I'm better at listening, better at not firing off an aggressive remark, than I used to be. I'm still married to Virginia, which I probably wouldn't be if I didn't learn to manage these personality characteristics." He enjoys cavorting with his two grandsons and playing tennis, and he and his wife "pay lip service to the need for 'down time,' but we're very busy."

Despite the pressures, Williams says he is wholeheartedly enjoying a career in which he is trying to do what a physician is "supposed to be doing ... to improve the human condition by reducing the likelihood of disease developing, or to improve the prognosis of disease once it has developed."

Cathy Shufro is a contributing editor of *Yale Medicine*. Jim Bounds is a staff photographer for *The News & Observer* in Raleigh, N.C.

Karen Casper and Pieter Pil

Louis Del Guercio

Private practice on an island paradise, of sorts

Practicing medicine on Martha's Vineyard introduces an extra variable in decision making for **Karen Casper**, M.D., HS '97, and **Pieter M. Pil**, M.D. '96, PH.D.: the weather.

When presented with a complicated case, Casper, an emergency medicine physician, and Pil, a general surgeon, must factor in wind, fog and waves when deciding whether to treat the malady locally or send the patient to Boston. Patients needing big-city facilities go there by small plane, helicopter or ambulance (via ferry)—weather permitting.

Pil describes the 15-bed Martha's Vineyard Hospital in Oak Bluffs, with its two operating suites, as "state of the art," but it does not have a large blood bank and some specialists are not available full time on this resort island seven miles off the Massachusetts coast. Physicians there avoid doing high-risk surgery except when there's no time or no way to send patients to the mainland. "It's a whole new level of stress," says Casper. "You're hoping the Coast Guard will think it's safe; you don't want them on a helicopter and to have them go down."

Considering the medical implications of weather has been just one orientation to island life required of Casper and Pil since they moved to the Vineyard in July. The couple, who met at Yale, run into their patients everywhere they go. On an island with just 15,000 winter residents, "you're not anonymous," says Pil. "You know half the island." He likes that. "In a big hospital, you treat people and they disappear."

"You have to be aware of patient confidentiality at all times," says Casper. "It shouldn't be different, but it's more obvious."

Even in this small setting, Casper makes a broad spectrum of diagnoses in the ER. "I've seen everything from an atrial myxoma [a rare cardiac tumor] to tick-borne diseases." She's seen lots of tick-borne diseases: Rocky Mountain spotted fever, Lyme disease, babesiosis and even tularemia. Ticks cause so many illnesses that the hospital staff includes a full-time infectious diseases specialist. The staff also includes **Stephen W. Miller**, M.D. '67, an associate professor of radiology at Harvard Medical School and staff radiologist at the Massachusetts General Hospital. Since June 1998, Miller has directed medical imaging at the island's hospital. This arrangement includes a teleradiology link to Mass General.

The onslaught of tourists, who swell the summer population sevenfold to 105,000, quickens the pace at the hospital but also reduces the rate of locals seeking elective surgery. "Everybody earns a living in three months, so they're not going to get their hernia fixed in August," says Pil.

Pil says he has attracted a following among patients for a surprising reason: "The word is out that I speak Portuguese." An estimated 2,000 of the island's year-round residents, about 13 percent, are Brazilian, and Pil's Belgian parents raised him in Brazil, where they were working. The island's Brazilians, many of whom work as deli clerks, carpenters, landscapers and small-business owners, often approach Pil to discuss nonsurgical medical problems because he is the only Portuguese-speaking physician on the island.

Because real estate is so expensive, some hospital employees live on the mainland and commute 45 minutes by ferry. Real estate costs pose a challenge for Pil and Casper too, since they are looking for a house.

But Casper says Martha's Vineyard is a great place to raise their son, Gedeon, who turned 2 in February. The hospital runs a child-care center right on the grounds, and the schools are very good. Casper sees the island as a potential research laboratory for the public health degree she was working on when they left Boston. She is thinking about raising chickens, too—but she's likely to postpone agricultural ventures for the moment. Casper and Pil's second child, Alexa, was born December 4 at Martha's Vineyard Hospital.

When they moved to the island, Pil says, "We figured we'd either like it or hate it." They like it.

—Cathy Shufro

In retirement, surgeon cuts a new swath as globetrotter, volunteer

Minimally invasive surgery has been something of a mixed blessing for thoracic surgeon **Louis R.M. Del Guercio**, M.D. '53. "It's easier on the patient but less satisfying for the surgeon," says Del Guercio, who retired a year ago as chair of surgery at New York Medical College. He feels confident and fulfilled using his hands instead of operating remotely. For young surgeons who grew up playing video games, minimally invasive surgery is "duck soup," says Del Guercio. "Not for us dinosaurs."

In his role as "dinosaur," Del Guercio uses his hands to paint landscapes in oil, an outgrowth of his work as a surgical illustrator. He also teaches and consults at New York Medical College and at Westchester Medical Center, where he was director of surgery. Last summer he joined the executive committee of the Association of Yale Alumni in Medicine.

Del Guercio's contribution to research was honored by New York Medical College last spring, when the college sponsored a research day in his name. Del Guercio's research focused on physiologic monitoring of the critically ill and injured. In the 1960s, he and colleagues at Albert Einstein College of Medicine were the first to describe what textbooks now routinely refer to as "hyperdynamic septic shock." They discovered that in septic shock—shock caused by widespread infection—the heart pumps a higher-than-normal volume of blood. Most forms of shock cause cardiac output to drop.

These days, Del Guercio is more attuned to tidal ebb and flow than to cardiac output: mornings and evenings, he fishes for bluefish and striped bass from his beachfront home on Long Island Sound in Larchmont, N.Y. He also races a 30-foot Shields sloop with his daughter, who is the skipper, and his son-in-law and a friend, who serve as crew. His wife, Paula Marie Helene Del Guercio, enjoys the fish dinners but declines to set foot on the boat.

In recent years Del Guercio has also gone farther afield than the Sound—to a war zone and on a pilgrimage. He volunteered for the 1991 Gulf War to help out a military recruiter who had trouble signing up chest surgeons; the recruiter asked Del Guercio to set an example. As a reserve officer, Del Guercio had first served as a second lieutenant in the artillery in the early 1950s. Promoted to colonel for the Gulf War and stationed at an evacuation hospital in Chorlu, Turkey, he did surgery on a few injured soldiers and then, when a fierce tornado hit the Turkish town in October 1991, he helped treat the 300 people injured during the storm. "Getting an Army commendation medal at age 62 was a thrill," said Del Guercio, who is now 74.

Reading a pilgrim's account in *The New York Times* led Del Guercio to another adventure in the summer of 2000, a 200-mile trek along the Camino de Santiago de Compostela in Spain. The route, traveled since the time of Charlemagne, stretches from the Pyrenees west to the Atlantic. Del Guercio hiked for a month with two of his eight children: Gino, who makes documentaries, and Christopher, a pineapple and taro farmer in Hawaii.

Del Guercio was not consciously aware of why he was there until Gino, filming other pilgrims, began questioning them about their motivations. It was then that Del Guercio realized that he was walking in the hope that his developmentally disabled grandson, Ian, would learn to walk. Ian's physicians had said that was impossible. Perhaps God might grant that to Ian, said Del Guercio, adding, "As they say in the Bronx, 'It couldn't hoyt.'" Ian, now 4, is walking. How that came about, against all odds, "is still a mystery."

—Cathy Shufro

From the tables down at Mory's, six degrees of separation

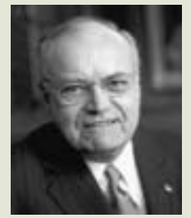
Another bit of mystery surfaced at a dinner for New Haven-area alumni leaders late last summer following the White Jacket Ceremony. AYAM President **Francis R. Coughlin Jr.**, M.D. '52, spoke of two coincidences that he grouped under the heading "six degrees of separation"—the notion that each of us is linked to any other human on Earth by a maximum of six personal connections. The chance encounter his daughter-in-law had with **Louis R.M. Del Guercio**, M.D. '53, for example, was a simple three degrees of separation: her mother had lived as a girl in the house now inhabited by Del Guercio, who was a year behind Coughlin at Yale and a colleague in the decades since.

Coughlin spoke of another coincidence. Standing at the head of the table in an upstairs room at Mory's, he produced a thick, bound volume that he said his father had assembled in the 1950s. It consisted of the medical school *Bulletin* from the four years Coughlin was a student in New Haven. "His own education ended at age 16, and he was immensely proud to have a son at Yale," said Coughlin, a retired thoracic surgeon and an attorney, who discovered the book recently while rummaging though an attic.

Leafing through the pages, he came across an item that delighted him: on page 133 of the 1948-49 *Bulletin*, he read the course description for a gastroenterology seminar and the name of its instructor, **Samuel D. Kushlan**, M.D. '35. "I had heard of Sam Kushlan as a student, and "he was known as the best clinical teacher at the medical school," Coughlin said. "And here he is more than 50 years later. And here I am."

As it happened, Kushlan was in the room, as was Del Guercio, the AYAM's newest executive committee member. By another coincidence, sitting a few feet from both men was **Robert W. Lyons**, M.D. '64, chief of infectious diseases at St. Francis Hospital in Hartford. As a Georgetown undergraduate in the late 1950s, Lyons was vice president of the drama society and a classmate of playwright John Guare. Like Lyons, Guare would come north to New Haven to attend one of Yale's professional schools, in his case the School of Drama. Later still, he would write a play with a more-than-relevant title: *Six Degrees of Separation*.

—Michael Fitzsousa



Francis Coughlin

Familiar *Faces*

Do you have a colleague who is making a difference in medicine or public health or has followed an unusual path since leaving Yale? We'd like to hear about alumni of the School of Medicine, School of Public Health, Physician Associate Program and the medical school's doctoral, fellowship and residency programs. Drop us a line at ymm@yale.edu or write to Faces, Yale Medicine, P.O. Box 7612, New Haven, CT 06519-0612.

David Morton and daughter Nancy

Lawrence Dubin

Elizabeth Michel and Arnold Markman

Albert Siu

1940s

The past few years have been notable for **David E. Morton**, M.D. '48, HS '55, and his family. Last August he was in Maui for the wedding of his daughter, Nancy (pictured), and in 2001 his daughter, Aiko, was married in Colorado. Morton has also been traveling, visiting Canada, Japan, Key West and South Carolina in the past year.

After retiring at age 65 as a senior ward physician at the Newington (Conn.) VA Hospital, **Sophie Trent-Stevens**, M.D. '43, earned her master's degree in art at Central Connecticut State University. She is a member of several Connecticut art associations, exhibits annually and has won awards for her landscapes and marine paintings. Trent-Stevens has also authored and published four books of poetry on destinations she has visited in Africa, the Caribbean and the South Pacific. Her paintings and poetry have appeared in *Connecticut Medicine* magazine.

1950s

Lawrence Dubin, M.D. '58, received the inaugural Distinguished Service Award from the American Society of Reproductive Medicine at its 58th annual meeting in October in Seattle; he shared the honors with his research partner of 34 years, Richard Amelar, M.D. Dubin and Amelar are professors of urology at the New York University School of Medicine.

1970s

Arnold G. Markman, M.D. '75, and **Elizabeth Michel**, M.D. '75, will celebrate their 30th wedding anniversary in June. The couple met in September 1971 when they sat next to each other during registration for their first-year classes at the School of Medicine. Markman is chief of occupational medicine at Kaiser Permanente in San Diego; Michel serves as a board member and secretary of the San Diego-based human rights group Survivors of Torture International. Markman writes that "we have continued as best friends, sources of support and intellectual stimulation for each other—a process that began when we were partners in gross anatomy and Introduction to Clinical Medicine with Morris Dillard. We have two wonderful sons, ages 22 and 25."

1980s

In November, **Albert L. Siu**, M.D. '80, chief of the Division of General Internal Medicine at Mount Sinai Medical Center, in New York, was named chair of the Brookdale Department of Geriatrics and Adult Development at Mount Sinai and the Ellen and Howard C. Katz Professor of Geriatrics and Adult Development. In his research, Siu has worked to improve the quality and delivery of care, and has focused on measuring and improving functional outcomes for the elderly.

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Joseph A. Arminio, M.D. '46, of Montchanin, Del., the first surgeon in his state to specialize in hand surgery, died September 3 at the age of 79. He served as the director of the Christiana Care Health System Hand Clinic and was founder and director of the Industrial Care Center, co-founder and president of the Medical-Dental Bureau Answering Service, and for 20 years was director of medical services for the city of Wilmington.

Ronald S. Beckett, M.D. '40, former director of the pathology department of Hartford Hospital, died November 1 in Rochester, N.Y. He was 87. Born in Port Chester, N.Y., Beckett was a founding member of the College of American Pathology Committee, which produced the *Systematized Nomenclature of Medicine*, a dictionary of medical terminology applicable to computers. Beckett served on the clinical faculty at Yale for 20 years.

William A. Carey Jr., M.D. '41, died of pneumonia on August 27 at the age of 86 in Framingham, Mass. Born in Quincy, Mass., Carey was awarded the Bronze Star with six oak leaf clusters while serving as an Army major during World War II. He was chief of radiology at St. Elizabeth's Hospital in Boston and had a private practice in Worcester.

Martin E. Devlin, PA '81, died at age 49 of a brain tumor on September 5 at his home in Poultney, Vt. Born in New Haven, Devlin was employed by Hudson Headwaters Primary Care in Glens Falls, N.Y. He was an avid runner and competed three times in the New York City Marathon. He also enjoyed activities with his three sons, including maple sugaring at his home in Vermont.

Wolfgang A. Herbordt, M.D., of Wayland, Mass., died July 23. He was 81. Formerly of Woodbridge, Conn., Herbordt was a pathologist at the Hospital of St. Raphael and a clinical instructor in pathology at the School of Medicine for 18 years.

Orvan W. Hess, M.D., of North Haven, Conn., an obstetrician and gynecologist who pioneered the development of the fetal heart monitor during a 58-year career at Yale, died September 6 at Yale-New Haven Hospital. He was 96. Born in Margaretville, N.Y., Hess was also instrumental in the first successful clinical use of penicillin. Hess received an American Medical Association Scientific Achievement Award for his contributions to clinical research and was director of health services for the Connecticut Welfare Department in the early days of Medicaid and Medicare.

Sabra L. Jones, M.D. '84, an interventional and cardiovascular radiologist, general surgeon and primary care physician, was killed in a fall at the Grand Canyon on August 12. She was 47. Born in Berkeley, Calif., Jones was director of S.E.E.D.S. (Social Educational Environmental Development Services), which provides relief at the grassroots level to some of Nepal's poorest villages. She received a commendation from the American Medical Association for her work in getting the Nepalese government to cease their punishment of physicians who provided medical care to rebel troops. Jones also worked with the Native American communities in New Mexico.

Frederick E. Mott, M.D., died October 17 in New Haven. He suffered from Alzheimer's disease and died of cardiac and respiratory arrest. Born in New Haven, Mott was an ophthalmologist in the area for many years and was an assistant clinical professor in surgery and ophthalmology at Yale for 11 years. He served in the Army Air Corps during World War II and received the Soldier's Medal for heroics.

Sanford L. Palay, M.D., died on August 5 of kidney failure in Concord, Mass. He was 83. Palay, a neuroscientist born in Cleveland, taught briefly at the School of Medicine in the early 1950s. In 1953 he joined the faculty at Rockefeller University, where he used electron microscopy to study the synaptic vesicles that transmit nerve impulses. He is credited with obtaining the first images of the synapse and the structures that release messenger chemicals in the brain. Palay was chief of the neurocytology section at the National Institutes of Health in the early 1960s.

Olaf J. Severud, M.D., HS '35, died March 28, 2001, at the age of 95 in Cooperstown, N.Y. Born in Risor, Norway, Severud was a lieutenant commander in the Navy during World War II, serving in the Pacific theater. He was head of obstetrics and gynecology at Mary Imogene Bassett Hospital in Cooperstown and medical director at the Mohawk Valley Nursing Home in Ilion, N.Y.

John Q. Tilson Jr., LL.B. '36, died on November 1 at his home in North Branford, Conn., after a long siege with Parkinson's disease. He was 91. Tilson, a prominent New Haven attorney, was a pioneer in the field of hospital law and lectured on the topic for many years at the School of Public Health. He was a key figure in the establishment of The Connecticut Hospice, for which he received the Ella T. Grasso Award.

James M.A. Weiss, M.D., M.P.H. '51, died on June 24 at his home in Columbia, Mo. He was 80. Born in St. Paul, Minn., Weiss was the founding chair of the department of psychiatry at the University of Missouri-Columbia School of Medicine, a position he held for 31 years. He was known for his research on suicide and anti-social behavior, and secured the initial funding to build the Mid-Missouri Mental Health Center.

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RON TOM/CBS

"Rounding It Out," two years later

Two years after presenting "Rounding It Out," her portrayal of 11 doctors and patients at Yale ["A Dramatic Turn," Spring 2001], playwright and actress Anna Deavere Smith maintains her Yale connections as she dons a white coat in her role as the cardiologist on *Presidio Med*.

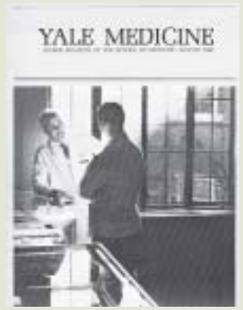
When Smith plays Letty Jordan, M.D., on the CBS drama, her point of reference is Yale: Smith prepared for the role by shadowing interventional cardiologist Joseph J. Brennan, M.D., HS '86, an associate professor of medicine. Smith followed Brennan one hectic day at Yale-New Haven Hospital, watching him interview patients and do angioplasties and catheterizations. "She asked a lot of questions—how would we deal with complications, how we approach the patients in getting consent," said Brennan.

"I like to do a lot of research," says Smith. She met with Clinton's national security advisor, Sandy Berger, when preparing for her analogous role on the television show *The West Wing*.

The world of medicine continues to absorb Smith as a playwright. She hopes to develop "Rounding It Out" as a full-fledged theater piece. Smith was back on campus last fall to perform this work for the first reunion of internal medicine house staff and fellows (See *Chronicle*, p. 4). She has expanded the piece she first presented in Fitkin Auditorium in November 2000. The new version includes Smith's portrayal of actress Lauren Hutton discussing her recovery from a motorcycle accident in October 2000. Smith said she included Hutton to explore the role of social class in access to medical care.

Smith finds interviewing patients and physicians compelling. Patients provide an intensity essential to her work of "trying to locate openness and urgency and willingness and desire to communicate. The patients have that, and it's very rare. They have that because they would like to be heard—by their doctors, by the society." As a playwright, she shares with physicians the opportunity to communicate meaningfully with the people she interviews. "The kind of theater I am committed to is first and foremost connecting to human beings," says Smith. "This experience at Yale has been very precious to me, because that is what the doctors have the opportunity to do."

—Cathy Shufro



WINTER 1966

"The revolution in clinical pathology at Yale is two-fold. On the technical side, new methods of testing and data processing developed in the clinical laboratories are resulting in services of unmatched quality in numbers sufficient to meet the needs of patients. Last year the laboratories performed 750,000 tests in clinical chemistry, clinical microscopy, microbiology, and the blood bank.

"A second and perhaps more fundamental change is the emergence of a new section of clinical pathology, or laboratory medicine, in which the laboratories and their functions have been integrated in the interests of improving teaching, research, and patient care. The section has functioned so successfully that a number of medical schools are using it as a prototype for establishing departments of clinical pathology. ...

"Last year the laboratory instituted a data logging system that transfers information from the analytical instruments to a Hollerith card, simultaneously printing and punching the data to render the report both human-readable and machine-readable. Machine reading can be done by a simple card sorter or by a general purpose digital computer which Dr. Seligson hopes to acquire for the laboratories. As a prelude to the computerization of reports, he has just this year initiated a cumulative report format whereby a patient's record can be updated each time new information is obtained by the laboratory. The physician is now able to study the data easily, in serial fashion, without having to thumb through the patient's chart."

SUMMER 1989

"Approximately 700 of the world's leading geneticists gathered at the University during the week of June 11 to fit together more pieces in the complex jigsaw puzzle known as the human genome. Using the latest computer technology, leaders of the 10th International Workshop of Human Gene Mapping tabulated extensive new data concerning the position of human genes on chromosomes. Thus far, the positions of about 1,700 of the estimated 100,000 human genes have been verified. The amount of data concerning the genome has doubled every three years in the decade-and-a-half since mapping began.

"The workshop was hosted by Frank H. Ruddle, PH.D., the Sterling Professor of Biology and Human Genetics, and Kenneth K. Kidd, PH.D., professor of human genetics, biology and psychiatry. Professor Ruddle organized the first such international workshop at Yale in 1973. Since then, the meetings have been held every other year at different locations around the world.

"The U.S. government has committed $200 million a year for the next 15 years to map the structure of human genes, an effort that already has helped physicians better understand such inherited diseases as Duchenne's muscular dystrophy, cystic fibrosis and some forms of cancer."

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