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Fall 2002

### **Yale Medicine : Alumni Bulletin of the School of Medicine, Autumn 2002- Summer 2003**

Yale University. School of Medicine

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not everyone belongs at Yale. It takes a highly  
self-motivated, self-educating, self-motivated person

to be successful there... autumn 2002

Medical students are by nature very competitive.  
The Yale System tempers the negative aspect  
of that kind of competitiveness...

### Everyone loves the Yale System. So why can't they all agree?

Abandoning or even erasing the Yale System will  
result in Yale graduates being as devoid of curiosity  
and as boring as most physicians.

I think the Yale system should be abandoned.

I strongly support the traditional Yale system  
established in 1921. It not only sets Yale apart - as a  
graduate school - from other medical schools that  
are like "trade schools" - but affords freedom of expression  
and development of lifetime learning habits that  
are essential to the practice of good medicine.

The unique quality of the Yale system has  
influenced me profoundly and was a wonderful  
experience. I applaud your efforts to preserve it.

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Yale System

is an inva

Please prot



# AUTUMN 2002

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### ON THE COVER

When a group of medical students wrote to alumni about exam requirements earlier this year, they received more than 500 responses, including the testimonials that appear on pages 38 to 42. In their letters, the majority of those writing recall a Yale System that allowed them the freedom to pursue knowledge independently and instilled a lifelong love of learning.

22	<b>"A steam engine in pants"</b> In 1920, Milton Winternitz became dean and ushered in a new era in medicine at Yale, creating the Yale System in the process. For much of his 15 years at the top, what Winternitz wanted, Winternitz got. <i>By Gerard N. Burrow, M.D. '58, HS '66</i>
30	<b>Everyone loves the Yale System. So why can't they all agree?</b> The debate over exams this spring centered on two key questions: how should medicine be taught in the 21st century and how should a student's progress be measured? <i>By John Curtis</i>
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### On the Web

[info.med.yale.edu/yymm](http://info.med.yale.edu/yymm)

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.



#### HOW TO REACH US

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

### Eyes opened, hearts extended

Kudos on Monique Tello's *Letter from Guatemala* ["Eyes Wide Open," Summer 2002]. It was well written and moving and probably similar to the experience of many medical students rotating outside of the industrialized world, where the "brutal social dichotomy" does indeed exist.

As for the challenge for the rest of us to "fight complacency, to open the closed and contented mind," many learned and well-meaning social crusaders have tried and failed miserably, being accused of American imperialism, cultural genocide and worse. For an example of the pitfalls inherent in this kind of work, read *Death Without Weeping: The Violence of Everyday Life in Brazil* about a California social worker who attempted to improve literacy and vaccination among Brazilian children at her own expense and was rewarded with continued expulsions from the country on the grounds of subversive activity.

Sometimes changing the political landscape must precede humanitarian efforts. For this we must look to our political science colleagues for guidance—and hope.

*Susan M. Richman, M.D., HS '83  
Guilford, Conn.*

*The writer is an assistant professor of obstetrics and gynecology and director of the Women's Center at Yale-New Haven Hospital.*

### Just the facts

I have become used to accepting regular misstatements of historical fact in *Yale Medicine*, but the Spring 2002 issue has tried my patience with two certain errors.

On page 7: "Yale scientist E.M. Jellinek pioneered the notion that alcoholism is a disease. ..." Not so. Thomas Trotter, a British Royal Navy physician, clearly defined alcoholism as a disease or medical condition in *An Essay, Medical, Philosophical, and Chemical, on Drunkenness and Its Effects on the Human*

*Body* (Bouvier, Philadelphia, 1813). In the United States at about this time Benjamin Rush in Philadelphia was defining alcoholism as a disease.

Charles A. Janeway is presented on page 35 as the person who "discovered gamma globulin deficiency." This is not true, as the present Dr. Janeway [his son] would be the first to confirm. Ogden Bruton described the syndrome in "Agammaglobulinemia," *Pediatrics*, 9, 722-728, 1952. The condition is now known as X-linked agammaglobulinemia (Bruton) and the enzyme affected is known as the Bruton tyrosine kinase.

Our medical school has one of the very best history of medicine faculties in the United States. I urge you to have them review articles which purport to state historical facts before you publish. This would save you the nuisance of chiding like this letter!

*Robert J.T. Joy, M.D. '54  
Bethesda, Md.*

*The writer is emeritus professor, Uniformed Services University of the Health Sciences, Department of Medical History.*

*Dr. Joy is correct that Drs. Rush and Trotter regarded alcoholism as a disease almost 200 years ago. Jellinek, however, is considered by many to be the most influential proponent of alcoholism as a disease in the 1950s. He presented a disease model for alcoholism, described four classes of drinkers and invented what is known as the "Jellinek curve," which describes the progression of the disease. His work is considered a major factor in the medical establishment's acceptance of alcoholism as a disease. Although the World Health Organization had recognized it as a medical problem in 1951, and the American Medical Association (AMA) declared it a treatable illness in 1956, it was only in 1965 that the American Psychiatric Association called alcoholism a disease. The AMA followed suit in 1966.*

*As for the senior Dr. Janeway's contributions, his son replies: "I have always resented the*

*claim that Ogden C. Bruton 'discovered' X-linked agammaglobulinemia, as my father had collected 13 cases and was about to publish his findings when Col. Bruton published first. Instead of publishing his original work on agammaglobulinemia, my father worked on the intramuscular and intravenous administration of the crude gamma globulin fraction of blood, which he had isolated as part of Dr. Edwin Cohn's plasma fractionation project during the Second World War."*

### More alumni news, please

I am delighted with the "new" *Yale Medicine*. It's readable and full of good information.

One disappointment, however. What has happened to alumni news? The undergraduate alumni journal, the *Yale Alumni Magazine*, ignores the medical school in its alumni section, and the medical journal has only a skimpy bit of news. For those of us whose graduation occurred almost 60 years ago, we are very interested in what is happening to our old colleagues in our class and those around us. More importantly, in the most recent issue, there was nothing before the 50s. Are those of us from the 40s written off? Many of us are still alive and vigorously kicking.

Make the class secretaries get to work and satisfy the old-timers as well as the more recent graduates.

*Raymond A. Gagliardi, M.D. '45  
Boca Raton, Fla.*



**Yale medicine**

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## The state of The System

In the Spring issue of *Yale Medicine* we promised to report on the state of the Yale System, the school's eight-decade-old educational model and the subject of some debate earlier this year. As this issue of the magazine evolved over the summer, it became obvious that the topic was to play a starring role and figure prominently in the issue's three feature articles as well as in our coverage of the June reunions that begins on page 48. Wherever we turned, someone was talking about the Yale System.

"Everyone Loves The Yale System. So Why Can't They All Agree?" (page 30) details recent initiatives by Dean David A. Kessler, M.D., and others to increase support for teaching at the medical school and explains the controversy that erupted in March after a mailing from a group of students to medical school alumni regarding exam requirements. Among the voices heard were those of more than 500 alumni who wrote passionately about the issue of testing and in doing so wonderfully articulated what it means to become a doctor at Yale. Excerpts from those testimonials appear on pages 38 to 42 ("The Yale System Lives! Long Live the Yale System.").

Finally, we take a look at the man who set the Yale System in motion more than 75 years ago. Adapted from a chapter in a new history of the school by former Dean Gerard N. Burrow, M.D. '58, HS '66, "A Steam Engine in Pants" (page 22) chronicles how Milton C. Winternitz, M.D., brought Yale back into the ranks of elite medical schools after a period of decline and gave birth to the Yale System in the process. It's a fascinating story that sheds light on the origins of the current debate.

Michael Fitzsousa

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**SECOND OPINION BY SIDNEY HARRIS**

"REMEMBER THIS, RADKIN - I'VE GOT A DISEASE NAMED AFTER ME; YOU'VE ONLY GOT A SYNDROME."





GREG MORGAN

## Private lives, public concerns

Safeguards for patient data take on a new urgency as HIPAA's impact becomes apparent.

A patient's chart can be many things. It is a compendium of ailments and treatments, but it is also a life story, full of clues to a patient's state of mind, love life and financial status. In settings such as the Yale-New Haven Hospital and the School of Medicine, this window into a person's life is open to physicians, nurses, medical students, residents, clerical workers, pharmacists and others who might need access to it. Now the long-awaited implementation of a 1996 law requires that all health care workers privy to a patient's personal information be trained in protecting confidentiality.

The Health Insurance Portability and Accountability Act, or HIPAA, requires health care professionals to protect privacy and create standards for electronic transfers of health data. The Office for Civil Rights at the Department of Health and Human Services will enforce the regulations and impose penalties on institutions that do not make a good-faith effort on privacy and security. The deadline for university compliance is April 13, 2003. Electronic exchange standards will be required six months later.

Horror stories of people being denied jobs and loans because of their health status prompted Congress to pass the law in 1996. Also looming was the prospect of genetic discrimination given the possibility that one's genes might be predictors of disease

(See "Tailor-Made Medicines Are Within Our Reach" p. 6). "There is no question that legislation ensuring the right of privacy to medical information is necessary," said Jed M. Shivers, M.B.A., deputy chief operating officer of the Yale School of Medicine and a member of the university's executive steering committee on HIPAA compliance. The most pernicious abuses regarding privacy stemmed from the sale of information by insurance firms or others. But leaks of personal data also occur due to carelessness. For example, Shivers pointed out that staff can no longer discuss cases while another patient is in the room. Patient and drug names, which might provide hints of specific ailments, may no longer be listed on receipts. "Our strategy is to create a strong network, make the system locked down and have information take the appropriate path," Shivers said. Faculty will be trained to secure data on computers and portable devices with passwords, automatic locking screensavers and other tools.

"This is an opportunity to do the right thing and become more efficient by automating the processes that should be automated," said Susan E. Grajek, PH.D., director of communications and technical support for the medical school's information technology service, ITS-Med.

The regulations are still evolving, but they require most medical providers to obtain a patient's written consent before disclosing information; institutions must hold onto the consent forms for six years. "The concept sounds basic and straightforward, but there are hundreds of pages of complicated regulations," said Julie Behm Carter, J.D., associate general counsel for Yale.

The biggest changes will be in terms of education and awareness, according to David Stagg, PH.D., director of Systems Engineering and Security for ITS-Med and a research scientist in pharmacology. Care will be taken to keep records private, from

simple matters such as not leaving faxes exposed on a desk to installing encryption tools on computers.

The university is surveying more than 5,500 people, including employees, postdocs and other fellows, researchers and volunteers, to determine how and where records are stored, how many people must be trained and how protected information is used. Shivers expects everyone at the School of Medicine to undergo some training on an interactive website. Training is on hold while the government modifies the rules. Grajek does not expect the Web-based training sessions to last more than 90 minutes. "I'm optimistic that HIPAA won't be overwhelming," said Grajek, who also coordinated preparations for Y2K conversion at the medical school. "People must take HIPAA seriously, but there will be minimal disruption."

Shivers noted that the law is not perfect and will continue to evolve as institutions adapt. Already, the government has eased regulations about research and sharing knowledge with medical students.

"This will be an ongoing effort," said Janet E. Lindner, a project manager in the office of the vice president of finance and administration, who will organize implementation of HIPAA at Yale. "But people throughout the university are working together as a project team on a goal we all care about."

## Smallpox vaccination study places administration's plans for terror response in doubt

In the aftermath of September 11, Yale public health specialist Edward H. Kaplan, PH.D., started thinking about how to fight bioterrorism. The result was a study on smallpox vaccination that made national headlines, in no small part because it criticized federal government terror reaction plans as being too little, too late.

Using a mathematical model, Kaplan found mass vaccination of the population in the area of an outbreak to be far more effective than "ring vaccination," the limited immunization strategy the government first recommended as the initial response to a smallpox attack. He published his study in the *Proceedings of the National Academy of Sciences* in July, shortly after the Bush Administration announced its policy.

Working with MIT colleagues David L. Craft, M.S., and Lawrence M. Wein, PH.D., Kaplan used their model to analyze how different vaccination strategies contain the spread of a smallpox attack that infects 1,000 people in a large city. Their study took key features of guidelines from the Centers for Disease Control and Prevention (CDC) and applied them to a disease transmission model. The least effective method was ring vaccination, which isolates the infected and vaccinates people found to be in close contact with them. Ring vaccination would allow 367,000 cases of smallpox and 110,000 deaths and would take 350 days to end the outbreak.

By contrast, a mass vaccination begun as soon as authorities learned of the attack would result in 1,830 cases and 560 deaths and end the outbreak in 115 days. (It takes two weeks for smallpox to incubate and for symptoms to appear.) The analysis found that switching from ring to mass vaccination on the 33rd day of a crisis would still allow 15,570 cases and 4,680 deaths.

Before smallpox was eradicated in 1980, ring vaccination was the accepted

strategy, because cases were isolated and most people had been immunized. Throughout the history of the disease, the government has been reluctant to undertake mass vaccination, since the vaccine uses a live virus that can cause severe side effects and even death. Still, Kaplan said the fatality risk of mass vaccination—about one person in 1 million—is minuscule compared to the possible death toll of a terror attack.

As *Yale Medicine* went to press in October, the CDC director, Julie L. Gerberding, M.D., M.P.H., and other top bioterrorism officials announced a change in strategy away from ring vaccination, recommending instead that voluntary immunization begin immediately for 1 million military personnel, followed by 10.5 million health care workers and emergency responders. The vaccine would then be offered to the public, most likely in early 2004. As President Bush considered the proposal, physician organizations including the American Medical Association and the American Academy of Pediatrics (AAP) urged caution and a continued policy of ring vaccination.

"The [recommendation] is flexible and could change if there is an actual outbreak of smallpox, or if a safer vaccine becomes available," said Robert S. Baltimore, M.D., professor of pediatrics and epidemiology at Yale and lead author of the AAP's policy statement.

Kaplan has found himself in political territory before. His landmark work on the New Haven needle exchange program led some to label him an activist for AIDS patients and drug addicts. But Kaplan rejects any notion that his research has a political dimension. "Many if not most would consider the needle exchange results to come from the political left and the smallpox results to come from the political right," he said. "The truth is, in both cases, the results came from reasoned analysis."



## Tailor-made medicines are within our reach, Collins tells genomics conference

Within two decades a new generation of highly effective designer drugs will spring from our improved understanding of the human genome, according to the director of the National Human Genome Research Institute, Francis S. Collins, M.D., Ph.D. '74, FW '84.

As scientists delve more deeply into the human genome, they are developing faster and cheaper techniques to identify individual genetic variations, Collins told the audience attending the fifth annual Pharmacogenetics and Medicine Lectures sponsored by

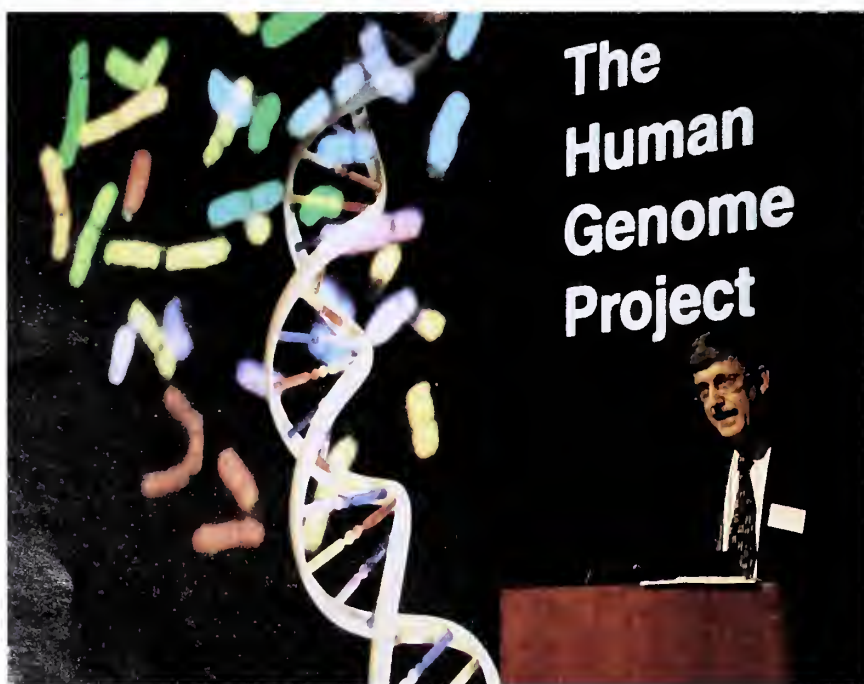
Genaissance Pharmaceuticals in Harkness Auditorium in June. Locating these genetic polymorphisms is crucial to making drugs more effective and preventing harm, because genetic differences lead to different drug responses. Collins believes that by about 2010 information about individual variability will allow doctors to choose medications that best fit the individual's genetic makeup. "Doctors will have to get used to determining the genotype before writing the prescription," said Collins, who earned his doctorate in physical chemistry and did a postdoctoral fellowship in genetics at Yale.

Identifying variation is still painstaking, he said, because "the genome is a big place." Searching for polymorphisms by typing the whole genome for each individual in a study is too slow and far too expensive to be practical, even at the current cost of 50 cents per genotype, said Collins. If an individual's genome contains about 10 million places where variations are likely (out of

3 billion base pairs), then scanning each genome for the most common variation for a sample of 1,000 people with a disease and 1,000 controls would cost \$10 billion.

Researchers are developing shortcuts. One explores the relationship between variants in the genome and their neighbors. Once such a "haplotype map" is developed, this method would reduce the number of variants that have to be tested by a factor of about 40. Another promising shortcut for identifying disease-linked polymorphisms is to pool DNA samples from a large number of individuals, then compare the pooled genomes of people with a disease with the pooled genomes of controls. In Collins' lab at the NIH, this pooling method has proven accurate to within 3 percent and is far cheaper than analyzing each individual's genome separately. Collins estimated that a combination of the haplotype map, the pooling method and an anticipated drop in the cost of genotyping would put the price of a study of 1,000 affected people and an equal number of controls at about \$50,000.

Given the public's concern about potential misuse of genetic information, Collins said the nation urgently needs laws barring genetic discrimination and urged audience members to get involved in this debate. He predicted that primary care providers, especially nurses, would play a critical role in educating and counseling patients about how their health care might be affected by advances in human genetics.



"Doctors will have to get used to determining the genotype before writing the prescription," National Human Genome Research Institute Director Francis Collins told a Yale audience in June.

*A list of links to websites on the human genome can be found at [www.genome.gov](http://www.genome.gov) and also at [www.nchpeg.org/resources/resources.asp](http://www.nchpeg.org/resources/resources.asp). A free poster of the genome is available from [http://public.ornl.gov/hgmis/external/poster\\_request.cfm](http://public.ornl.gov/hgmis/external/poster_request.cfm). The site also has a guide for accessing and using the gene, protein and genetic disorder databases.*



## Magazine gives students an outlet for creative work and a way to “unpack experiences”

Second-year M.D./PH.D. student Kumar Narayanan recognizes that “not a lot of emotional experience in medicine is talked about. Part of being a professional is building a little bit of a wall between you and a patient ... and that’s not a bad thing.” But Narayanan still feels a need to “unpack experiences,” and he does this, in part, by writing. “Putting it down on paper or on a computer screen is a way to make something intractable, tangible. That’s the first step for me in engaging the experience.”

Narayanan’s “Reflections,” describing his evolving feelings as he performs a human dissection, is one of 28 poems, stories and personal essays (along with drawings and photographs) published earlier this year in *Scope: The Yale Health Professions Literary Magazine*.

Editor Ilene Wong, a third-year medical student, found the inspiration

to revive the medical school’s on-again, off-again literary magazine while taking part in a writing seminar led by author and retired surgeon Richard Selzer, M.D., HS ’61. It is her hope, Wong said, that *Scope* will expand the community of writers the seminar has created. Reading the work of colleagues can “make people realize there are other people [writing] out there” and convey the message that “you can support and pursue your literary goals in a medical setting.”

Selzer thinks his bimonthly workshop for a dozen students accomplishes that. Students “are overwhelmed with the new technology and this distancing of the caregiver from the patient. I am reminding them that there is a whole world of literature and humanities that they can bring to bear upon their contact with the sick,” said Selzer, whose 10 books include *Confessions of a Knife* and *Letters to a Young Doctor*. “The students love it. They want to write. ... I want them to be a generation of writing doctors that come after me.”

One story in the magazine describes a young doctor confronting a belligerent patient. Another meditates on a grandmother’s illness in light of a medical student’s expanding knowledge of pathology. A poem describes the use of an insulin needle to inflate worms for use as fish bait. Much of the work came from medical students, but contributors also include residents, nursing and public health students and a faculty member. Funding to print 150 copies of *Scope* came from the Office of Student Affairs, the Department of Internal Medicine and the Program for Humanities in Medicine.

“I was happy that people were writing and were willing to send something in,” Wong said. “I think it’s gutsy to send something into an unknown venue. It’s an act of vulnerability.”

Two M.D./PH.D. students plan to publish another issue of *Scope* in the spring. They are Eyal Kimchi, a second-year student who helped with editing and layout, and classmate Jena Giltneane.



JACQUELINE PARK

### Untitled

i read the news today, oh boy  
– the beatles

but it’s what i didn’t  
read  
between the lines  
paved with half-told lies  
(capital L  
capital I  
capital E)  
repeated so many times  
we begin  
to accept  
as half-told truths  
besides  
who has the time  
to check the facts ma’am  
and form  
easier to have  
half-told opinions  
mostly sold  
bought up  
eaten up

lies

Teeb Al-Samarrai

The student journal *Scope* provides aspiring physicians, nurses, physician associates and public health practitioners with an avenue for literary and artistic pursuits. Typical of the students’ efforts are the photograph at left by Jacqueline Park, M.D. ’02, and the poem by Teeb Al-Samarrai.

## Assistant dean leaves Yale for a post at Cornell's new medical college in the Persian Gulf

In her 13 years at Yale in various posts, Cynthia A. Andrien, M.S., has seemingly done it all. She's been the bearer of glad, and sad, tidings every March at Match Day, the cheerleader for a charity football game, counselor and advisor to students, a source of information and, at times, a shoulder to cry on.

In August Andrien, the assistant dean for student affairs, left Yale for Cornell. But rather than hop Metro-North to New York City, she flew to Qatar, an oil-rich monarchy in the Persian Gulf. She started in September as associate dean for admissions and student affairs at the new Weill Cornell Medical College in Qatar, a joint project of Cornell and the Qatar Foundation for Education, Science and Community Development. The school will offer a six-year program; two years of premed followed by four years of medical education. The inaugural premed class entered this fall; the first medical school class will enter in 2004.

Andrien, the former registrar who started at Yale as administrative assistant to then-Associate Dean for Student Affairs Robert H. Gifford, M.D., HS '67, was approached earlier this year by a headhunting firm. She said several factors about the job intrigued her. There was "the opportunity of developing a program from square one," she said, and the excitement and exoticism of "working in a very different culture, living in a different area, being able to travel and experience other parts of the world."

The decision was not an easy one. Her husband, Steve, a sales representative for a company that markets class rings, will stay in Connecticut, at least for a while, she said, although she'll be able to visit every eight weeks. Andrien said she'll also miss the students. "At commencement, as the students were going by, I was feeling so torn and sad,"

she said. "But I kept thinking, 'They move on so it's OK if I move on.'"

It may strike some as a particularly difficult and dangerous time to be taking on a job in as volatile a region as the Middle East, but after a long weekend in Doha in June, Andrien found the country reassuring. "I felt very safe there," she said, noting that she'll live in a housing complex for international workers.

Qatar is a Connecticut-sized patch of desert on a peninsula that juts out into the Persian Gulf from its only land border, with Saudi Arabia. The country has a progressive administration that allows women to drive and doesn't require them to cover their faces. Andrien expects 70 percent of the school's first premed class to be women. "If women were not treated well I would not have taken the job," she said. "My key role is to be working with the students and counseling them academically, careerwise and somewhat personally."

That personal touch is what has endeared her to hundreds of medical students, as well as the medical school faculty. "You have made a big university feel like a community," said Richard Belitsky, M.D., associate clinical professor of psychiatry, one of the speakers at a farewell reception in July.

"She has this amazing ability to make you feel like you're so special," said Kavita Mariwalla, a third-year student. "She makes you feel like she is giving you her undivided attention."

Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, admitted that her first thoughts on hearing of Andrien's leaving were selfish. "What am I going to do?" she asked herself. Then another thought came to Angoff. "The students in Qatar are the most fortunate medical students in the world right now."



JOHN CURTIS

Assistant Dean Cynthia Andrien talks with physiology professor Emile Boulpaep at Andrien's going-away party in July.



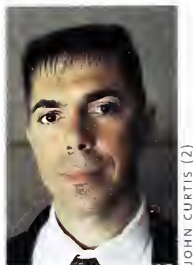
## Executive of firm that cloned human embryos argues the research should continue

The future of therapeutic cloning rests on shaky ground as legislators contemplate new laws that would make it a crime not only to clone human embryos, but to use any products derived from such cloning. As Robert P. Lanza, M.D., vice president of medical and scientific development at Advanced Cell Technology (ACT), told a Yale audience in May, "we could go to jail for 10 years and be fined \$1 million if pending legislation is enacted."

ACT hit the front pages late last year when it reported having cloned human embryos in hopes of harvesting stem cells for research, although the embryos grew for only a few hours to between four and six cells. The company has been at the forefront of research into technologies of genetic manipulation, restoring youth to aging cow cells, creating biodegradable scaffolding for replacement tissue and using animal cells to develop organs for xenotransplantation.

Yet research into such potential therapies is threatened, Lanza said at "The Future of Therapeutic Cloning," a symposium sponsored by the Yale Bioethics Project. In his keynote talk, he said about 80,000 people are awaiting donor organs, yet only 20,000 will undergo transplants. "For many patients, their only hope of survival is the hope of getting a donor organ," he said. "With the advent of cloning, we have a new technology at our disposal that might allow us to eliminate this problem of organ shortage as well as that of immunosuppressive therapy."

The prospect of cloning human embryos to harvest their stem cells has been swept up in the ongoing national debate over abortion. Those stem cells can, theoretically, be prodded to differentiate into virtually any human tissue. But the embryos from which they are derived are destroyed in the pro-



JOHN CURTIS (2)



Human cloning holds the promise of treatments for disease, yet an ongoing ethical and moral debate has held up research in the field, according to Robert Lanza (top), an executive at Advanced

Cell Technology in Worcester, Mass. Joining Lanza in a discussion of the issues were Yale clinicians and scientists Jeffery Kocsis, Arthur Galston, Maurice Mahoney and John Young, from left.

cess, an act anathema to abortion opponents. "There will never be federal money for this work," Lanza told an audience in Luce Hall in May. "The debate now is whether they are going to let anyone do it." Should the so-called Brownback Bill that has been pending before the Senate since the fall of 2001 be passed, Lanza said, cloning of human embryos for any purpose, reproductive or therapeutic, would become a crime.

After Lanza's talk, two panels of Yale ethicists, physicians and lawyers discussed the social, medical and moral implications of cloning and stem cell research. Science is pitted against "very strongly felt moral and ethical feelings," said panelist Myron Genel, M.D., professor of pediatrics. "The scientific community, at least reflected by statements of our most prestigious organizations, is virtually unanimous that this research should go on."

Lanza noted that before ACT published its report of cloning a human embryo in November 2001, a poll found 90 percent of the public opposed to human cloning, both therapeutic and reproductive. "There was no distinction between the applications," he said. But within two weeks a CNN/USA Today/Gallup poll reported that 54 percent of the public supported cloning for medical purposes. "At last people are starting to understand that there is the kind of cloning to make babies and the kind of cloning to treat human disease," Lanza said.

"People have different opinions as to the moral value of this entity," said Lanza, referring to cloned embryos. "This isn't an academic question. There are literally tens of millions of people out there who could benefit."



## For some in public health, changes to chicken have been foul deeds, indeed

The role of chicken in the American diet has changed radically during the past two generations: what was once the centerpiece at Sunday dinner is now a fast food; what was praised as a healthy source of protein is now maligned as a vehicle for fat.

The public health implications of this evolution were part of the conversation at a multidisciplinary conference at Yale College called “The Chicken: Its Biological, Social, Cultural, and Industrial History From Neolithic Middens to McNuggets.” Researchers, poultry workers and farmers attending the conference in May considered the chicken in relation to industrialization and globalization, workers’ rights and animal rights and even symbolism and folklore. Conference participants in public health focused on the “McNuggets” aspect of the contemporary chicken.

A roast chicken dinner was once considered a special meal, “a big deal,” said Marion Nestle, PH.D., chair of nutrition and food studies at New York University. “Now it’s a junk food, a fat food. ... It’s fried, so it gets maximum oil and breading.” Nestle believes that highly processed meats may be popular in part because Americans feel ambivalent about eating animals. McNuggets “don’t look very animal-like,” she said.

Deep-fried chicken meat, served as nuggets, “tenders” or strips, adds another inducement for overeating in a culture in which obesity is increasing—and where overeating is good for business. Food companies spend copiously on marketing because “the United States produces 3,800 calories per day for every man, woman and child in the country, and that’s about twice as much as most people need,” said Nestle. “The government is complicit in that marketing effort, because these companies are very, very large

and like any other business, they support congressional campaigns.” Federal subsidies and price supports help keep chicken cheap, she said. The actual “farm value” of food in the United States averages 19 cents for each dollar consumers pay for it, Nestle said. The other 81 cents are spent on labor, shipping, processing, packaging, advertising and profit.

In restaurants that offer children’s menus, young diners are most likely to choose chicken, according to a study by conference participant Kelly D. Brownell, PH.D., professor of psychology and of epidemiology and public health at Yale. Brownell and colleague Marlene B. Schwartz, PH.D., co-director of the Yale Center for Eating and Weight Disorders, surveyed 10 major fast food restaurants and “family-style” chains. In eight of these restaurants, some form of fried chicken was the top choice for children. And in each case the meals contained more calories and fat and less fiber than the U.S. Department of Agriculture guidelines suggest a child should consume in a single meal, Brownell said.

Chicken has been considered healthier than beef, because it has less fat. Now, says Brownell, “chicken has gone from being part of the solution to being part of the problem.”



THE CLYDE AND HELEN WU COLLECTION OF CHINESE PAINTINGS. GIFT OF DR. CLYDE WU

A multidisciplinary conference considering the state of the modern chicken used this depiction of the bird on its program cover. *A Rooster and a Hen* by Yang Shanshen is from the collection of the Yale University Art Gallery.

## Yale team assessing neural stem cells as a treatment for Parkinson's disease

Researchers at Yale are about to embark on a series of experiments to determine whether human neural stem cells can cure Parkinson's disease that has been induced in monkeys by a neurotoxin. Pilot studies have shown that these cells can be successfully integrated into the brains of fetal, neonatal, infant and adult monkeys for at least a month.

The experiments, funded by a \$2.4 million grant from the National Institute of Neurological Disorders and Stroke, are designed to determine whether the stem cells, once integrated into the brain, will restore the production of dopamine. Parkinson's results from unknown processes that kill dopamine cells, causing muscle rigidity, lack of coordination, difficulty moving and tremors. Primordial and uncommitted, neural stem cells can be propagated in large numbers and then safely differentiated into the necessary dopamine-producing neurons after they are injected into the brain. "Stem cells appear capable of becoming the appropriate replacement cells for the lost dopamine cells in Parkinson's disease," said lead investigator D. Eugene Redmond Jr., M.D., professor of psychiatry and neurosurgery. "This appears to happen spontaneously when they are implanted into the correct areas of the brain, and there are also known methods as to how to get them to do this in culture."

Stem cells have certain advantages over fetal brain tissue, which Redmond used in similar research a decade ago. In those experiments Redmond and other researchers, relying on private funding, transplanted brain tissue from aborted fetuses into the brains of patients with Parkinson's disease. They reported some initial success, but over the years outcomes were mixed. The progress of that research has been slow, with a major drawback being the

difficulty of finding sufficient quantities of suitable fetal cells.

Unlike the fetal cells, stem cells divide in culture, so adequate amounts can be produced and they can be made of uniform quality and meet established safety levels.

"The human neural stem cells migrate to populate developing or degenerating brain regions, perhaps allowing a functionally correct and effective reconstruction," said Redmond.

Federal funding for the research is permitted because the stem cell lines are derived from fetal-cadaver brain tissue, not embryos. Research involving embryonic stem cells remains controversial. Last year President Bush announced that federal funding would be permitted only for research involving embryonic stem cell lines derived prior to Sept. 9, 2001.

The project, to be carried out in conjunction with scientists from Harvard Medical School, the University of Colorado and the St. Kitts Biomedical Research Foundation, also seeks to test whether the cells will survive, differentiate and integrate into the brains of normal adult monkeys without immunological rejection or harmful overgrowth.

"These studies will advance our understanding of the neurobiology and safety of human neural stem cells in a well-established, clinically relevant primate model of Parkinson's disease and, if successful, will support safe clinical studies in patients with Parkinson's disease in the future," Redmond said. "The results will also advance our understanding of useful methods for studying and treating a broad range of neurodegenerative, genetic and traumatic conditions of the nervous system."

et cetera...

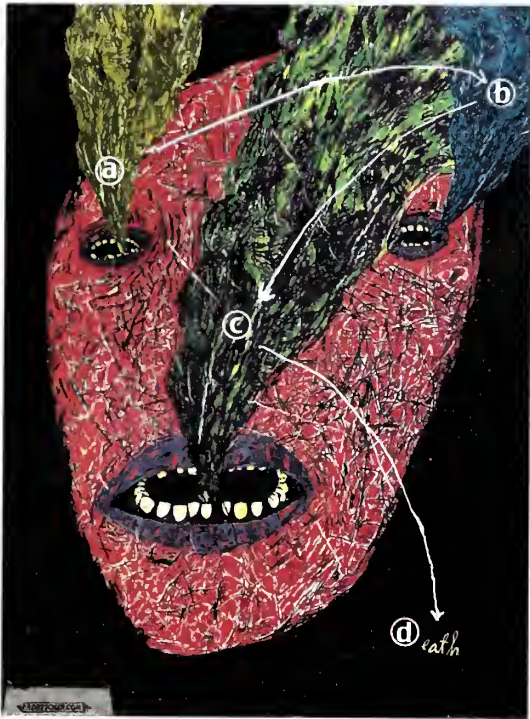
### NEW BUILDING NEARLY FINISHED

As the Congress Avenue Building approaches what is known in the construction trade as "substantial completion," much of the remaining work is going on behind the scenes. Workers began digging a tunnel under Congress Avenue in June to connect the new building with the Laboratory for Surgery, Obstetrics and Gynecology across the street. The final phase includes the testing of electrical, heating, air conditioning and air filtration systems, said project manager Reyhan T. Larimer. Moving will begin in November and continue through March under the supervision of Freeman Enterprises, a New York firm specializing in moving scientific laboratories. First the building will undergo customization to accommodate special laboratory equipment. "The building was designed generically," Larimer said. "Now we have to make minor adjustments for the people who are moving in." We'll examine the move in detail in the Winter 2003 issue of *Yale Medicine*.

### TRIBAL TOURNAMENT

In late spring the Mashantucket Pequot Tribal Nation of southeastern Connecticut, owners of the world's largest casino, joined with 20 companies and dozens of individuals in a fund-raiser to benefit the Department of Pediatrics' section of immunology. The Timber Spears Memorial Golf Outing, held in memory of a 3-year-old tribal member who died in August 2001, attracted 146 participants and raised more than \$23,000. Timber Spears was born with a primary immune deficiency; his grandmother Phyllis Waite, a tribal elder, proposed the golf outing at the Foxwoods Country Club to encourage research into the condition. "We are grateful to his family for their efforts to help other children with primary immune deficiencies," said José G. Calderon, M.D., who treated Timber from the time he was 2 months old. "The gift will provide resources and keep the child's spirit alive." Steve Tantillo, a Mashantucket Pequot Athletic Commission coordinator, said the golf outing will be repeated next year.





HENRIK DRESCHER

## When a death defies explanation

A method for flagging mysterious illnesses may be a useful tool in the battle against bioterrorism.

Even before last fall's anthrax attacks, physicians and public health experts worried about the nation's ability to identify and respond to outbreaks of infectious disease. In response to a 1992 report from the Institute of Medicine, the Centers for Disease Control and Prevention (CDC) had begun a surveillance strategy to detect new and unrecognized infectious diseases.

The project, called Surveillance for Unexplained Deaths and Critical Illnesses Due to Possibly Infectious Causes, grew out of two observations: new infectious diseases in this country were breaking out long before they were recognized, and the development of new molecular probes allowed infectious agents to be identified and characterized.

In 1995 the CDC, with partners at Yale and Stanford universities and in San Francisco, Minneapolis and Portland, Ore., began a population-based surveillance using diagnostic tests, death records and hospital discharge records to identify cases that would bear the label UNEX (for unexplained deaths and critical illnesses due to possibly infectious etiologies.) Preliminary results were published earlier this year in the journal *Emerging Infectious Diseases*.

"We found that in a population of 7.7 million, about 40 people are dying or becoming sick from unexplained illnesses each year," said Andre N. Sofair, M.D., M.P.H., HS '90, assistant professor of medicine and one of the authors of

the study. "While this number might seem small, it is rather significant when it is put into perspective. Each year, in a well-served population, there are many young people who become critically ill or die without a diagnosis."

The study, which is continuing, examined unexplained critical illnesses and deaths among people between the ages of 1 and 49 in the San Francisco Bay area, the state of Minnesota and New Haven County in Connecticut. It also looked for cases among people between the ages of 1 and 39 in Oregon. A UNEX case was defined as a previously healthy person who died or was hospitalized in an intensive care unit with a life-threatening illness bearing the hallmarks of an infectious disease for which no cause was identified. The study examined tissue or blood samples from 122 patients who died or became ill for unexplained reasons. The researchers divided patients into syndrome categories that represented their illness, such as a disease of lung or liver, and samples were tested accordingly, with each sample undergoing an average of 28 tests. No new infectious agents were discovered, but the cause of illness was determined in 28 percent of the patients tested.

This pilot study yielded numerous lessons, according to the authors. Future surveillance for UNEX, they found, could benefit from simplified case-finding methods, better quality of specimens and a more focused surveillance of specific syndromes. The authors believe their surveillance approaches will strengthen collaborations among clinicians, laboratory technicians and public health professionals and result in better detection of unexplained deaths and critical illnesses and better monitoring of emerging infectious diseases. "These preliminary findings are being used to direct programs to assist in bioterrorism preparedness and outbreak investigation," said Sofair. "Having more sophisticated diagnostic testing would be helpful in finding a cause of death or illness."



## **A tool for predicting mortality among older patients, across populations**

Any one of 10 conditions—ranging from congestive heart failure to major stroke to diabetes—suggests that geriatric patients run a higher risk of dying within a year of being hospitalized, according to a Yale geriatrician. The list of conditions, said Sharon Inouye, M.D., associate professor of medicine and geriatrics, is not for application to individual cases. Instead, it should be used to make outcomes analysis uniform and to foster appropriate programs and policies for an aging population.

“It’s important to be able to compare how sick people are across populations, across hospitals and across studies,” said Inouye, senior author of the study published in March in the

*Journal of the American Geriatrics Society.*

Lead author Mayur Desai, PH.D., working with Inouye and her colleagues, wanted to develop a risk assessment tool that would be easy to use without extensive physicals or detailed chart reviews and which would take into account the high burden of illness among the elderly. “We wanted to come up with a system that is based on administrative data that are readily available, identifies high-risk diagnoses and indicates which segments of the population are at a high risk for mortality. We’re hoping this will be useful to people who do research with older patients or develop new systems to care for older patients.”

Inouye and colleagues found that elderly patients with any of 10 conditions were at higher risk of dying within a year of being hospitalized. In descending order of risk, the condi-

tions are congestive heart failure, pneumonia, chronic lung disease, solid tumor cancer that is localized, metastatic cancer, lymphoma/leukemia, major stroke, acute renal failure, chronic renal failure and diabetes with end-stage organ damage. This system is unique in being developed specifically for use with older persons, based on readily available hospital data.

“Given the potential for misuse or misinterpretation we do not advocate use of this index at the bedside for individual patients,” Inouye said. “The index is recommended for mortality prediction in patient groups or populations.”

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## **A BETTER TAKE ON BETA BLOCKERS**

A Yale study has debunked the myth that beta blockers—prescribed following a heart attack to guard against future episodes—commonly cause depression, fatigue and sexual dysfunction. Harlan M. Krumholz, M.D., senior author of a July paper in *JAMA*, found that there had been no systematic review of the alleged association and reviewed 15 clinical trials involving more than 35,000 patients. “We found no clear evidence that the use of beta blockers causes depression,” Krumholz said. There was a slight association with fatigue and sexual dysfunction, but Krumholz also found those symptoms among study subjects taking placebo. His conclusion? More patients than are now receiving the medication stand to benefit.

## An easier operation for kidney donors, laparoscopy still carries a risk

When potential kidney donors meet transplant surgeons Marc I. Lorber, M.D., and Amy L. Friedman, M.D., many have already read on the Internet that laparoscopic nephrectomy is easier on the donor than the conventional open surgery. But according to Friedman and Lorber, the choice is seldom clear-cut. Among the 37 donors who chose to give a kidney at Yale during the first 11 months the advanced procedure was offered here (starting in June 2001), only eight chose the new approach.

The donors' sophistication poses a challenge to Lorber and Friedman. True, laparoscopic nephrectomy offers advantages to people who wish to give a healthy kidney to a relative or friend in need. The technique minimizes scarring because the surgery is done through smaller incisions, including one for a tiny camera that surgeons use to watch their work on a monitor. Laparoscopy can speed recovery and reduce pain. But the technique may also pose risks, including an increased chance of damage

to the intestines and spleen, intra-abdominal scarring and, rarely, bleeding. Whether it's the best choice depends partly on the anatomy of the donor and partly on the donor's decision regarding risks and benefits, according to Friedman, who performs laparoscopic nephrectomies with urologic surgeon Kevin R. Anderson, M.D.

Although laparoscopy may attract new donors, it won't resolve the overwhelming kidney shortage. With 52,000 Americans waiting for kidneys—including 434 on Yale's list—the rate of 14,000 transplants per year falls short. Last year, 2,800 Americans died awaiting kidneys. At Yale and nationwide, most kidneys come from people who are brain-dead following a stroke or trauma (including 25 of 62 kidneys transplanted at Yale from June 2001 through April 2002). Yet only about half of Americans consent to donate the kidneys of a relative who dies.

The pressing issue, says Friedman, is not which type of surgery donors should choose. "The real problem is that we have all these patients who should be helped with a transplant, and we don't have kidneys for them."



The kidneys and renal arteries are clearly visible in this spiral computed tomography image of the anatomy of a kidney donor. The donor decided to have his kidney removed using a minimally invasive procedure that is less painful and has a shorter recovery period than open surgery.

## A NEW TOOL FOR AUTISM TREATMENT

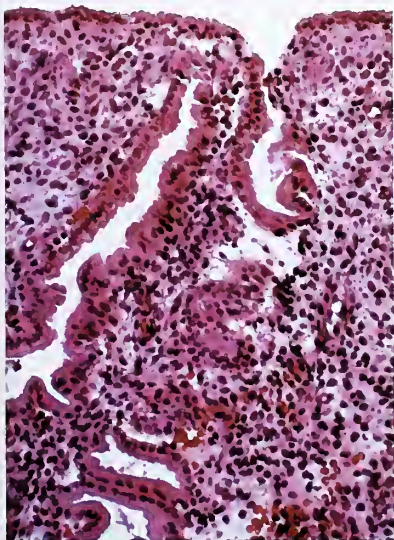
Risperidone, an antipsychotic drug, has proven effective for the treatment of behavioral problems in autistic children, according to a Yale study published in July in *The New England Journal of Medicine*. The clinical trial targeted not the core symptoms of autism, including impaired relations with others and delayed language, but related problems such as self-injury, aggression and tantrums, said Lawrence D. Scahill, M.S.N., M.P.H. '89, PH.D. '97, an associate professor at the Yale Child Study Center and lead author of the study. More than two-thirds of the children randomly assigned to risperidone showed a positive response, compared with 12 percent in the placebo group. No previous study on autism has shown this large a treatment effect.



## Scientist sees a connection between endometriosis and tampon use, orgasm

Tampons and sex appear to protect women from endometriosis, a painful condition that afflicts about 10 million American women and can cause infertility, according to research by a Yale physician.

The finding came as the result of a study exploring whether sexual behaviors, orgasm, tampon use and douching during menstruation modified the risk of endometriosis. "To our surprise, sexual behavior, orgasm and tampon use during menstruation were found to be less frequent among women with endometriosis compared to controls," said Harvey J. Kliman, M.D., PH.D., a research scientist in the Department of Obstetrics and Gynecology and lead author of the study published in the



A normal 25-day endometrium. Fragments of menstrual endometrium that are refluxed through the Fallopian tubes are theorized to be a cause of endometriosis.

June issue of *Gynecological and Obstetric Investigation*. "It may be that uterine contractions that are part of the female orgasm induce more effective menstrual-fluid clearance of the uterine cavity, which in turn may facilitate cervical outflow. Further, the use of tampons may be more efficient at the removal of menstrual fluid compared to the use of pads."

Women with endometriosis have endometrial tissue, which normally grows only in the uterus and is shed during menstruation, growing on the Fallopian tubes, ovaries, other sites in the pelvis or, in rare cases, outside the pelvic area. It is typically found in women who are childless or who have children later in life.

The study has provoked some controversy. "To state that women aren't getting endo because they're having sex—when it's just as likely that they are not having sex because they are experiencing the pain of endo—is jumping to conclusions," the Endometriosis Association stated on its website. Kliman claims that objections to his conclusions are related to a long-held belief that dioxin in tampons is the real culprit but, he said, "our study refutes this."

According to Kliman, a backup of menstrual fluid in the pelvic cavity is believed to play a prominent role in the pathogenesis of endometriosis. At the start of his research Kliman held to the conventional wisdom that tampon use, douching and sexual activity, especially with orgasm, at the time of menstruation would heighten the chances of developing endometriosis. Instead, he found that douching did not appear to lessen the risk of endometriosis, but sexual activity, orgasm and tampon use did.

"Our study has an important public health message for women, especially at a time when many women seeking infertility care have endometriosis as their primary diagnosis," said Kliman. "Our study suggests that tampon use could be one of the strongest protectors against endometriosis."

## at cetera

### OLD DRUG, NEW TREATMENT

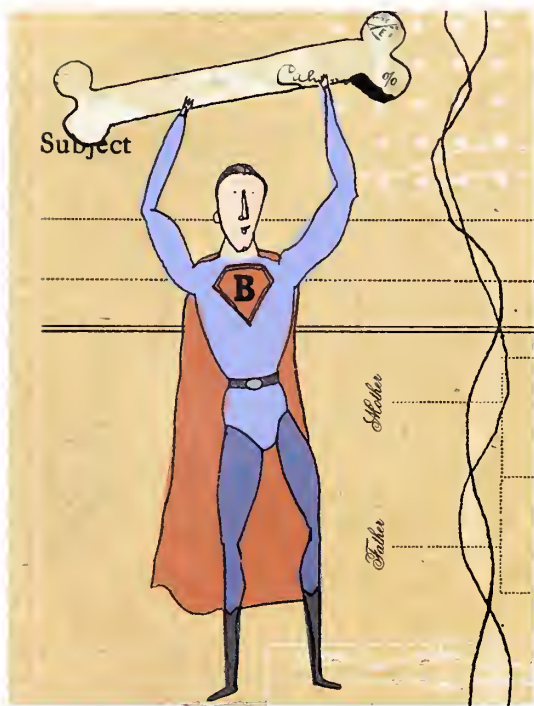
A postoperative pain reliever has a new role in the delivery room, according to a study by Yale doctors. When diluted, the drug hydromorphone, also known as Dilaudid, provides pain relief during labor and reduces the need for localized numbing agents, according to Raymond S. Sinatra, M.D., PH.D., professor of anesthesiology and lead author of a study published in the May issue of the journal *Anesthesia & Analgesia*. "By decreasing the amount of local anesthetics in the epidural, women are able to push more vigorously and can actually feel the baby being born without feeling pain," Sinatra said. On the basis of these findings, and clinical experience gained over several years, "hydromorphone is the epidural opioid of choice for labor and delivery analgesia at our institution," said Sinatra.

### EMPLOYMENT AND WELL-BEING

Being out of a job increases one's chances of dying, according to a Yale scientist. "Employment is the essential element of social status and it establishes a person as a contributing member of society," said M. Harvey Brenner, PH.D., a visiting professor in the Global Health Division at the Department of Epidemiology and Public Health. "Employment also has important implications for self-esteem. When that is taken away, people become susceptible to depression, cardiovascular disease, AIDS and many other illnesses that increase mortality."

Brenner's study found that mortality rose when unemployment rose and declined when unemployment declined. Low levels of unemployment also led to an increased community sense of well-being. The results of the study, the largest of its kind on mortality patterns in Europe and the United States, were presented to members of the European Parliament in May. The European Union commissioned the study to give a human context to unemployment rates over the last 10 to 55 years in 16 countries.





## “Unbreakable” bones prompt a hunt for genes

Aided by a Connecticut family with unusually high bone density, a Yale team sheds light on osteoporosis.

The DNA of an extended Connecticut family has yielded a possible target for the treatment and prevention of osteoporosis, according to Yale scientists who reported their findings in the May issue of *The New England Journal of Medicine*.

Members of this family carry a genetic mutation that causes high bone density. They have a deep and wide jaw and bony growth on the palate. Richard P. Lifton, M.D., PH.D., chair of the Department of Genetics, along with Karl L. Insogna, M.D., professor of medicine and director of the Yale Bone Center, and colleagues, traced the mutation to a gene that was the subject of an earlier study. In that study researchers showed that low bone density could be caused by a mutation that disrupts the function of a gene called *LRP5*. In the recent study, the Yale team mapped the family's genetic mutation to the same chromosome segment in *LRP5*. “It made us wonder if a different mutation increased *LRP5* function, leading to an opposite phenotype, that is, high bone density,” Lifton said.

Family members, according to the investigators, have bones so strong they rival those of a character in the 2000 movie *Unbreakable*. “If there are living counterparts to the [hero] in *Unbreakable*, who is in a terrible train

wreck and walks away without a single broken bone, they're members of this family,” said Lifton. “They have extraordinarily dense bones and there is no history of fractures. These people have about the strongest bones on the entire planet.”

Insogna first heard about the family a few years ago during a discussion of a clinical case being studied at Yale. Joseph L. Belsky, M.D., clinical professor of medicine, told Insogna that he knew of a family with high bone density. “I mentioned that I, too, had been referred a patient with extraordinarily high bone density,” Insogna said. “When we pieced together the family tree, we realized these people were all related.”

Ultimately, 20 members of the family provided blood samples for DNA testing, and most also had their bone density measured. Seven had extremely high bone density in the spine, hip and throughout their bodies. Nine family members had normal bone density.

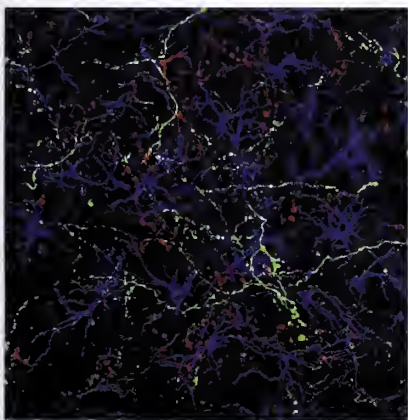
“What we found is that the high bone density in this family behaved as a single gene disorder,” Lifton said. “We then went on to map the location of the gene and identify the specific mutation responsible for the high bone density.” The study demonstrated that the mutation prevents the action of a normal antagonist of the Wnt signaling pathway, resulting in unopposed Wnt signaling and increased bone formation.

Most importantly, the new finding suggests that medications that mimic the effect of this mutation would promote increased bone density, providing a rational target for new drug development.

## In experiment with rats, an engineered peptide helps the spinal cord regenerate

Building on their previous research, scientists at Yale have developed a synthetic peptide that promotes nerve fiber growth in the damaged spinal cords of laboratory rats.

If applied to humans, this finding could reverse the effects of brain and spinal cord injuries resulting from trauma, stroke or degenerative diseases such as multiple sclerosis. The study, published in the May 30 issue of *Nature*, confirms which molecules block axon regeneration in the spinal cord, according to lead author Stephen M. Strittmatter, M.D., Ph.D., the Vincent Coates Chair of Neuro-



STEPHEN STRITTMATTER

The explosion of color seen in these images confirms the growth of nerve fibers, shown in red, in the injured spinal cord of a laboratory rat. The green structures are regenerating axons, and the interconnecting blue lines are astrocytes.

ogy. It also shows that a peptide can spur new growth. Axons extend from neurons and carry nerve impulses to target cells.

In previous research Strittmatter discovered a protein he called Nogo, which inhibits regeneration of axons. A subsequent paper described the receptor through which Nogo acts. His latest research has found a way to counteract the action of the Nogo protein.

"We developed a way to block Nogo with a peptide that binds to the Nogo receptor and prevents it from doing its normal job," said Strittmatter. "There is no drug used today to promote axon recovery in humans, so it is hard to predict how well this drug will work in humans."

In laboratory rats the drug did promote the growth of nerve fibers, and the rats could walk better than those that did not receive the treatment. The peptide, comprising 40 amino acids, was inserted into each rat's spinal canal through a catheter over four weeks. Human trials will not begin until researchers determine whether the synthetic peptide can promote nerve fiber growth for weeks or months after injury, and whether the peptide is effective and safe for use in humans.

"There is some reason to think the peptide might promote growth in older injuries, because some damaged nerve fibers in the brain and spinal cord just sit there," Strittmatter said. "If we had some way to block these inhibitors the nerve fibers might grow back again."

## SIDS AND A FAULTY NEURON

A study by Yale physicians suggests that sudden infant death syndrome (SIDS) may be linked to a defect in a neuron that alerts the body to high carbon dioxide levels.

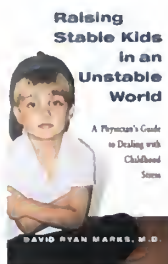
"When someone falls asleep with their face in a pillow, carbon dioxide levels rise," said George B. Richerson, M.D., Ph.D., HS '91, associate professor of neurology and physiology. "The normal response is to wake up slightly, turn the head and breathe harder. There is evidence that some infants who die of SIDS lack this normal protective response."

SIDS strikes one in 1,000 infants and is the leading cause of death of children between two weeks and one year of age. Physicians have identified risk factors including lying face down, prematurity, low birth weight and a recent, mild upper-respiratory infection. Previous studies had found abnormalities in serotonin-containing neurons in the brains of infants who died of SIDS. Richerson and his co-investigators reported in *Nature Neuroscience* that, in rats, serotonergic neurons are situated next to large arteries in the brain, an ideal location for sensing carbon dioxide levels in arterial blood.

## SEEKING GENES AND PROTEINS

As part of a billion-dollar investment in science and engineering, the university announced in April that it will spend more than \$200 million on the new Yale Center for Genomics and Proteomics, which will explore the myriad functions and interactions of genes and proteins in a range of organisms including humans. The research will help scientists understand basic biological processes and promises to open doors for the diagnosis and treatment of disease. "In addition to research, the center will be used for teaching and to amplify our interactions and partnerships with industry," said Director Michael Snyder, Ph.D., chair of molecular, cellular and developmental biology. Added Graduate School Dean Susan Hockfield, Ph.D.: "We've designed a structure that provides access to state-of-the-art technology to scientists all over our campus, and that will encourage collaboration in research and teaching. ... Our aim is to create a center without walls."





**Chiropractic: The Greatest Hoax of the Century? The Whole Truth, 2nd ed.**

by Ludmil A. Chotkowski, M.D. '42  
*New England Novelty Books*  
 (Kensington, Conn.) 2002

This book proposes that the practice of chiropractic is a false health care procedure that has flourished unchallenged over the past century. Chotkowski contends that there is no scientific validity to the chiropractic theory of a vertebral body subluxation and that chiropractic cannot cure disease or promote wellness in any way.

**Raising Stable Kids in an Unstable World: A Physician's Guide to Dealing with Childhood Stress**

by David R. Marks, M.D. '89  
*Health Communications*  
 (Deerfield Beach, Fla.) 2002

This book can help parents help their children cope with the stresses they will face in their daily lives, from the aftermath of September 11 to the challenges of everyday events and activities.

Marks says some of the stresses are obvious and dramatic and are clearly a product of the "new world disorder," and others are more subtle and a result of the pressures parents place on their children, including an overload of activities and excessive pressure to succeed.

Marks shows how many stress-related disorders can be avoided and treated without medication. He offers suggestions for exercise, expression, breathing, visualization and meditation.



**The Medical Interview: Mastering Skills for Clinical Practice, 4th ed.**

by John Coulehan, M.D., and Marian R. Block, M.D. '71  
*F.A. Davis Company*  
 (Philadelphia) 2001

This text for students in physician, nurse practitioner and physician assistant training programs focuses on interactive skills as tools for gathering data objectively and precisely and for building relationships with patients. Real clinician-patient dialogues, both exemplary and flawed, are demonstrated.

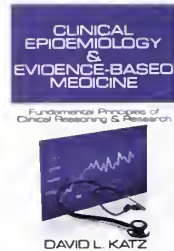
The authors present topics such as alternative medicine, malpractice prevention, conveying bad news, interviewing adolescents, spirituality and cultural sensitivity.

**The Grundilini: From the Chronicles of Audelae**

by Benjamin R. Doolittle, M.Div. '94, M.D. '97  
*New Canaan Publishing Company*  
 (New Canaan, Conn.) 2002

*The Grundilini* is a fantasy novel for young-adult readers (ages 9 to 13) in the tradition of C.S. Lewis.

Audelae, the young leader of her people, must rely on her cunning and bravery to overcome a more powerful foe and reclaim her people's most cherished possession. She seeks her magic flower, which has been stolen by the Grundilini—the most wicked mercenaries in the land. In facing up to the Grundilini, Audelae and her crew must make choices that test their human values and their very understanding of self.



**Clinical Epidemiology & Evidence-Based Medicine: Fundamental Principles of Clinical Reasoning & Research**

by David L. Katz, M.D., M.P.H. '93, associate clinical professor of public health and medicine, Laura Greci, M.D., and Haq Nawaz, M.D., M.P.H., clinical instructor in medicine and lecturer in public health

*Sage Publications*  
 (Thousand Oaks, Calif.) 2001

If a patient is older or younger, or sicker or healthier, taller or shorter than—or simply different from—the subjects of a study, do the results pertain?

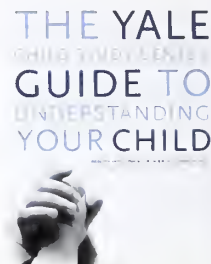
This book is a resource for all health care workers involved in applying evidence to the care of their patients. Using clinical examples and citing liberally from the peer-reviewed literature, the book shows how statistical principles can improve medical decisions. Plus, as Katz shows how probability, risk and alternatives are fundamental considerations in all clinical decisions, he demonstrates the intuitive basis for using clinical epidemiology as a science underlying medical decisions.

**Comprehensive Guide to Interpersonal Psychotherapy**

Myrna M. Weissman, Ph.D. '74, former professor of psychiatry and epidemiology, John C. Markowitz, M.D., and the late Gerald L. Klerman, M.D.

*Basic Books*  
 (New York) 2000

This reference consolidates the art and research behind a treatment developed in the



1970s for depression. Applied now to disorders of behavior and personality as well as mood and adapted to new formats, interpersonal psychotherapy is presented as an empirically validated, time-limited and replicable treatment with rationales, techniques and case examples.

**The Yale Child Study Center Guide to Understanding Your Child: Healthy Development From Birth to Adolescence**

by Linda C. Mayes, M.D., the Arnold Gesell Associate Professor of Child Development in the Child Study Center and associate professor of pediatrics and psychology, and the late Donald J. Cohen, M.D., the Sterling Professor of Child Psychiatry, with John E. Schowalter, M.D., and Richard H. Granger, M.D.

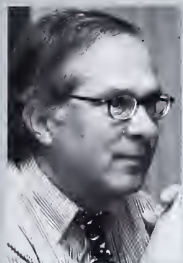
*Little Brown and Co.*  
 (Boston, New York, London) 2002

Focusing exclusively on developmental issues, the work of psychiatrists, psychologists, pediatricians, social workers and educators at the School of Medicine's Child Study Center has been compiled in this comprehensive reference guide for every family bookshelf. This book covers everything from preparing for the birth of your first child to understanding different learning styles, from toilet training to learning disabilities, from sexuality to substance abuse.

*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](mailto:cheryl.violante@yale.edu).





### "If you're not going to ban them ..."

Past efforts to make a "safer" cigarette, attorney Scott D. Ballin told the audience at a seminar at the Institution for Social and Policy Studies, may have increased the risks to smokers. Ballin, a former vice president for public policy at the National Heart Association, said low-tar and low-nicotine cigarettes offered smokers a false sense of security. "People were compensating by smoking twice as much and inhaling more deeply," he said at the May gathering. "I don't think it is politically or economically feasible for tobacco products to be banned in this society. The real question we have to struggle with is, if you're not going to ban them, what do you do with them?"

Ballin called for making cigarettes safer by removing carcinogens and other toxins known to cause disease. "Risk reduction can be an effective strategy," he said, "but it has to be done based on science and with a regulatory mechanism, such as [that provided by] the FDA, in place. What we have done with other products regulated by the FDA should now be applied to tobacco."



### "If not you, who? If not now, when?"

Phill Wilson, the keynote speaker at this year's AIDS Science Day, got the most applause when he exhorted his audience to do more to help community groups in New Haven.

"People from places like Yale and Harvard and Princeton are the people who run the world," Wilson said, speaking at the School of Public Health in April. "Use your privilege to make a difference."

Wilson, the founder of the African American AIDS Policy and Training Institute, said AIDS takes thousands of lives a day, yet the international community has not offered a response commensurate with the epidemic. Action must be local as well as global, he said.

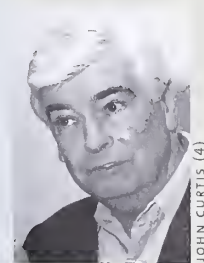
"There is something wrong with institutions like Yale that exist in poor communities like this," he said, "if they don't use their resources, their influence, their talent to strengthen the infrastructure of the organizations that live and die in their shadow. Community programs in New Haven should never have a shortage of evaluators, organizational-development folks, grant writers, researchers, website designers, policy analysts. ... If not you, who? If not now, when?"



### Drawing on native culture in medical practice

For Melvina McCabe, M.D., the diversity of cultures found in the United States is a double-edged sword, a source of both richness and ugliness. "The richness of our culture is a gift that many do not appreciate. The ugliness is racism, intolerance and the belief that our culture, and therefore who we are, is better than any other," said McCabe, an associate professor at the University of New Mexico School of Medicine. At a Humanities in Medicine lecture in April McCabe described her own journey through three cultures; the Navajo way of her family, the Christian teachings of the boarding school where she received her early education and the ethos of the medical world.

From her Navajo origins she has maintained the belief that wellness comes from a harmony with one's self and all living things. "In no other place but health care is a flexible, open-minded approach so paramount," she said. "It is here that we are trained to heal people, but truly heal them and take into account not only the physical aspects of a person, but also their desires, their culture and their ideas of health, wellness and illness."



JOHN CURTIS (4)

### Making the case for better newborn screening

During a visit to the School of Medicine in August, U.S. Sen. Christopher Dodd couldn't resist showing his audience a picture of his daughter, then just a few weeks away from her first birthday. But there was a point the doting father wanted to make about her birth at a hospital in Virginia. "At no stage were we ever advised of the importance of newborn screening," he said at Pediatrics grand rounds.

Dodd's daughter was born healthy, but newborn screening for genetic defects can mean the difference between life and death. Congenital metabolic defects that can be detected by screening can cause mental retardation and sudden death. Physicians check for eight disorders in Connecticut, and recent legislation will expand screening in January to cover two additional metabolic disorders. Access to screening varies, however, from state to state.

Dodd has proposed federal legislation that would provide funding to expand the scope of screening. "Parents must know what their state requires and their options to receive supplemental screening if they so desire," Dodd said. He came to Yale at the invitation of Scott A. Rivkees, M.D., associate professor of pediatrics, who testified on the topic in June before a U.S. Senate committee.

# A leather-bound diary, a young Harvey Cushing

Legendary neurosurgeon's travel journal reveals a focused mind and an eye for detail.

By Susan Froetschel



CUSHING/WHITNEY MEDICAL LIBRARY

The Cushing/Whitney Medical Library recently acquired Harvey Cushing's diary of his visit to the World's Columbian Exposition in 1893.

**ABOVE** Cushing in a portrait taken two years later, when he finished medical school at Harvard.

**RIGHT** Cushing's diaries are accompanied by records of four generations of physicians in the Cushing family.

During his weeklong trip to the World's 1893 Columbian Exposition in Chicago, Harvey W. Cushing, M.D., took in a football game, had a ringside view of the "slaughtering of cattle and hogs" and was particularly intrigued by an exhibit of contemporary Egypt. He also saw the Buffalo Bill show and spent \$2 on a hotel room.

Cushing's detailed observations of his trip, made with his older brother Edward, are in a journal that is now in the collection of the Cushing/Whitney Medical Library. It was part of a recent acquisition that also included a journal of a trip to Bermuda and account books listing patients and fees paid to his father, grandfather and great-grandfather, physicians all.

At the time of his Chicago trip, Cushing, an 1891 graduate of Yale College, was 24 and ready to start his third year of medical school at Harvard. The Morocco-bound diary—in hasty, yet compact, pencilled script—offers his observations interspersed with whimsical sketches.

Much as a diary leads to introspection, the fair provided an opportunity for national self-assessment. The huge event attracted millions of visitors and "represented the Victorian era's attempt both to acknowledge the reality of rapid change and to understand and control its direction," according to Reid Badger, in *The Great American*

*Fair: The World's Columbian Exposition and American Culture*. The Chicago fair introduced the electric light bulb, alternating current and a huge Ferris wheel that accommodated more than 2,000 riders at a time. Professional congresses debated topics ranging from women's suffrage to evolution to the necessity of a liberal education for students of medicine.

During his first day at the fair on September 13, 1893, Cushing visited the Women's Building and an English exhibit featuring a hospital room. He noted the "typhoid dishes and pens ... nurses' dresses, instruments ... colored glass for different solutions. Thermometer holder ... operating jackets for patients. Operation suits of different kinds—which tie with ribbons down front, side, etc." The diary sug-





gests that he logged these ideas for future reference.

Cushing's entry for Sunday, when the fair was opened to make it possible for laborers to attend on their only day off (despite protests from religious groups), is among the lengthiest for the week. He described three hours spent in art galleries and a walk through the Midway, a section devoted to anthropology and presentations of indigenous peoples from around the world. By then, Cushing was entrenched in the physician's role and did not indulge in days of rest.

The diary reveals a broad range of interests and a fascination with art of all kinds. Cushing saved programs from concerts of European performers and wrote at length about a Japanese tea ceremony as well as an exhibit on forestry designed by Gifford Pinchot, an 1889 Yale College graduate who would go on to co-found Yale's School of Forestry in 1900. Cushing was complimentary about exotic Bedouin dancers and an exhibit on the streets of Cairo.

The exposition, with elaborate architecture and organized streets that accommodated millions of visitors, inspired new respect for urban planning and beauty, according to Badger. Still, Cushing's fine sketches, no larger than an inch or two, focus on people. Though the fair has since been criticized for stereotyping indigenous peoples as barbaric, his portraits reflect none of this.

The diary indirectly refers to the country's growing obsession with material wealth and consumerism. Tucked into the diary is a newspaper clipping that expresses amazement at the exposition's administrative building, with four pavilions, built of imper-

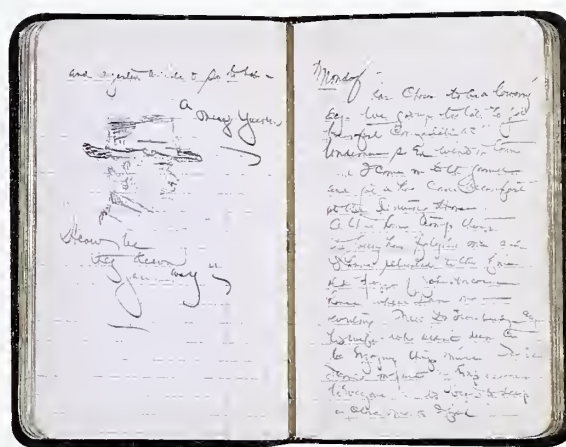
manent materials to last two years at a cost of \$550,000. Meanwhile, Cushing diligently lists his own expenditures—for example, a 35-cent breakfast and a two-cent newspaper. The fair was costly: Cushing began with \$91.84 and left with less than \$4.

Cushing was careful with money, but perhaps even more cognizant of the value of time. Throughout his notes, he frequently expressed regret for not having more time to explore. He fretted about arriving at Buffalo Bill's show too early, and toward the

end of the week he wrote, "I am foolish enough to squander time on the football game." (The Chicago Athletic Association trounced the New York Athletic Association, 6-0.)

The journals show the co-founder of Yale's medical library as a quintessential learner. His detailed observations foreshadow his astute and meticulous notes on patient care and reveal a limitless Victorian curiosity about ideas, culture and technology.

Susan Froetschel is a freelance writer and a tutor in the Bass Writing Program at Yale.



CUSHING/WHITNEY MEDICAL LIBRARY



CHICAGO HISTORICAL SOCIETY

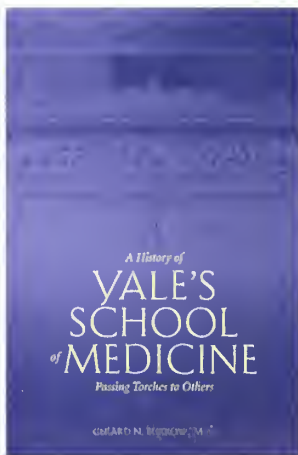
**TOP RIGHT** Cushing's 1893 diary includes sketches of the World's Columbian Exposition in Chicago. The Exposition was open on Sundays, despite objections from religious groups, to allow laborers to attend.

**RIGHT** The interior of the exhibition hall.



# “A steam engine in pants”

In 1920, Milton Winternitz became dean and ushered in a new era in medicine at Yale, creating the Yale System in the process. For much of his 15 years at the top, what Winternitz wanted, Winternitz got.



**RIGHT** Milton Charles Winternitz looks up from his papers in a photograph dated 1939, four years after he stepped down as dean. During his 15 years leading the school, Winternitz reorganized the medical school departments, recruited a legendary faculty and established the Yale System of medical education. His deanship is chronicled in Gerard Burrow's new history of the medical school, published in October by Yale University Press.

Milton C. Winternitz, M.D., was the catalyst behind the Yale School of Medicine's rise to elite status in the years between the two world wars and one of the most colorful and forceful personalities to emerge from the school's 192-year history. Invoked frequently as the originator of the Yale System of medical education, which took shape during his first term as dean, Winternitz was also a terror to faculty and students alike, an intimidating presence who inspired awe as well as furious devotion. He was, as former Dean Gerard N. Burrow, M.D. '58, HS '66, writes in his new history of the school (quoting former Yale President James Rowland Angell), “a steam engine in pants.”

Winternitz, who served as dean from 1920 to 1935, occupies a central chapter in the book, *A History of Yale's School of Medicine: Passing Torches to Others*, published in October by Yale University Press. The article that follows is adapted from the book and focuses on Winternitz's role in establishing the Yale System. The entire chapter, which reveals a great deal more about Winternitz's character and personality, can be read online at our website, [info.med.yale.edu/yymm](http://info.med.yale.edu/yymm). ▶





**RIGHT** Abraham Flexner wrote in his 1910 report to the Carnegie Foundation that Yale's medical school was among only 31 in the nation and two in New England worthy of survival. During Winternitz's tenure as dean, Flexner would again be supportive of the school as a representative of the Rockefeller Foundation's General Education Board.

**BELOW** Sterling Hall of Medicine in 1925, five years into Winternitz's deanship.



BETTMANN/CORBIS

Burrow, who started the book after stepping down as dean in 1997, began his medical studies at Yale in 1954. After a residency in medicine at Yale, he was asked by Chair Paul Beeson, M.D., to stay on as an assistant professor, and he spent another decade in New Haven before joining the faculty at the University of Toronto in 1976, where he eventually led the Department of Medicine. In 1991, when a search began at Yale to find the successor to then-Dean Leon E. Rosenberg, M.D., HS '63, Burrow was a dean himself, at the University of California, San Diego. He made a trip to New Haven to lobby the search committee for the preservation of the Yale System. Not long after he was named the school's 14th dean.

Burrow's history of the school was commissioned for the university's Tercentennial in 2001. Writing it "was incredibly painful," Burrow said, laughing, during an interview in late July. "I've done six or seven textbooks: a couple I've written, a number of them I've edited. Writing this history was infinitely harder. In a textbook, you kind of know what you want to say. But with this book the history unfolds and then you find another letter, and that changes it. You get to a cer-





tain place and you say, 'Gee, I wonder why that happened?' And you realize that would add another five years to the book."

Once he finished writing, Burrow's career path took an unusual turn. After nearly 10 years on the board of the Sea Research Foundation in Mystic, Conn., he was asked in 2001 to step in as interim CEO; he was already heading the board and indulging a lifelong fascination with the sea, marine mammals in particular. In January of this year, he became chief executive on a permanent basis. "I spend my time now trying to decide whether we bring in three 10-foot alligators or 15 two-foot alligators. We decided on the 15. ... I decide how we're going to spread our advertising and marketing money, because we are virtually entirely dependent on attendance. And I end up talking with bankers about how to refinance bond issues. I'm doing things that are very different from medicine and very challenging and interesting."

The former dean is now directing a breeding program designed to save an imperiled population of beluga whales. "I'm actually working with people at Yale to see if we can do artificial insemination." As the foundation's CEO, Burrow oversees both the Mystic Aquarium and the Institute for Exploration, directed by Robert Ballard. Three years ago, he accompanied Ballard 3,000 feet below the surface of the Mediterranean Sea to uncover ancient Roman ships. Next August he plans to join the explorer on a Black Sea expedition to look for evidence of civilization at the time of the Great Flood. He admires Ballard for his ability to simultaneously pursue good science, educate and entertain. "At times he's like a cardiothoracic surgeon [in his intensity], but he's got incredible vision and enormous amounts of energy."

In exploring the origins of the medical school, Burrow focused on its relationship to the university, to Connecticut's medical establishment and to the hospitals with which it has been affiliated. Chronic underfunding by the university in earlier days, he writes, led many times to the school's near-demise, and it was hampered by a lack of control over the clinical facilities in which its faculty members practiced. The arrival of Winternitz was preceded by a long period of decline in the mid-1800s, followed by a slow revival that began with the establishment of the Sheffield Scientific School at Yale in 1861. By 1910, when Abraham Flexner reported to the Carnegie Foundation that Yale and Harvard were the only medical schools in New England worth saving, the school was on a much more stable course. Flexner later held out the promise of financial support from the Rockefeller Foundation if Yale would move to a full-time clinical system, which he felt was a solution to medicine's woes.

Burrow sees Winternitz as one of the driving forces in the medical school's evolution from a tiny school with a faculty of five in 1813 to one of the world's pre-eminent biomedical institutions today. Winternitz was, Burrow writes, "a complex personality who was either loved or hated [but] involved in everything."

—Michael Fitzsosa



LEN RUBENSTEIN

Gerard Burrow

## From A History of Yale's School of Medicine: Passing Torches to Others

by Gerard N. Burrow, M.D. '58, HS '66

"At a meeting of the Faculty of the Yale Medical School held on May 7, 1920, the following action was taken for transmission to the Corporation. Voted to nominate Professor Milton Charles Winternitz to the Corporation as Dean of the medical school for a period of five years." The new dean was a man who evoked strong emotions. He was described by his friends and colleagues as a "vital and vivid man, an intense fountainhead of energy, an inexhaustible generator of ideas and constant stimulator of the imagination." Others, while acknowledging his accomplishments, portrayed him as a "martinet," "a terrible little guy who dissipated the financial resources of the school on impractical schemes."

During his 15 years as dean, Winternitz firmly brought the medical school into the fold of the university by assuring that the medical faculty met the university's academic standards and by reorganizing medical school departments as university departments. Under his firm hand, the full-time system for clinical teachers was hammered into place. He tirelessly raised funds for buildings and facilities.

Winternitz believed strongly in all he did, but he was particularly adamant that medical students should be treated as graduate students—a view that led to the creation of the Yale System of medical education.

**Winternitz believed strongly in all he did, but he was particularly adamant that medical students should be treated as graduate students—a view that led to the creation of the Yale System of medical education.**

Accomplishments of this magnitude cannot occur without cost, especially when achieved in so short a time. Diplomacy in human relations was not always one of Winternitz's strengths. Levin Waters, a pathologist trained by and devoted to Winternitz, took the view that "though his methods may continue to evoke controversy, there will always be agreement that Winternitz was the right man in the right place at the right time for the Yale School of Medicine." John Fulton, physiologist, medical historian and friend of Winternitz, described him as "of Napoleonic temperament and stature and a thoroughgoing autocrat but honest as the day is long and possessed of a broad and sympathetic nature."

Milton Charles Winternitz was born in 1885 in East Baltimore, the son of an immigrant doctor from Czechoslovakia. He was four when the Johns Hopkins University School of Medicine opened its doors in East Baltimore in 1893, four years after the founding of the Johns Hopkins Hospital. Growing up near the medical school must have been a powerful influence on a neighborhood boy whose father was a doctor. Hopkins's founding dean, pathologist William Henry Welch, had brought the excitement of German scientific medicine to the young school, which was to become the model for modern medical education in the United States. An outstanding student, Winternitz applied for a house-staff position in surgery under William Halsted, but he was turned down and went to work with Welch in pathology. Welch, a Connecticut native and a staunch Yale alumnus, was a dynamic and stimulating teacher. Winternitz was enthralled with Welch as a role model, followed him into pathology and was awarded a teaching position at Hopkins.

As Welch was in constant demand and traveled frequently, junior members of the faculty were often asked to fill in as lecturers at the last minute, and Winternitz developed a capacity for "extemporaneous elegance." Like his mentor, he also made a number of trips, including several short visits to Leipzig, Berlin, Freiburg and Vienna. Despite his idolization of Welch, Winternitz developed a very different teaching style. Whereas students described Welch as "a kindly and infinitely wise old gentleman" who went out of his way to be helpful, they saw Winternitz as a martinet who taught by terrorism. John Paul, who had been a second-year medical student at Johns Hopkins, could not understand how "Welch tolerated him as a member of his Department, for even as long as a decade."

Winternitz was a man of many facets. His granddaughter Susan Cheever described him as a "short man with a tyrannical manner, an intense charm that could make you feel that you were the only person in the world—and a raging temper that could make you wish you weren't." He utilized his great charm to attract and marry Helen Watson, whom he pursued with "the sweetness of a kitten and the ferocity of a lion." A Wellesley graduate and a medical student at Johns Hopkins, she was beautiful, smart, Protestant and the daughter of Thomas Watson, who with his friend Alexander Graham Bell had invented and developed the telephone. Overcoming formidable obstacles, Helen Watson and Milton Winternitz were married in 1913.

Winternitz had hoped to remain at Johns Hopkins and eventually succeed Welch as chair of pathology. But this was not to be. Several authors have attributed Winternitz's ultimate lack of success at Hopkins to anti-Semitism. Welch told Thomas Watson at a chance meeting that Winternitz was entirely capable of succeeding him but that his scientific contributions, although of high quality, were not yet voluminous enough. Watson relayed Welch's comments: "Age he intimated was the only objection against your election." Being Jewish would not have helped his chances, but there were clearly other reasons why Winternitz was not chosen to succeed Welch. Nevertheless he became the first Jewish professor at the Yale School of Medicine.

It was almost certainly on Welch's recommendation that Winternitz was appointed professor of pathology at Yale in 1917. He was scheduled to start at Yale just as America entered the Great War. Welch attempted unsuccessfully to delay Winternitz's departure in order to have him work with the Hopkins medical unit. Winternitz arrived at Yale as chair of a pathology department in a medical school that was deeply involved in the war effort. Yandell Henderson, the professor of physiology, who had been a consultant on gases for the Bureau of Mines, enlisted Winternitz's aid in the war gas project. With a flair for organization that was to serve him well, Winternitz established a center for the biological study of war gases as well as an army training school for laboratory medicine. In 1920 he published a monograph on the results of these studies, *Collected Studies on the Pathology of War Gas Poisoning*. That same year he published *The Pathology of Influenza*, which he had co-written in the wake of the postwar pandemic. Although he had been at Yale for



only three years and had been heavily involved in the war effort, the faculty elected him the fifth dean of the medical school in 1920.

When Milton Winternitz succeeded George Blumer as dean of the School of Medicine, academic control of the beds in the hospital had been achieved and a full-time clinical program had been organized, although not yet fully implemented. The General Education Board's criteria had been fulfilled, ensuring solvency of the hospital, at least in the short term. But academic control of the hospital was complicated by the profusion of health care organizations involved in patient care. There was ongoing opposition to the full-time clinical system from both the community and long-term members of the faculty, and the hospital board was making decisions that were not in the interest of medical academia.

Yale University President James Rowland Angell commented that Winternitz became dean at a time when the medical school faced its most disheartening prospects. There was a perception that the "outlook was as unpromising and depressing as could be imagined." Yet the saga of the School of Medicine had contained many equally bleak periods before. All of the goals which the faculty had fought to achieve in the school and in the hospital had been reached, but Camelot remained elusive. After having worked so hard for so long, the clinical faculty still did not have academic control.

When Winternitz took over the deanship, his first priority was to fill the ranks of the senior faculty. Blumer had resigned as chair of medicine, exchanging the John Slade Ely Professorship for the David Paige Smith Professorship, and had immediately taken sabbatical leave. Morris L. Slemons, founder of the first full-time clinical Department of Obstetrics and Gynecology in the United

States, had left to return to California. Joseph Marshall Flint, the professor of surgery, who had experienced persistent pulmonary problems since the war, had retired.

Yandell Henderson, who had been professor of physiology for 10 years, had long been dissatisfied with conditions in the department and had actually announced his resignation in 1917. He did not resign, however, but continued through the years to complain to the president. Finally, President Angell sent him a letter saying that he was impossible—in effect firing him. Henderson tried to explain that it was all a misunderstanding, but he was ultimately transferred to the graduate school and given an appointment in applied physiology. These departures left only seven members of professorial rank to constitute the entire medical school faculty.

In contrast to the somewhat muted George Blumer, Winternitz—whether liked or disliked—was a "steam engine in pants" and incapable of floating in a sea of uncertainty. A number of events occurred within the university that helped Winternitz navigate that sea. In 1921, President Arthur Twining Hadley, a Yale man and a traditionalist, was succeeded by Angell, a psychologist and the first Yale president from "elsewhere" since Abraham Pierson. It was the era of the postwar boom, and funds to build facilities were becoming increasingly available. In addition, the Yale Corporation had yet again examined the future of the medical school and had issued a ringing statement of affirmation. Meanwhile the central university administration had been thrown into a state of turmoil in 1919, fomented by the extraordinary recommendations of an alumni committee, advocating a common course for all undergraduate instruction, consolidation of the college and Sheffield Scientific School and emphasis on teaching rather than research in the undergraduate college.

Most of the committee's recommendations were accepted. Despite the cataclysmic nature of the reorganization that resulted, it did solve the problem of the college and the Sheffield Scientific School as two separate schools. In addition, professors with similar interests were brought together. The professional schools were given new status, and the graduate school increased in stature. As a result of the reorganization, Yale had been converted into a better-balanced institution with a strengthened administration and a broader university focus.

Winternitz used the university reorganization plan to place all the available resources in the "fundamental" sections of the medical school while eliminating sections that were not crucial. The plan was supposed to unite the various schools with the university, thereby furthering the development of an increasingly unified university with a coordinated scheme of instruction that would eliminate duplication of courses. The members of the faculty were to be Yale University faculty, designated to teach where their talents were most needed, rather than individuals owing primary allegiance to distinct schools



Winternitz (front left) worked under the founding dean of the Johns Hopkins School of Medicine, Yale College alumnus William Henry Welch (center), in the pathology department at Hopkins after earning his medical degree in 1907. It was almost certainly on Welch's recommendation that Winternitz was appointed a professor at Yale in 1917.

**Winternitz indicated that "radical changes" in the curriculum had to be made. He wanted to give students more free time, to allow individuals to develop at their own pace, faster or slower. The hope was to "teach the student less but learn him more."**

within the university. One of the chief duties of the newly created office of provost was to partake in discussions concerned with the educational development of the university, in an attempt to foster this integration.

Using the university plan as a shield, Winternitz avoided the major confrontations that occur when medical school departments are reorganized. He committed the school's support to anatomy, physiology (including chemical, physical and biological physiology), pharmacology and toxicology, pathology and bacteriology, public health, medicine, surgery, pediatrics and diseases of women (including obstetrics and gynecology). He planned to establish a section of psychiatry and to develop some of the medical and surgical subspecialties, but he felt it unlikely that any of them would develop to the importance of major sections. The issue of what constitutes an academic department continues to be debated. Often the determining factor is not academic principle but a powerful section chief who threatens to leave unless his or her section is made into a department, with no assurance that a replacement can be recruited.

Winternitz immediately began to strengthen his faculty, recruiting Francis G. Blake as chair of medicine, who brought with him John Punnett Peters, a Yale '08 and Columbia medical graduate. Peters and William T. Stadie constituted the chemical, or metabolic, division of the Department of Medicine. James D. Trask, a pediatrician, and Arthur B. Dayton were appointed to the biological division of the department. Harold M. Marvin was recruited to direct the work in electrocardiography, which resulted in less emphasis on the stethoscope and "heart murmurs," a trend that has continued to this day. These recruitments marked the beginning of specialization in the medical school.

Joseph Marshall Flint, the professor of surgery, retired in 1921 due to ill health incurred during his military service. Samuel Clark Harvey, who had received both his undergraduate and medical degrees from Yale, succeeded him as chair. Graduating from the medical school in 1911, he spent two years in pathology in New York, followed by four years as a resident with Harvey Cushing in Boston. In 1917 he returned to Yale as an instructor. Harvey was appointed an assistant professor of surgery at Yale in 1920 and was promoted to associate professor and acting chair a year later, a meteoric rise. His rapid promotion to the chair of surgery must have raised some eyebrows, but Winternitz empha-

sized that he was a good candidate: "For the past two years, Dr. Harvey has been associated as first assistant with Dr. Flint and had been carefully trained to assume responsibility as chief of the clinic." Winternitz himself retained his position as chair of pathology.

When Morris L. Slemmons resigned as chair of obstetrics and gynecology in 1920, Arthur Morse, who had been a Yale faculty member since 1915, was appointed to the post. Morse was said to be one of the very few men in the country capable of conducting a women's clinic. Indeed, George Blumer had mentioned the Women's Clinic as one of the high points of his deanship.

A full-time pediatrics section had been one of the conditions for the grant from the General Education Board. Edward Park, a 1900 Yale College graduate, was recruited from Johns Hopkins as professor of pediatrics. Park and his assistant, Grover Powers, had done outstanding work on dietary deficiencies in children. After six years at Yale, Park confided to Angell that he was not pleased with some of the appointments and was not confident about the future of the school. James Gamble from Harvard urged Park to return to Johns Hopkins, where he would "find much better students to teach and proper men to lead into research presenting much more frequently."

Park did indeed return to Johns Hopkins but during his stay in New Haven had recruited Martha Eliot, a former Johns Hopkins student, to be his chief resident and an instructor in pediatrics. Ethel Dunham, who had arrived a year before Eliot in 1919, was the first female house officer at the New Haven Hospital. When Eliot subsequently left Yale for a full-time post at the Children's Bureau, Dunham became head of the bureau's research division in child development. During Yale's search for a chair of pediatrics, the ever-intrusive [Abraham] Flexner pushed his family physician very hard for the position, disparaging Powers' abilities in the process. Angell commented to Fred Murphy, an influential physician alumnus of Yale College, that although Powers was good clinically, "nobody has any illusions about Dr. Powers' qualifications, least of all Powers himself." As it turned out, both Flexner and Angell were wrong. Powers went on to have a brilliant career as professor of pediatrics at Yale. He was an autocratic, controlling individual who was determined that every child should be well cared for and that all his staff, including the medical students, should consider this a top priority.



In the midst of making appointments to strengthen the school, Winternitz had, as always, to consider ways to attract funds. He sent Flexner a cartoon in 1920 showing submarines from the university, faculty, hospital and community firing torpedoes at one another. The medical school was portrayed as a small boat containing two rowers going in opposite directions, with a life preserver marked "\$5,000,000" and "G.E.B.," a clear message that Flexner and the General Education Board were capable of bringing Winternitz's dreams to fruition. The cartoon was effective. Flexner replied: "You have certainly devised the most poignant and appealing form of application that was ever presented to our Board."

In his report to the president of 1921-1922, Winternitz stated that medical education in the United States was in a "state of flux." Several systems of clinical teaching had evolved, and controversy raged over the relative merits of the various systems, particularly the full-time clinical system, which Yale had adopted in 1915. At Yale, "now more of the major clinical divisions are on a solid and comprehensive full-time basis than in any other school of the world. ... Indeed, a small medical school as a part of a great university like Yale is particularly well adapted to pedagogical experiment, and it is to be hoped that such experiments, judiciously carried out, will be one of the means by which this school will aid medical education and give character to itself."

Winternitz also indicated in his report that "radical changes" in the curriculum had to be made, because of the overloaded course schedules. He wanted to give students more free time, to allow individuals to develop at their own pace, faster or slower. As someone on the Curriculum Committee said, the hope was to "teach the student less but learn him more." By "judicious pruning" the medical course could be cut by a quarter, and the candidate for the degree of doctor of medicine would still receive a broad, well-grounded training in the fundamentals of medicine. The extra time would give the challenged student more of a chance to review, while the gifted student could elect to do research or special work. With less teaching time available, the instructor would in theory concentrate on basics rather than simply talk faster. With more free time, medical students would develop a particular interest and expertise in a particular area of medicine. Winternitz concluded that the equivalent of one year's work had been salvaged from the required courses—a major accomplishment, as anyone who has been involved in curriculum reform can attest. The student was expected to use a third of this time for electives, and he could pursue research or other interests during the rest of the time.

In his annual report on the pathology section, Winternitz commented that group teaching along interdepartmental lines would be advantageous. He cited as an example that the physiology, anatomy and histology of the heart and lungs, as well as their pathology and bacteriology,

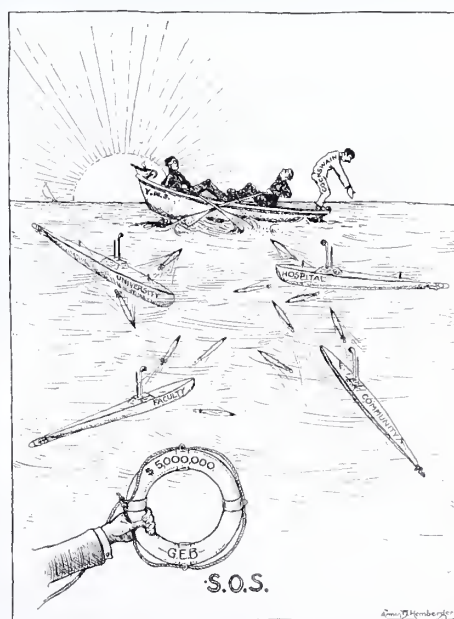
This article is adapted from a chapter in Gerard N. Burrow's *A History of Yale's School of Medicine: Passing Torches to Others*, published by Yale University Press. Reproduced by permission.

To read the entire chapter online, please visit our website, [info.med.yale.edu/yymm](http://info.med.yale.edu/yymm).

could all be studied together. In his role as chair of pathology, Winternitz was particularly interested in improving the curriculum in pathology by emphasizing the gross pathology and eliminating the "busy work" for students of routine staining and preparation of histological specimens. Emphasis would be placed also on clinical-pathological correlations throughout the clinical years.

Curriculum revision reversed the sequence of the clinical years, so in the third year students concentrated on ward medicine, which entailed acute illness and intensive therapy. On the other hand, fourth-year students, who had more clinical maturity, concentrated their efforts in the dispensary, which allowed the more mature students to acquire knowledge of disease in an outpatient setting, gain an appreciation of epidemiology and develop an interest in preventive medicine. Dispensary patients were to be encouraged to come for consultations even when they did not have a problem, so that the dispensary would be a "health clinic" as well as a "disease clinic."

*continued on page 64*



CARTOON INDICATING THE SITUATION OF THE SCHOOL IN 1920

Winternitz used a cartoon to appeal to Flexner and the General Education Board for funds. It worked.

# Everyone loves the **Yale System**. So why can't they all agree?

The debate over exams this spring centered on two key questions: how should medicine be taught in the 21st century, and how should a student's progress be measured?

By John Curtis

Photographs by Terry Dagradi

When Dean David A. Kessler, M.D., first came to Yale in 1997, he made an observation that seemed remarkable. The medical school had a deputy dean for research responsible for \$211 million in grants and contracts, a deputy dean for clinical affairs overseeing 650 academic physicians, but no deputy dean for education. Whose job was it to think about the teaching of the 485 medical students who were beginning their careers as doctors and scientists at Yale?

This administrative gap was emblematic of a disparity in American medical education that began with large-scale investment in research following World War II, continued with the passage of Medicare in the 1960s and the resulting clinical expansion, and became pronounced with the advent of managed care in the 1990s: teaching at medical schools often took a back seat to research and patient care, with time and resources frequently cobbled from the other two missions. For a faculty member, it was fine to be a gifted educator but it was prowess in the lab and clinic that earned promotions and tenure at Yale and elsewhere.

The school's world-class professors and top students aside, Kessler and others on the faculty felt that teaching could be improved and that it deserved more attention. The dean wrote to alumni in March 1999, announcing the formation of an ad hoc committee on medical education that would "examine not only what we are teaching now, but also

what we should be teaching to prepare physicians for the 21st century." Kessler went on to note that other medical schools had undertaken similar programs, raising important questions about the best ways to educate doctors. "Few schools, however, have tackled the larger questions related to the academic content of the curriculum," he added. "We intend to do just that, and to reaffirm and fortify the Yale System in the process."

Within a year, the dean had a set of recommendations from the committee's faculty and student members, and by the year 2000 most of those suggestions had been, or were in the process of being, implemented. A deputy dean for education was appointed. Basic science courses were consolidated and streamlined where appropriate. Increasingly, courses combined material from the basic and clinical sciences. And, in an effort to reinforce one of the elements of the core educational philosophy that has been in place at Yale since the 1920s, the new deputy dean had tried to build more free time into the first two years, a period traditionally reserved in the curriculum for basic science instruction and one which had become increasingly cluttered over the decades as new knowledge was added to the canon and old assumptions became obsolete.

While these efforts pleased many, an unintended consequence of the changes that ensued provoked an uproar





Deputy Dean for Education Herbert Chase was attracted to Yale by its graduate school environment and emphasis on critical thinking. But, he told an alumni audience in June, "I didn't realize how far the actual practice of the Yale System deviated from its philosophy. ... The students were in class from nine to five almost every day."

The letter that begins at right and continues through page 37 made the students' case for limits on exams, which seemed to be proliferating. The letter was signed "Yale System Preservation Initiative."



JERRY DOMIAN

David Kessler found it remarkable that the medical school had deputy deans for research and clinical affairs in 1997 but not a deputy dean for education. He subsequently hired Chase for the post and has provided additional resources for teaching.

among students and alumni. The debate echoed a controversy that surfaced in the mid-1980s, when for the first time in the history of the Yale System of medical education, students had been required to take final exams in the basic science courses.

Exams were again the issue. Since they were introduced in the 1980s, exams have been anonymous and, except for qualifiers, optional. And they have in recent years been available online, so students can take them at home and on their own schedule. The revamped curriculum of 2001-2002 concentrated many of the basic science courses in the first year, rather than the first two years as they had been. That meant more exams in the first year, and a perception among students that they faced one test after another. At the same time, second-year students grew concerned about a faculty decision, since rescinded, to require attendance and mandatory self-assessment exams in the second-year "modules"—interdisciplinary courses that integrate key concepts in the clinical and basic sciences. Some students saw these changes as a threat to the Yale System, which follows a graduate school model for medical education and considers students mature and independent scholars capable of learning on their own.

Under the banner of the "Yale System Preservation Initiative," nine students wrote to nearly 5,000 medical school alumni, asking their endorsement of a petition that all self-assessment exams remain optional. More than 500 alumni wrote back (See "The Yale System Lives! Long Live the Yale System," page 38), most in favor of the student position. And exams were a major topic of discussion when the Association of Yale Alumni in Medicine (AYAM) executive committee gathered in June. The mood around the table was sympathetic to the petition and skeptical of too many changes. "Are our people being rejected [from top residency programs] because they weren't assessed properly?" asked Arthur C. Crovatto, M.D. '54, HS '61. The question was a rhetorical one, given the school's record of consistently impressive Match Day placements.

As the debate over exams has unfolded at Yale, medical educators around the country continue to rethink the model that has ruled since the time of Abraham Flexner almost a century ago—two years of basic science followed by two years of clinical instruction. In the mid-1980s Harvard introduced its New Pathways curriculum, which interwove



Dear Colleague,

As you know, for the last eighty years, the Yale System has afforded students the freedoms, responsibilities, and benefits of self-directed learning. However, impending changes to our curriculum seem inconsistent with the tenets of this model of medical education. As a group of students and alumni, we are concerned.

the clinical and basic sciences, combined basic science courses and defined a core of knowledge to be mastered to avoid information overload. In 1997 the University of Pennsylvania announced Curriculum 2000, which integrated the basic sciences and clinical medicine and encouraged self-directed and lifelong learning. And at medical schools across the country and beyond, innovative teachers have sought a way to help medical education keep pace with a revolution in medicine.

#### **In class from 9 to 5**

Although he's a graduate of Brown and has spent most of his teaching career at Columbia University's College of Physicians and Surgeons, Herbert S. Chase Jr., M.D., considers the Yale System, with its emphasis on critical thinking as well as core knowledge, essential to his vision of medical education. Nevertheless, when he arrived at Yale in 2000 as the newly appointed deputy dean for education, he was surprised. "I didn't realize how far the actual practice of the Yale System deviated from the philosophy," he told alumni at the June meeting of the AYAM executive committee. "The first thing I found was that there was no free time. The students were in class from nine to five almost every day."

The biggest threats to the Yale System, Chase said, came from an ever-expanding curriculum trying to keep up with advances in medical knowledge. Chase saw his first task as freeing time in the preclinical years that could be devoted to thesis preparation, the pursuit of individual interests or simply the unstructured exploration of medicine and science.

Since his arrival, classroom time has been reduced by 25 percent, the ratio of small-group sessions to lectures has increased and exams have been placed on the Web so students can take them on their own schedule. The old model—learning how the body works in the first year and studying disease in the second—has changed. "Now, in April of the first year you start learning about abnormal human physiology," Chase said. "I think it has been a spectacular success. Students end the year not only knowing how the entire body works, but they also have a pretty good foundation in the mechanisms of disease, pathology, immunology and genetics."

Chase has encouraged the use of concise study guides, identified educational resources on the Internet and consolidated redundant course material. Cell biology, physiology and biochemistry—formerly three distinct courses—

are taught together as Molecules to Cells to Tissues to Systems, known as MCTS. "Now students have two free afternoons every week to do what their hearts desire," he said. Despite this, there are still problems to be ironed out. "Even though class time is less, the content is the same," said Christoph Lee, now in his second year. "We see lecturers, more often than not, running over because they are trying to cover the same amount of material in a shorter period of time." Most students spend their free time studying for exams, added classmate Brenda Ritson, and at least a few are wondering whether the Yale medical school they applied to is the same one they're attending. Nicholas Countryman, a third-year student whose grandfather graduated with the Class of 1944, had heard about the Yale System's merits for years before arriving as a student in 2000. If the Yale System is allowed to erode, he asked, "What is going to be unique about Yale next year or 60 years in the future?"

#### **An age-old question**

The discussion on how best to teach—and how to assess learning—is not a new one. In its earliest days, the Yale System under Dean Milton C. Winternitz, M.D., rejected the traditional yardsticks of student achievement. Examinations and grades would undermine the very educational atmosphere the Yale System was meant to create—a collaborative, almost intimate world in which leading clinicians and scientists engaged and inspired a select group of bright, motivated students. But the system depended on a social contract. If students were to have the independence to design their own medical studies in the preclinical years, they would also be expected to rise to an unprecedented level of responsibility. Faculty, in turn, would have to spend the time necessary to follow and evaluate the students' progress. "The Yale System is predicated on teachers wanting to teach and students wanting to study—and being mature enough to seek help," said former Dean Gerard N. Burrow, M.D. '58, HS '66, whose history of the medical school was published in October by Yale University Press (See page 22).

In the early days, the only required tests were qualifying exams administered at the end of the second and fourth years; the only debate was whether these qualifiers would be developed in-house or replaced by the boards, officially known as the United States Medical Licensing Examination, or USMLE. According to the minutes of the school's curricu-

We feel our system is what has set this program apart from other top medical institutions for years. Any major changes to the Yale System threaten its spirit, strength, and integrity. Thus, we feel current amendments to our curriculum must be brought to the attention of the entire Yale medical community.

lum committee, the faculty tried both methods before settling on the boards in 1942.

The boards appear to have been the only required exams until the mid-1980s, when in a single year, 17 students failed Step 1 of the USMLE. "That provoked a great deal of concern among the basic science faculty," former Dean Leon E. Rosenberg, M.D., HS '63, said in a recent interview. As a result, Rosenberg said, he and Robert H. Gifford, M.D., HS '67, who was then the associate dean for student affairs, decided to implement qualifying exams in the basic science courses. The basic science faculty, he said, were as solidly behind this decision as alumni and students were opposed to it.

"There was quite a lot of unhappiness," Rosenberg said when contacted at his office in the Department of Molecular Biology at Princeton. "The alumni felt that this was an attempt to demolish the Yale System, which, of course, it was not. The students felt that they were being punished for the performance of their predecessors. They also were concerned that because Bob Gifford and I were not products of the Yale System, we did not find

the matter of the Yale System as hallowed as they did, which was not true."

To preserve the independent spirit of the Yale System, the new exams would be anonymous. They would not be graded. Students would only come to the attention of faculty if they failed more than two of the so-called minimal competency exams.

"The rule was that if you failed, it was your obligation to make yourself known to the director of the course and find a way, in collaboration with the director, to pass," said Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs, and a student in one of the first classes subject to the new requirements. "It could be by taking the exam again or taking an oral exam or writing a paper or analyzing articles. You had to find a way to show you were competent in that area."

#### A perceived change

Since then students have been required to take qualifying exams in basic science courses and, as before, have had the option of taking periodic self-assessments to gauge their own

**RIGHT** Michele Flagge noticed changes in the curriculum last year and sent an e-mail to classmates raising the issue of exams. "It was never our intention to be rabble-rousers," she said. But, she added, "We opened up the dialogue, which was great."

**MIDDLE** Second-year student Christoph Lee saw problems in the reorganized curriculum and fewer class hours to cover the same amount of material.

**FAR RIGHT** Classmate Brenda Ritson said most students were spending their free time studying for exams.





Enclosed is a statement that outlines the history of the Yale System and voices our position. We hope you will read it and express your support.

progress in those courses. (Mandatory evaluations have always been part of clinical instruction in the third and fourth years.)

Under the 2001-2002 curriculum, however, students found required exams demanding more of their attention. Although the number of basic science exams had dropped from 18 to 13 (and fell to 10 this academic year), the interdisciplinary nature of the new courses meant that the exams mixed questions from various fields. A single test might require a review of topics in physiology, biochemistry and cell biology. And, with more classes concentrated in the first year, the scheduling of exams left students with the impression that there was always another test for which to prepare.

Students were also concerned about exams in the second-year interdisciplinary modules, which were in conflict with the national boards. According to Margaret J. Bia, M.D., professor of medicine, who directed the second-year clinical modules for four years and is now director of clinical training, "board fever" typically has struck early in the second semester as students abandoned the classroom to prepare for Step 1 of the USMLE. By semester's end, attendance in the

modules was down to about a third of the class. Bia considers the modules the most important courses in the first two years of medical school; they integrate the clinical and basic sciences, offer a case-based overview of organ systems and are taught, at least half the time, in interactive workshops with practicing clinicians as instructors. "It's the time when students are encouraged to think about disease in a pattern they will use over and over again in their medical lives. These are the courses in which the pathophysiology of important diseases is explored and discussed," she said. Faculty members also were putting in hours of preparation for students who never benefited because they didn't come to class.

Bia said a crisis was mounting because "with so many students not attending lectures or workshops, the faculty had no way of knowing whether they were learning this important material. So we created a series of self-assessment exams. These exams were also a learning tool, as students were given annotated explanations to all the questions after they submitted their answers." About a quarter of the class either refused to take the self-assessment exams for the modules in the winter of 2002 or scored in the 20s out of 100, she said.



If you have any questions or concerns, please feel free to contact us at the following address or e-mail:

Bia made the ungraded exams mandatory, which she now regrets. "I made an absolutely strategic error in making these changes without including a representative group of students to advise us," she said. "It would have been better for them, for the faculty and for the curriculum had we had their input on these changes from the beginning. That being said, I hope this doesn't preclude module self-assessment exams in the future, as they're a great learning tool for the students and provide an opportunity for the faculty to see if students are learning the material."

Her colleague Frank J. Bia, M.D., FW '79, felt that a clash was inevitable as the curriculum began to interweave the clinical and basic sciences. "In the 25 years I have been here, this represents a major shift, putting real emphasis on clinical medicine during the first and second years," said Bia, professor of medicine and laboratory medicine. "Once you start doing that, however, you must deal with perceptions of the Yale System. The modules are the point where the clinical and basic sciences meet. Now you're learning information that is directly applicable to the wards. Self-assessment becomes critical. How can you

argue that doing a good history and physical exam, being observed doing it and being critiqued are a violation of the Yale System because they're mandatory?"

"There is this misguided notion that you can translate the Yale System into clinical medicine when it comes to the clinical skills that are involved. You cannot learn clinical skills in isolation. Faculty and students have to be held responsible and accountable for both teaching and learning these skills."

#### Assessing assessment

Around the country medical schools are looking at ways of assessing students, including peer review, the use of "standardized patients" in mock clinical situations, direct observation and written exams. The Liaison Committee on Medical Education (LCME), the accrediting body for medical schools, requires "formative and summative evaluation of student achievement in each course and clerkship" but discourages tests that condition students to memorize facts for the short term. Evaluations should measure students' knowledge and the development of the skills, behaviors and attitudes essential to the practice of medicine.

**RIGHT** Margaret Bia felt some form of testing was essential during the new second-year courses to assess the progress of the participants. "With so many students not attending lectures or workshops, the faculty had no way of knowing whether they were learning this important material."

**FAR RIGHT** As the curriculum began to interweave the clinical and basic sciences, Frank Bia realized a clash was inevitable. "You cannot learn clinical skills in isolation," he said. "Faculty and students have to be held responsible and accountable for both teaching and learning these skills."





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"The emphasis here is on providing the means for students to measure their own progress in learning," said David P. Stevens, M.D., vice president for standards and assessment at the Association of American Medical Colleges and secretary of the LCME. "There are many ways to do this that allow for anonymity but do not necessarily call for an official, identified letter or numerical grade."

A number of things have happened since the debate began in March.

First, Chase rescinded the requirement that module exams be mandatory. He has also taken steps to remove the conflict between the modules and the boards. This academic year, modules began in September instead of October and will end earlier, creating a seven-week break so students can study for the boards.

The challenge of assessing students without resorting to exams remains, however. "We still need a means by which to evaluate our students," said Stuart D. Flynn, M.D., professor of pathology and surgery and the new director of the second-year modules. "How do you evaluate individual students in the preclinical years without the mindset of giving examinations? I think there are ways to do it, and this represents a wonderful challenge for the school. It would require faculty or some kind of small group to assess individual students periodically, with the goal being to assure a certain level of competency to allow advancement to the next level of training. That results in a lot of one-on-one time between students and faculty." Finding a solution, he added, will require serious discussions among faculty, administrators and students.

The main vehicle for the ongoing conversation is a rejuvenated committee on educational policy and curriculum, which dates to 1989. In its original format, said Emile L. Boulpaep, M.D., professor of cellular and molecular physiology, it was made up of course directors and had only two subcommittees, for the basic and clinical sciences. "Now we have a third area, curriculum design—how the teaching is being delivered and all the things that have to do with evaluation of students and the educational process," he said. Those three subcommittees oversee a dozen "education working groups," in which students elected this spring serve alongside faculty.

In May, Kessler, Chase and the students leading the Yale System Preservation Initiative wrote to alumni to bring them up-to-date on the recent events. Both Kessler and Chase

Enclosures: statement, support form

strongly reaffirmed their support of the Yale System and their commitment to preserving it. As Chase subsequently told alumni leaders at the June AYAM meeting, "The philosophy is safe. We all believe in it. That's why we're all here." In their letter, students welcomed the administration's decision to delay the evaluation format pending further discussions and to include students in decision-making committees.

"It's nice to know that what we think matters," said Michele Flagge, a second-year student who was the first to notice the curricular changes in 2001-2002. "It was never our intention to be rabble-rousers who wanted to change the establishment. Our main purpose was to heighten awareness of what the traditions of the Yale System were. We opened up the dialogue, which was great."

Kessler, who came to Yale five years ago with the intention of bolstering the educational mission, agrees. "The debate about the Yale System is important for the institution," he said. "I think it's healthy for the institution. I think we have all learned from it." **YM**

John Curtis is the associate editor of *Yale Medicine*. Terry Dagradi is a photographer with Med Media Group at the School of Medicine.



## The Yale System lives! Long live the Yale System.

When nine Yale medical students wrote to alumni last winter about changes in the curriculum, they triggered a flood of reminiscences about the experience of becoming a doctor at Yale.

From 1925 to 1929, I experienced the Yale System.  
 Since then, I have been praising the Yale System!  
 Please keep it that way! - G.S.G. (age 95 years)

George S. Goldman, M.D. '29

In February, a group of medical students sat down with a copy of the alumni directory and addressed letters to some 5,000 men and women who had studied medicine before them at Yale. The letters contained a statement of concern about what the students perceived as a shift in educational philosophy and a threat to the Yale System, along with a request for support. The students asked alumni to contact administrators and urge them to place limits on the number of required exams (See “Everyone Loves the Yale System,” page 30).

One result of the letter-writing campaign has been the culling of a rich assortment of memories of what it was like to study medicine at Yale in recent years and as long ago as the mid-1920s. More than any other facet of the medical school experience, the Yale System seems to touch an emotional chord.

It has become clear from the events since February that the Yale System is alive and well. When Deputy Dean for Education Herbert S. Chase Jr., M.D., spoke to alumni leaders about the issue in June, he detailed the efforts to strengthen medical education and mentoring at Yale and ended his presentation by affirming, “Long live the Yale System!” It is a sentiment echoed in many of the letters sent to the student committee. Here, with the permission of the authors, is a selection of those comments.



I agree completely that it would be a sad thing to change the Yale System.

Here is how it was during the years 1937 to 1941. At first, we students did not quite understand the examination system. The professors said take them if you want to, take them home if you want to, return them if you want to. It was a nice surprise, and after taking a few, we learned to use them in various ways to make sure we were learning how to be physicians.

How did the faculty find out whether we were learning what we were supposed to?

Personal attention: All, or most, of the faculty knew us by name. Dr. Winternitz greeted me by name at our first meeting, and most of the others did the same.

Face-to-face conversations: Every afternoon those who were free to do so gathered in the large salon at 333 Cedar Street. We were treated by the faculty ladies to coffee, tea, cookies, cigarettes (!) and, in season, fruits. Here we met the faculty, both senior and junior, in small groups, one faculty member and four to six students. We had an hour to an hour and a half of "man-to-man" talks, discussions, even arguments. This happened with such people as Drs. Goodman, Gilman, Blake, Winternitz and most of the others. These get-togethers were at the core of my Yale education. There is no way I can exaggerate their importance in gathering solid knowledge of and feeling for medicine.

Clinical rounds: On rounds in the clinical years, we were with the senior faculty most of the time, again with free discussions of diagnosis and treatments.

I still think of my four years at Yale with gratitude and amazement that so many wonderful people were there to guide me. They were the best four years of my life.

Bjorn Lih, M.D. '41

The Yale System is a good system that helps establish self-responsibility early. Preceptorships and frequent counseling are probably much more useful than exams, though I think exams should be offered, too. They are a good learning experience and help to emphasize what the faculty feels is important. Grading without counting the grade is tedious for faculty but useful for students. Require taking the exam and grade it, but don't count the grade.

Henry H. Jones, M.D. '43 December

As a member of the Class of 1943, I am shocked by the medical education you have described at Yale since my day. Self-assessments, working "at your own pace," taking time off for "community service" and spending "quality time with family" have no place in medical education!

The school's responsibility is to teach you the scientific facts you must know to diagnose and treat the sick. It has

nothing to do with "community service" unless you work in the ER and go out with the interns to see sick people and bring them back to the hospital or deliver babies, as we did.

In my day we had exams and took them—no self-evaluations (they are obviously prejudiced). We had to complete a research project approved by the head of the department in which we did it, and have it published.

What you are taught, learn and retain in medical school will make the difference between life and death for some patient of yours in the future. It's a great responsibility, and one of which you will have to face and bear the consequences.

There is "no quality time for family" while you're in med school nor when you are out practicing. Your patient comes first.

If I were in charge, I would see to it that you graduate knowing what you should, with periodic exams, class attendance taken, final exams and a research project with published paper.

That's the way it was and should be as far as I'm concerned.

Sophie Trent Stevens, M.D. '43

The most important piece of information that I learned in medical school, I learned on my first day when Dean Winternitz welcomed us and outlined the next four years for us. He stated that if we were going to succeed in medicine, we should not close our books upon graduation, but should remain students for the rest of our lives. This advice made the practice of medicine for 53 years very enjoyable for me.

A. Reese Matteson, M.D. '44

My father, John P. Peters, M.D., moved my mother, pregnant with me, to take a position at Yale as professor of medicine in 1921. He was one of the founders of the Yale System and an ardent supporter of it. I first learned of it as a child. For a number of evenings each spring he would close himself into his study to read the written exams given at the end of the second year and read by the Yale faculty. The only marks were pass and fail.

I entered medical school at Yale in June of 1942 under this system. In June of 1943, all but 10 of the students in our class were inducted into the armed services. The faculty stood firm in its protection of the Yale System for the students, privates first class or midshipmen in the Navy. We had the freedom, even under the military, to learn the fundamental lesson that we were responsible for our own education and should

continue so for the rest of our lives. We did OK—I got the highest mark in the country in anatomy on the national boards but missed a significant number of lectures and decided not to do any dissection below the knee. We could make sensible judgments, as have now at least 80 classes of Yale medical students.

I had the opportunity to serve on the faculty of two medical schools at their inception—the University of North Carolina in 1952 and the University of California, San Diego, in 1969. In both of these schools, a significant number of the early faculty were Yale graduates, and we took segments of the Yale System with us. It is hard for faculty who have not had the privilege of working the system to accept the fact that students can take significant responsibility for their own education. More importantly, if marks and silly tests are not imposed, they will work collegially to educate one another.

Richard M. Peters, M.D. '45

Northwestern has a modified Yale System and it works well. However, I strongly support the traditional Yale System established in 1921. It not only sets Yale apart—as a graduate school—from other medical schools that act like trade schools but affords freedom of expression and development of lifetime learning habits that are essential to the practice of good medicine.

B. Herold Griffith, M.D. '48

The Yale System is all right for some students, but there is a significant number of poor students who slip through the cracks and make poor physicians. I think the Yale System should be abandoned. I think that the mandatory thesis requirement should also be abandoned, although I won the Keese Prize for the best thesis in 1948. The sum of the world's medical knowledge is so great that the students should spend all their time on their medical studies unless they are in the M.D./PH.D. program.

David E. Morton, M.D. '48

I am voting for the Yale System as it was in 1950. It was good for me and seemed to be for my classmates. I've enjoyed a 36-year career in academic medicine—been the head of two departments, president of my professional society, written a lot of papers—so what's to change?

Malcolm A. Bagshaw, M.D. '50

The Yale University School of Medicine formed a model for our development of the new School of Medicine at the University of California, San Diego, from 1964 to 1968. All educational systems need constant surveillance and updating but maintenance of the outstanding and unique qualities is equally important.

Robert N. Hamburger, M.D. '51 March

Your letter addressed to my late husband, Henry M. Williams, M.D., arrived here today and I read its contents with great interest. One line in particular piqued my attention and aroused a memory. The line is in the second paragraph: "Instead, students have been expected to make responsible decisions about the best use of their own time."

In his very early days as a medical student at Yale, my husband found that his poor eyesight caused him to take unconscionable amounts of time getting through *Gray's Anatomy*. He soon saw that if he were ever to graduate, let alone finish reading the book, something drastic would have to be done.

Here is what he came up with: he sat down and copied—in his own handwriting—the entire *Gray's Anatomy*. Then using his own copy, able to read it swiftly and easily, looking back and forth between sections, he was able to read and comprehend the whole thing. I don't believe he ever forgot a word of it.

I would call this action "responsible and self-driven," and would place it above "optional self-assessments throughout their body system modules" any time.

I believe my husband would have signed the petition.

Eileen M. Williams, widow of Henry M. Williams, M.D. '52

At the time I went to medical school, Yale was known as and truly was the only *adult* medical school in the country. When a large number of students failed Step I of the USMLE 15 years ago, I suspect the deficit was in the faculty or curriculum, not the students or the system. Through the years there have been initiatives to change the system, in many cases coming from faculty members who were threatened by the failure of students to come to their lectures. Instead of looking to themselves to make their lectures worth going to, they blamed the system. In my day, the worthwhile lectures were crowded; the poor lectures were met with near-empty halls, the students choosing the library instead. I suspect the same is true today.

In the real world Yale medical school graduates have always excelled. Please preserve Yale as the truly adult medical school.

Edward J. Gerety, M.D. '54



Abandoning or even eroding the Yale System will result in Yale graduates being as devoid of curiosity and as boring as most physicians.

Jack Peter Green, M.D. '57

American education has tended toward narrower, more nearly vocational goals for decades, and that narrowing of focus has always characterized most medical education. You have only to go onto the wards of any hospital to hear discussions of disease management and treatment that seem wholly ignorant of the underlying pathophysiology and unconcerned about the broader context of the symptom under discussion.

Yale has been the blessed exception, and as residency programs—even Yale's own—seek standardization around some national standard that essentially commodifies physicians and their knowledge and services, the tradition of medicine as broad and unending, self-directed learning is all that promises a worthwhile future to an embattled profession.

David A. Carlson, M.D. '58

I credit the Yale System with molding the most crucial part of my medical training and fostering the independence of spirit, curiosity and investigatory instincts that are integral to my professional functioning as an academic clinician, investigator, teacher, writer and thinker. Had I been forced to take tests, I would never have graduated; I was too busy absorbing and learning. Yale is a wonderful place to begin a medical career.

Robert N. Taub, M.D. '61, PH.D.

I found the Yale System without exams to be more stressful than the pre-med school at Johns Hopkins with frequent exams. There at least you knew where you stood. I strongly favor the old Yale System with its emphasis on original research and the need to write a paper on the topic.

Charles B. Anderson, M.D. '62

The traditional Yale System is an invaluable asset. Please protect it!

Richard L. Heppner, M.D. '67

Having mandatory exams will destroy our great traditions. I chose Yale in 1968 over many "cut-throat" institutions, including Harvard and Columbia P&S, because of educational freedom. I flourished in this environment. Yale is at the top because of this educational freedom. Please keep it going!

Joseph L. Renda, M.D. '68

The Yale System was made for me. I have been greatly influenced by the learning patterns and intellectual disciplines I developed in my four years at Yale, and I am the physician I am largely because of this system. I felt I got a "Swiss cheese" education. It was full of holes and there were many things I hadn't learned, but I spent most of my days there actively learning, stimulated by whatever I encountered on my serendipitous path that day.

I am a clinical cardiologist, in private practice in one town for my entire 27 years of practice. I follow my patients long term, because the biggest impact I have on their lives is not in the procedures I do but in the care of their chronic diseases. I have chosen to ignore the wishes of our HMOs and of the current generation of family practitioners in this regard, and I have an exceptionally large practice of patients, for whom I often have been the only constant in their care. What I bring to them is largely a product of this Yale System. I read all of the major cardiology journals cover to cover each issue. I know I am the only practicing cardiologist in my state who attends the national meetings in my field every year without exception. I think about the puzzles of cardiac disease and its treatment, I challenge presenters at meetings, I debate the issues with my peers and I bring the day's harvest of these endeavors to each of my patients every day. I love what I do. I doubt all this would be so were it not for my having attended Yale. I was a good student in college, but Yale medical school, and particularly the trust and freedom of its system, opened doors in my brain I never dreamed existed, and I have inhabited them every day of my life since.

Michael Toren, M.D. '69

The Yale System worked very well for me. I am eternally grateful!

Jerome H. Meyer, M.D. '72

Medical education is not winning the battle for humanism, intellectual curiosity and honesty in its medical students, and the medical profession is suffering for it. Preserving student enthusiasm and encouraging self-education are the strengths of a system which has allowed me the ability to "think better" than most of the colleagues I have worked with since I left Yale

in 1977. Ruining it in the name of conformity and standards will land Yale in the middle of the deplorable medical educational system that widely exists today and will ensure that its graduates will be indistinguishable from everyone else.

Robert A Sirota, M.D. '73

When I was in medical school, I studied constantly; never having the assurance of a passing grade on a test caused a lot of anxiety because I would look at the textbook and see only how much I hadn't learned. It was impossible to learn all, or even half, of the information in most textbooks. The anxiety was productive and led to actual learning and not cramming before an exam. I don't think I would have studied as hard if there had been exams. Even now, I find I often study, regardless of whether CME credits are available.

Marie Kelly, M.D. '74

The Yale System comes with a heavy responsibility for the admissions committee and the teaching faculty.

Not everyone belongs at Yale. It takes a highly self-directed, self-motivated, organized person to be successful there. Thus, the admissions interview is more important than MCAT scores. It is far easier for the faculty to hand out a written test than to truly assess a student through first-hand discussion. I do not believe the Yale System excludes student assessment just because there are no tests or grades. I think the faculty knew very well how we students were doing because they made teaching their priority. Teaching was an end in itself; it was not a part-time inconvenience for the teacher. Many students appreciated optional tests, and self-assessment was quite honest.

Medical students are by nature very competitive. The Yale System tempers the negative aspect of that kind of competitiveness, and fosters a camaraderie which grows into the collegial relationships that doctors maintain throughout their stressful careers. The Yale System prepares students in a manner which more directly relates to the realities, the rigors, the values inherent in the practice of medicine. When I see a patient in my office or in the hospital, it is not a written test that I am taking—I must adhere to the high standard that I set for myself when I am entrusted with the health care of another human being. This is what the Yale System has taught me.

I am proud to be a graduate of Yale, and I know I could not have gotten the same quality medical education anywhere else.

Alan B. Silken, M.D. '74

I recommend anonymous, coded, periodic self-assessments to help students assess their progress in learning the minimum. Additional independent study should be encouraged and mentoring should begin early. Not all exams need to be mandatory—but the final, anonymous one should be.

Pamela Zeitlin, M.D. '83

To this day it has served me well. Don't kill the system!

Alan M. Reznik, M.D. '83

Dean Berliner called me into his office in my first year at Yale medical school. He told me that if I had merely wanted to become a doctor, I should have gone to school elsewhere. Yale was interested in producing leaders in medicine, not just good doctors. The 15 minutes he spent with me explaining his rationale for the Yale System were among the most influential in my career and life.

Emphasis at Yale has been on self-directed learning, driven by excitement and love of medicine. The de-emphasis of competition allowed the blossoming of personal social skills and a personal sense of mission separate from one's personal success. Now middle-aged, I realize that these lessons were the most important in building successful, happy health care delivery teams. Dean Berliner was right. The place of Yale medical school is to produce leaders, not merely doctors.

Calixto Dimas, M.D. '85

Becoming a physician means making a commitment to life-long learning. The dates of graduation from medical school or residency are arbitrary points in a career, useful in marking passage from one stage of training to another. However, they in no way represent the completion of an education. Even if you were able to absorb all of the world's accumulated knowledge in any one field, your knowledge would be shortly out-of-date as our understanding of human physiology and disease rapidly advances.

The Yale System acknowledges the fact that Yale medical students are intelligent, intellectually curious and self-motivated. I have no examiner sitting above me now, making sure that I achieve a passing grade, but I owe it to every patient to continue to learn and to be the best physician that I can be. I feel that the Yale System helped me to incorporate learning into my everyday clinical activities, as a lifelong process and not just as a means to the end of passing a test.

Please do not let one anomalous year bring down a tradition that has been proven worthy over the decades.

Michael Rothschild, M.D. '88



## New leaders announced in four disciplines

Chairs appointed in Obstetrics and Gynecology, Therapeutic Radiology, Pediatrics and History of Medicine.

Dean David A. Kessler, M.D., has announced the appointments of four new departmental and section leaders.

**Charles J. Lockwood**, M.D., FW '89, a specialist in high-risk obstetrics, became professor and chair of the Department of Obstetrics and Gynecology on July 1. Lockwood came to



Yale from New York University, where he was the Stanley H. Kaplan Professor of Obstetrics and Gynecology and chair of the department since 1995. Lockwood is a 1981 medical graduate of the University of Pennsylvania who trained as a resident at Pennsylvania Hospital before coming to Yale as a fellow in maternal-fetal medicine in 1985. He succeeds interim chair Peter E. Schwartz, M.D., HS '70, who heads the section of gynecologic oncology, and Frederick Naftolin, M.D., PH.D., who stepped down as chair in 2000.

Cancer researcher and clinician **Peter**



**M. Glazer**, M.D. '87, PH.D. '87, became chair of the Department of Therapeutic Radiology on August 12, succeeding James J. Fischer, M.D., who

had led the department since 1972. Glazer did his residency at Yale and joined the faculty in 1991. His research

focuses on the cellular processes of DNA repair and mutagenesis and the phenomenon of radioresistance. Glazer, who has a secondary appointment in the Department of Genetics, is also interested in gene targeting and gene therapy strategies for cancer, viral infections and genetic diseases.

He pioneered methods for *in vivo* measurements of mutagenesis and applied these to experiments demonstrating fundamental pathways of genetic instability in cancer. Glazer is co-director of the molecular oncology program in the Yale Cancer Center and a member of the Cancer Center executive committee.

**Margaret K. Hostetter**, M.D., became chair of the Department of Pediatrics on September 1. Hostetter came to Yale four years ago from the University of Minnesota,



where she co-founded the nation's first international adoption clinic in 1986. She was recruited to Yale to head the section of pediatric immunology and serve as director of the Yale Child Health Research Center. She was elected to the Institute of Medicine in 2001.

An alumna of Baylor College of Medicine, Hostetter did her postgraduate training at Children's Hospital in Boston and taught at Harvard before joining the Minnesota faculty in 1982. Her research on the molecular pathogenesis of pneumococcal and candida infections has received NIH funding for two decades. She is also the principal investigator of the Pediatric Scientist Development Program, a \$13 million initiative of the National Institute of Child Health and Human Development.

She succeeds Norman J. Siegel, M.D., HS '70, who served as the interim chair since 2000 when his predecessor, Joseph B. Warshaw, M.D., left Yale to become dean of the University of Vermont College of Medicine.

**John Harley Warner**, PH.D., became chair of the Section of the History of Medicine on July 1, succeeding Frederic L. Holmes, PH.D., who stepped down after 23 years.



Warner has also been appointed by the university provost to the newly created position of chair of the Program in the History of Medicine and Science.

Warner received his doctoral degree in the history of science from Harvard in 1984 and spent two years as a post-doctoral fellow in London at the Wellcome Institute for the History of Medicine. He joined the Yale faculty in 1986. His research includes wide-ranging explorations of medical institutions, practitioners, ideas and practices, especially in the United States and the United Kingdom.

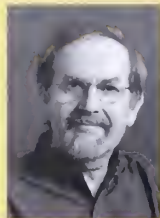
Since becoming dean in 1997, Kessler has appointed new chairs in 11 departments and free-standing academic sections, including Cell Biology, Genetics, Pharmacology, Molecular and Cellular Physiology, Surgery, the Child Study Center and Microbial Pathogenesis. Searches are under way for successors to M. Bruce Shields, M.D., who has announced his intention to step down as chair of Ophthalmology and Visual Science; Albert B. Deisseroth, M.D., PH.D., the former chief of the section of medical oncology who became president and CEO of the Sidney Kimmel Cancer Center in San Diego last year; and Yale Cancer Center Director Vincent T. DeVita Jr., M.D., HS '66, who is planning to step down at the end of this academic year.

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#### SEND FACULTY NEWS TO

Claire Bessinger, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu).

The National Academy of



Sciences announced in April the election of its new members and foreign associates in

recognition of their distinguished and continuing achievements in original research. Among the honorees was **Richard A. Flavell**, PH.D., professor and chair of immunobiology and a Howard Hughes Medical Institute investigator. Flavell is known for his work on the structure and expression of eukaryotic genes, his studies of critical genes of the immune system and the application of genetic approaches to the study of immune function *in vivo*.

**Paula A. Armbruster**, M.A., M.S.W.,



associate clinical professor and director of outpatient services in the Child Study Center,

was a facilitator at the 17th Annual Rosalynn Carter Symposium on Mental Health Policy in Atlanta in November 2001. Armbruster was also appointed to the national steering council of A Partnership to Open Doors, a collaborative effort between Habitat for Humanity International, the National Mental Health Association and the National Alliance for the Mentally Ill.

**Jonathan B. Borak**, M.D., associate



clinical professor of medicine (industrial) and epidemiology, received a

President's Award from the American College of Occupational and Environmental Medicine (ACOEM) in April at its 87th annual membership meeting in Chicago. The award, presented

by Dean A. Grove, M.D., president of the ACOEM, honored his service to the college as a member of the board of directors and as chair of the council on scientific affairs. Borak was also cited for his contributions to the growth and future of the college through his expertise in the field of toxicology and his commitment to the role of science in public policy.

**R. Todd Constable**, PH.D., associate



professor of diagnostic radiology and neurosurgery, was awarded a \$1 million, 5-year grant

from the NIH to develop and validate functional magnetic resonance imaging methodology for the study of language processing for neurosurgical planning. This work will not only lead to improved techniques for functional mapping but also improve the understanding of the neuronal circuits associated with language processing and characterize the impact of diseases such as epilepsy on cortical reorganization. Constable is the director of Magnetic Resonance Imaging at Yale and co-director, along with Douglas Rothman, PH.D. '87, of the Magnetic Resonance Research Center.

**Vincent T. DeVita Jr.**, M.D., HS



'66, professor of medicine and of epidemiology and public health and director of the Yale

Cancer Center, was elected to the European Academy of Sciences and Arts in September for his "outstanding and lasting contributions to cancer research and medical education." DeVita, a member of the National Academy of Sciences and Institute of Medicine, joins two other Yale School of Medicine professors previously elected to the European Academy: Gerhard Giebisch, M.D., and Patricia Goldman-Rakic, PH.D.

**Michael P. DiGiovanna**, M.D. '90,



PH.D. '90, associate professor of medicine (oncology) and pharmacology and co-director

of the Breast Cancer Research Program at the Yale Cancer Center, received a \$200,000 grant from the Breast Cancer Research Foundation to investigate the gene HER2, which can be predictive of the prognosis of breast cancer. DiGiovanna was also awarded a four-year grant of almost \$1 million to study drugs that target HER2 in connection with anti-estrogen treatments.

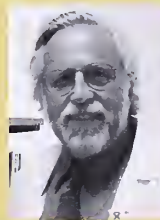
**Bruce C. Fichandler**, PA, lecturer



in plastic surgery and director of admissions for the Yale Physician Associate Program,

was elected to his eighth term as treasurer of the American Academy of Physician Assistants (AAPA). He has also served as AAPA president and vice president/speaker of the House of Delegates.

**Gerald H. Friedland**, M.D., profes-



sor of medicine and epidemiology and director of the AIDS Program at Yale-New Haven Hos-

pital, has returned from a four-month sabbatical at the Nelson R. Mandela School of Medicine in Durban, South Africa. Friedland and colleagues worked on several projects to provide antiretroviral therapy for the treatment of HIV/AIDS and participated in educational programs throughout the region for health care workers, medical students and physicians.

**Margaret K. Hostetter**, M.D.,

professor of pediatrics and microbial pathogenesis, was named the 30th annual Maxwell Finland Lecturer of the Infectious Diseases Society of America, its highest honor for a career in the field of microbial pathogenesis. The lecture, titled *Why Candida Kills You*, and the award were presented in San Francisco. Dorothy M. Horstmann, M.D., a former Yale faculty member, was the 1977 award winner. Hostetter is chair of the Department of Pediatrics.

**Jeanette R. Ickovics**, PH.D.,



associate professor of epidemiology and psychology and director of the Connecticut

Women's Health Project, was honored with a Seton Ivy Award. The presentation was part of the 23rd annual Seton Elm-Ivy Award ceremony in April recognizing individual efforts to strengthen ties between Yale University and the city of New Haven.

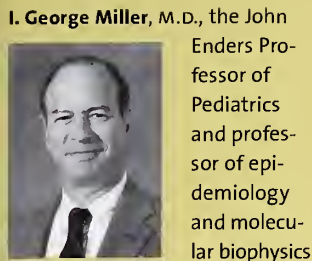
**Ilona S. Kickbusch**, PH.D., profes-



sor of public health (global health) and political science, served as

Distinguished Scholar Leader in the inaugural year of the New Century Scholars Program of the Fulbright Scholar Program. This year's program focused on *Challenges of Health in a Borderless World*. The program offers participants an international exchange opportunity of two to six months to further their research and investigate comparative approaches by interacting with colleagues abroad or in the United States.





**I. George Miller, M.D.**, the John Enders Professor of Pediatrics and professor of epidemiology and molecular biophysics

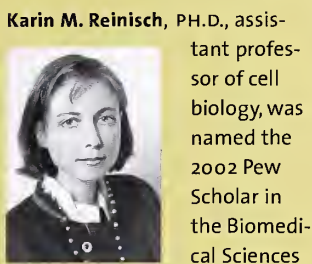
and biochemistry, was elected to a fellowship in the American Academy of Microbiology for achievement in virology. Miller's research discoveries have advanced the understanding and treatment of the human gamma herpes virus, Epstein-Barr virus and Kaposi's sarcoma herpes virus.



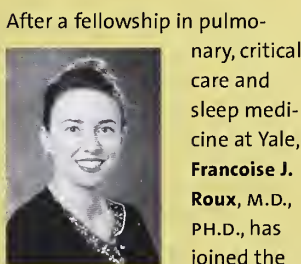
**Kitt Mia Falk Petersen, M.D.**, assistant professor of medicine (endocrinology) and assistant director of the General Clinical Research Center, received the Young Investigator Award, a 2002 Novartis Award in Diabetes, for her studies of the mechanism of insulin action in the liver, the pathogenesis of insulin resistance in obesity and type 2 diabetes, and the mechanisms of action of thiazolidinediones in patients with type 2 diabetes and leptin in patients with lipodystrophy. The award was presented in June by Novartis Pharmaceuticals.

**Fredrick C. Redlich, M.D.**, professor emeritus, former chair of psychiatry and dean of the School of Medicine from 1967 to

1972, received the Gold Medal of Distinction in January from the University of Vienna and the community for past services and teaching. Redlich spent a week visiting his native city of Vienna.



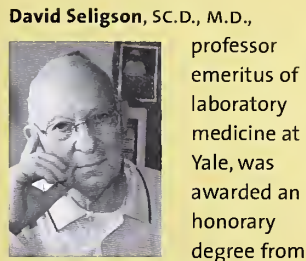
**Karin M. Reinisch, PH.D.**, assistant professor of cell biology, was named the 2002 Pew Scholar in the Biomedical Sciences



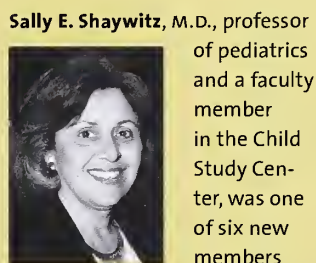
by the Pew Charitable Trusts in June. Her research focuses on the macromolecular complexes involved in transport within the cell and structure/function studies of the macromolecules involved in nuclear transport.



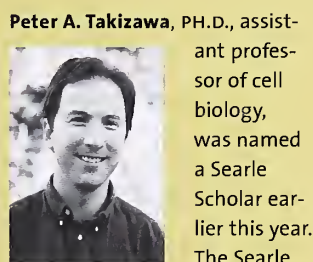
the 2002 Otto Kraye Award in recognition of his contributions to the field of pharmacology. Sartorelli, the Alfred Gilman Professor of Pharmacology at Yale, has designed, synthesized and evaluated numerous potential anti-cancer agents.



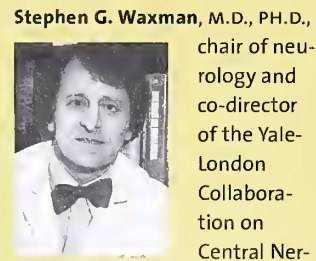
**David Seligson, SC.D., M.D.**, professor emeritus of laboratory medicine at Yale, was awarded an honorary degree from Quinnipiac University at Commencement exercises in May. Seligson, emeritus trustee at Quinnipiac, has been a member of the board of trustees since 1964 and served as vice chair from 1971 through 1977.



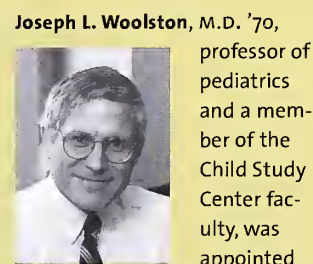
**Sally E. Shaywitz, M.D.**, professor of pediatrics and a faculty member in the Child Study Center, was one of six new members appointed to the National Advisory Neurological Disorders and Stroke Council, the major advisory panel of the National Institute of Neurological Disorders and Stroke. The council, the nation's primary supporter of research on the brain and nervous system, meets three times each year to review grant applications.



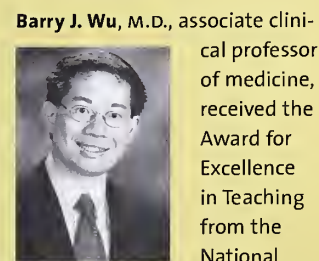
**Peter A. Takizawa, PH.D.**, assistant professor of cell biology, was named a Searle Scholar earlier this year. The Searle Scholars Program, one of the most competitive and prestigious award programs for junior faculty, typically selects 15 of the most promising young faculty members in biomedical science and chemistry each year at universities and research institutes throughout the United States. Takizawa was recognized for his research on how specific mRNAs are transported to defined regions of a cell and the role that mRNA localization plays in cell-fate determination.



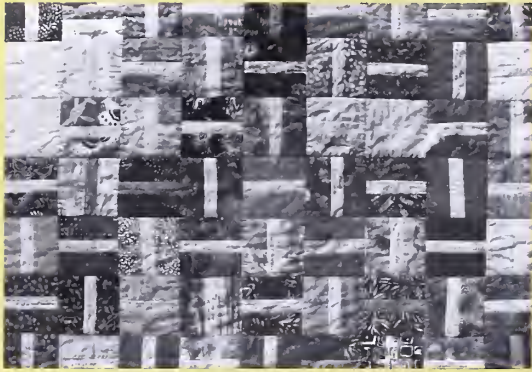
**Stephen G. Waxman, M.D., PH.D.**, chair of neurology and co-director of the Yale-London Collaboration on Central Nervous System Repair, received the John Dystel Prize for Multiple Sclerosis Research from the American Academy of Neurology and the National Multiple Sclerosis (MS) Society in April. He received the prize for research in two areas: molecular changes that occur within nerve cells in MS and new therapeutic approaches that have the goal of restoring functions, such as vision or the ability to walk, in people with MS.



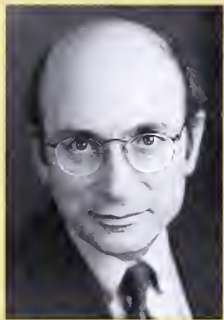
**Joseph L. Woolston, M.D.**, '70, professor of pediatrics and a member of the Child Study Center faculty, was appointed chief of child psychiatry at the center and at Yale-New Haven Hospital (YNHH) in July. Woolston is the medical director and founder of the Yale Intensive In-Home Child and Adolescent Services at the center, medical director of HUSKY Behavioral Plus and medical director of Child Psychiatric Services at YNHH, where he founded the inpatient service.



**Barry J. Wu, M.D.**, associate clinical professor of medicine, received the Award for Excellence in Teaching from the National Association of Inpatient Physicians (NAIP). The award, for his exemplary service as a teacher, academician, mentor and role model in hospital medicine, was presented at NAIP's annual meeting in April.



JOHN CURTIS



CHILD STUDY CENTER

A quilt by Deirdre Stowe was unveiled at the dedication of the Donald J. Cohen Auditorium, honoring the late director of the Child Study Center.

## With a new name, auditorium honors late director of Yale's Child Study Center

Before he died, Donald J. Cohen, M.D. '66, the director of the Child Study Center, found warmth and comfort in a quilt made of patches that carried messages from friends, family and colleagues. A gold band runs through the quilt, connecting all the individual squares. "Donald is the gold band that continues to bring so many people together," said Deirdre Stowe, a friend who made the quilt, as it was unveiled at the dedication of the Donald J. Cohen Auditorium at the Child Study Center.

Cohen, who died last October 2 of cancer at age 61, was honored at the June 19 dedication by several people who knew, loved and worked with him during his 18 years as director of the center. Yale President Richard C. Levin recalled giving a speech in the same room three years earlier at the dedication of the Irving and Neison Harris Building. "I was not the least bit surprised as we planned the dedication that he went about it with his meticulous attention to detail. He left absolutely nothing to chance," Levin said. To laughter from the audience, he added, "He insisted on writing my speech. I took no risk. I delivered it as written."

Levin and others remembered Cohen as a pre-eminent scientist and clinician, a man of broad interests and one who cared about others. "We have all benefited, especially children," said Rev. Frederick J. Streets, the

university chaplain, "from the depth of his intellect and the breadth of his spirit and kindness."

The dedication came just a few days before the death of Cohen's mentor and predecessor, Albert J. Solnit, M.D., HS '52, following an automobile accident on June 21 (See *In Memoriam*, p. 63). Solnit was director of the center from 1966 to 1983, when Cohen was appointed to succeed him.

When the Child Study Center's new building opened three years ago, it and the auditorium were named in honor of Irving and Neison Harris, longtime supporters of the center. Neison Harris died earlier this year and his brother Irving suggested that the auditorium bear Cohen's name. "Donald really made a huge contribution to Yale and I would like to see him recognized in any way possible," Harris said in a telephone interview.

Dean David A. Kessler, M.D., recalled that Cohen saw the auditorium as a place where people would meet and pass on knowledge to the next generation. "In this auditorium," Kessler said, "we shall hold close our memories of Donald, sustain his values for learning and service and carry out his vision for children and their families."



## Seeking balance when it comes to power

As third-year medical and nursing students head for the wards, a day is devoted to art of communication.

For a health care provider, real empathy boils down to whether he or she has genuine curiosity about individual patients, according to Jodi Halpern, M.D. '89, PH.D. '94. Clinicians who adopt a listening stance discover the distinct experiences of the individual patient, and the empathy that follows empowers both the provider and the patient. It also enables clinicians to remain passionate about their work.

Halpern, assistant professor of bioethics and medical humanities at the University of California, Berkeley, was the keynote speaker for Power Day, when rising third-year medical students met with 60 advanced-practice nursing students to analyze how collaboration enhances patient care. Power Day concluded a weeklong program that introduces the students to the hospital wards, with lessons on charting notes, cardiac life support and mastering other essential skills. Years ago, the students had one day, known as Survival Day, to prepare for the wards.

Often, misunderstandings develop because clinicians don't recognize their own power, said Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs, adding that attending physicians, residents, nurses and students need to be aware of their interactions. Halpern urged the students to reflect on their own roles while analyzing their vulnerabilities.

She questioned notions in the medical "culture" such as the assumption that patient autonomy means establishing a distance between caregiver and patient, the failure to be open to alternative approaches to treatment and the reluctance to feel or express emotions. Halpern said her own interest in empathy began after being criticized during her third year as a medical student for "feeling too much."

Empathy requires little extra time and can result in more efficient care, said Halpern. Providers can practice empathy by keeping journals and occasionally writing narratives from the patient's point of view. Such notes contributed anecdotes for her book, *From Detached Concern to Empathy: Humanizing Medical Practice*, which argues that the detached, seemingly objective approach does not always lead to the best care. "The goal of empathy is not to share the same feelings, but to allow the patient to regain her autonomy and feel socially effective," Halpern said.

After six months, the medical students will meet again to analyze their experiences and decisions. "In order to change the culture, we have to change the stories of the culture," Angoff noted. "The stories of success must be stories of good use of power."



Jodi Halpern spoke about the meaning of empathy during a program preparing medical and nursing students for their education on the hospital wards.



Charlotte Wu, who decided to come to Yale, talks with Ameya Kulkarni, a second-year student and president of the Medical Student Council.

### Back to New Haven, for a second look

Over the course of two days in early May, scores of accepted applicants returned for another look at the medical school, but without the dark suits, interviews or anxiety. "Second Look Weekend" was launched several years ago as a means of recruiting top students who had not yet decided among several offers of admission. Throughout the weekend students and faculty waxed enthusiastic, in a relaxed, informal setting, about the School of Medicine. The not-yet-committed students met with faculty in labs and offices for informal conversations on specific topic such as the clinical years, research opportunities and student diversity, and dined in small groups in local restaurants. In addition to campus and city tours, applicants were treated to a series of skits presented by first-year students. This year's Second Look Weekend also coincided with Student Research Day.

One of the last activities of the two-day visit was a student activity fair. Students and applicants met on the third floor of the Jane Ellen Hope Building to discuss student volunteer opportunities.

# Reunion 2002

Up and down Cedar Street, the buzz centers on the state of the Yale System.

When hundreds of alumni and their guests came to the medical school for this year's reunion, the Yale System of medical education appeared to be as much on their minds as getting reacquainted with classmates. The topic took up most of the meeting of the executive committee of the Association of Yale Alumni in Medicine on the afternoon of Friday, June 7. And it was the first thing **Dean David A. Kessler**, M.D., mentioned at the alumni meeting the following morning.

"There is nothing more central to the Yale medical school than the Yale System," Kessler told alumni. "For generation after generation the Yale System has demonstrated that it works and has produced leaders in American medicine."

Reunion began with the traditional dean's welcome in the Cushing/Whitney Historical Library, followed by a clambake on Harkness Lawn. This year's symposium in the recently dedicated Leon E. Rosenberg, M.D., Lecture Room was devoted to women's health. The School of Public Health focused its reunion discussions, held at the New Haven Lawn Club, on disaster management.

## At this year's reunion, a focus on women's health and hormone replacement

Perhaps the most talked-about topic in women's health this summer was hormone replacement therapy (HRT), given the news from the Women's Health Initiative (WHI) study in early July that taking estrogen and progesterin does not protect the heart but in fact slightly increases the risk of heart attack. A month earlier, HRT had been a central topic at this year's reunion.

Those attending the reunion weekend program heard that research at Yale on the usefulness of HRT in preventing heart disease had also led to unexpected results. Although Yale researcher **Teresa L. Caulin-Glaser**, M.D., found that hormone replacement provided some beneficial effect for postmenopausal women in her study, the benefit was much less dramatic than had been anticipated from her basic laboratory studies. In her talk, Caulin-Glaser illustrated how results that look robust in the laboratory are not always borne out in clinical trials.

Caulin-Glaser's presentation was part of a symposium titled "The Growth of Women in Medicine: Progress That Benefits Us All." Also on the program were **Sonja V. Batten**, PH.D., newly arrived associate director of Women's Health Research at Yale (co-sponsor of the panel with the Office for Women in Medicine). Batten provided an overview of the program, and **Susan J. Baserga**, M.D. '88, PH.D. '88, detailed the history of the admission of women to the School of Medicine in 1916 (See *The Last Barrier*, Summer 1998).

Like the researchers in the multisite WHI study, Caulin-Glaser had been intrigued by studies showing that HRT for postmenopausal women might help prevent heart disease. Observational data had suggested—but not proven—that if postmenopausal women with heart disease took hormones, they cut their risk of a cardiac event in half. The promise of signifi-



cant reductions in vascular inflammation was suggested by Caulin-Glaser's laboratory studies, in which she treated human endothelial cells in culture with estrogen. But hormones did not prove nearly as effective when she tested them on human subjects.

Caulin-Glaser went on to study the effects of exercise, dietary changes and stress reduction techniques on patients in cardiac rehabilitation. Her findings that exercise and stress management do reduce vascular inflammation suggest that the current failure of HRT to reduce heart disease does not leave physicians empty-handed. "If we can demonstrate the effectiveness of lifestyle interventions in modulating inflammation, we will have very powerful and safe therapies to offer our patients." She is frustrated that physicians recommend cardiac rehabilitation for only 30 percent of their patients, for twice as many men as women and for very few minority-group members.

She was not surprised by the recent acknowledgement by the Women's Health Initiative that HRT is no "magic bullet." "It is important to appreciate that, although the study has finally given us some solid clinical information to use when treating our patients, many questions still remain," Caulin-Glaser said in August. "From a research and clinical perspective, it addressed only the use of a combination HRT, estrogen and Provera. Issues not addressed by the study include the effects of estrogen alone, estrogen in combination with less-potent progestins, the use of different delivery routes and determining the safe length of therapy."

"Nature's way of producing the exact combination of sex hormones may be protective, but the way we are replacing them artificially may be incorrect in dose, combination, delivery route and length of treatment," she added. "There is much to learn, and that is why the field is so exciting."

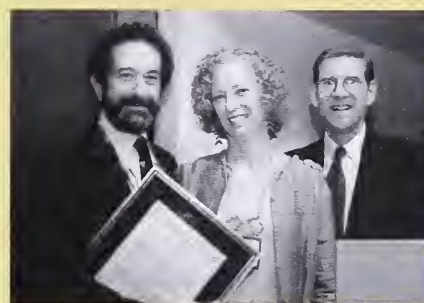
## Two honored for service to alumni association

Two alumni who graduated 10 years apart were honored at reunion this year for their service to the School of Medicine. **Daniel L. Arons, M.D. '67**, an instructor at the Harvard Medical School and an attending physician at Massachusetts General Hospital, and **Gilbert F. Hogan, M.D. '57**, a retired New Haven internist and cardiologist, each received the Distinguished Alumni Service Award.

In announcing the awards, Francis R. Coughlin Jr., M.D. '52, president of the Association of Yale Alumni in Medicine, cited Hogan's service as past president. Hogan, who celebrated his 45th reunion, was accompanied by 20 members of his immediate family: his wife, five sons, four daughters-in-law and 10 grandchildren. "I do feel a little guilty taking it," Hogan said of the award. "I didn't realize I was working. I just thought I was having a lot of fun."

Coughlin also took note of Arons' service to the school. "While your medical career is based in Boston," he said, "you were never too busy or too far away to answer a call from your alma mater. You have been a tireless fund-raiser for the school both as a class agent and as chair of the School of Medicine Alumni Fund."

Arons credited the Yale System with steering his medical education and, quoting one of his patients, took a humorous swipe at a medical school on the Charles River. "Anybody can go to Harvard," the patient told him. "You went to Yale. You're special."



**TOP AND ABOVE** Gilbert Hogan, M.D. '57, and his wife, Carol, are surrounded by sons, daughters-in-law and grandchildren at reunion. Like Daniel Arons, M.D. '67, who was joined on the dais by his wife, Elissa Beron Arons, M.D. '70, and Dean David Kessler, Hogan was honored with the Distinguished Alumni Service Award.

## Catching up with classmates

Have you wondered what old so-and-so is up to these days?

We did.

More than 214 medical and 150 public health graduates returned to New Haven in early June for Alumni Reunion Weekend, and many of them picked up where old friendships left off half a lifetime ago. Jobs had changed, and in some cases specialties did too. Children were born. Children grew up. People moved. Marriages began and a few ended.

Contributing Editor Cathy Shufro spent part of the weekend talking to alumni about where they have been since graduation 5 or 50 years ago, and what they are doing now. Snapshots of a half-dozen of those conversations follow. For more class news, see the reunion reports that begin on page 52.

## A life in surgery, a new role in anatomy

**Robert Chase, M.D. '47**, emeritus chair of the department of surgery at Stanford, has devoted himself to teaching human gross



anatomy since retiring from active surgery 10 years ago. "I love first-year medical students," said Chase. "They are unspoiled, bright as hell and wonderful people. The spectrum of students is so much broader than when I was here at Yale and it was 95 percent white males."

He said the presence of women, who compose more than half the class at Stanford, has changed the atmosphere in the human anatomy laboratory. "In the old days, it was sort of a macho experience," he recalls. "If you were disturbed by dissecting a human being, maybe you didn't belong in medicine." Now the human dissection is prefaced by discussions about the people who donated their bodies, and the conversations continue as the dissection progresses. Chase said the dissection teams bridge cultural and ethnic differences, each group of four becoming "a little family" that reduces "balkanization" of people with differences.

Stanford students conduct an end-of-the-course ceremony, reading poetry, performing music and even hearing from the families of those who donated their bodies. "They appreciate seeing the gift that it's been to students."

Besides teaching, Chase is also working to develop computer-assisted instruction for learning gross anatomy and surgery. Chase feels confident that nothing will replace the experience of doing hands-on dissection. Chase lives in Stanford with his wife, Ann. They have three children, nine grandchildren and three great-grandchildren.

## Like father, like daughter, for two New York doctors

**Doris Wethers, M.D. '52**, recalls that when she was a child growing up in the Sugar Hill district of Harlem, her dolls quite



often had one sort of medical crisis or another. She also remembers sitting in the family car as early as age 8 waiting for her father, a 1923 graduate of Howard University Medical School, to complete a house call. Those experiences and others led to her own career in medicine, which began when she enrolled in medical school at Yale in the late 1940s.

Wethers was inspired by her father but was not pressured by him to become a physician. It was "a calling" that led her to enroll at Yale in a class of 65 students that included only eight other women—among whom she was the only African-American. None of her three children chose to study medicine: one is a lawyer, one is developmentally disabled and one is a session musician with a large teaching practice. Wethers recalls that her musician son worried that his parents would disapprove when he announced his decision to pursue a career in music instead of science. "I told him, 'The only thing I can do in music is turn on the radio, and you think I would discourage you? You've got this God-given gift.'"

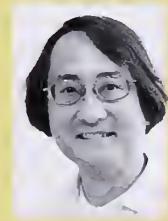
She retired from general pediatrics in New York in 1995 and from sickle cell anemia research two years ago. She saw progress during her career in the diagnosis and treatment of sickle cell anemia, but "no final answers." Among the advances: the illness is increasingly diagnosed at birth, 44 states now require newborn screening, chil-

dren affected are given prophylactic penicillin until they are at least 5 years old, and infants with sickle cell anemia are now routinely given a new vaccine to guard against pneumococcal infections—particularly those of the blood and brain—potential killers of children with the disease.

Her husband, Garvall H. Booker, D.D.S. (also a Howard graduate), died in 1996. Wethers lives near The Cloisters museum in upper Manhattan, where she has a "minuscule" vegetable garden. She enjoys traveling (she recently visited southern Africa), visiting museums, attending the theater and reading. She highly recommends *The Poisonwood Bible* by Barbara Kingsolver.

## At the FDA, seeking a more perfect union

Organizing and running a labor union isn't exactly what he trained for, but **Robert Young, M.D. '67, PH.D. '69**, clearly



enjoys the job. For the past four years, Young has served as president of a newly formed chapter of the National Treasury Employees Union representing 3,800 employees at the Food and Drug Administration's Washington headquarters (nearly a third of whom have doctoral-level degrees). "It goes to show that your career can take turns that you might never have imagined," said Young, who jokes that he runs the employee "complaint department" at the FDA. The researchers in Washington are among 5,000 FDA employees represented by the union nationally. Young's colleagues have elected him union president twice in a row.

Young says that union representation for the researchers provides a safeguard in the same way that guarantees of academic freedom protect pro-



fessors. The union helps to ensure that researchers get to "call the shots about the quality of the research being submitted" by shielding them from political, economic and bureaucratic pressures. Before taking on the union job, Young had worked as a researcher himself, first reviewing applications to market new drugs or to test them on human subjects and subsequently evaluating the reliability of drug data. His tenure at the FDA overlapped with that of **David A. Kessler, M.D.**, who was the agency's commissioner from 1990 to 1997, but by the time Young began his union duties, Kessler had moved to Yale as dean.

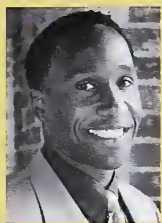
Young originally envisioned himself as a clinician. After an enjoyable summer working in the lab of Frank Ruddle, Ph.D., he decided to augment his medical degree with a doctorate in pharmacology, then spent two postgraduate years in internal medicine at Mount Sinai Hospital in New York. It was when he worked at the National Cancer Institute that he discovered that as much as he enjoyed the doctor-patient relationship, he found research more compelling. Young also earned a master's degree and a J.D. in labor law at Georgetown during the 1980s, collecting so many acronyms after his name that he does not use them all. A resident of Bethesda, Young is married to concert pianist and Department of Justice trial lawyer Virginia Lum. Their children are Justin, 9, Marielle, 11, and Colette, 13.

His career turn says much about the value of the Yale System, Young believes. "I do hope the students learn that a graduate and medical education can be used for medical careers in addition to clinical practice, research and teaching," he says. "The values embodied in the Yale System can lead one into

disciplines somewhat remote from where one started, and it can be a lot of fun. In my years on Cedar Street, I would have never thought I would be involved in the kinds of things I have done. It's been quite an adventure."

### For EPH grad, a goal that is universal

As a child, **Kevin Nelson, M.P.H.**



'92, didn't dream of growing up to be a health care administrator; in fact, he envi-

sioned himself as a doctor. But 18 years out of college, he loves his job running a managed-care plan that provides government-subsidized health insurance for 40,000 New Yorkers who would otherwise probably go without insurance. As COO of HealthSource/Hudson Health Plan, which has members in Westchester, Rockland, Orange and Sullivan counties, he sees one of his company's roles as nudging the United States closer to universal health coverage.

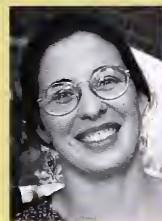
In part because he had a sister with cerebral palsy, Nelson began college intent on going to medical school and becoming a neurologist. He enrolled in science courses, worked in a hospital and played a role in the premed society and student government at the University of Pittsburgh. Nelson gradually realized that he liked running organizations more than he liked medicine, and he decided to wed his interests in health care and business. He worked in a community health center in New Jersey and then a large public hospital in Atlanta before going to Yale to study health policy and management.

During his 10 years at HealthSource, Nelson has watched the company grow from 19 to 200 employees. One of his company's goals has been to advocate for legislation that would

streamline the state-mandated enrollment and re-enrollment process for uninsured individuals. Re-enrollment, or "recertification," is required annually for individuals and families who obtain their health insurance through Medicaid and other government-subsidized programs. He calls the application process "a nightmare ... If you're missing a piece of paper, you're terminated." HealthSource joined with similar organizations, successfully backing legislation that will simplify the certification process. "All the advocacy we're doing is with an eye toward universal health insurance. It's the only way," he said. Nelson lives in Westchester County with his 1-year-old daughter, Cherie, and 7-year-old son, Adam Philip.

### How managed care stacks up

**Tracey Thomas, M.P.H.** '94, works



as a research associate at Yale's School of Public Health. "I never actually left," jokes Thomas,

who is contributing to a study of the variations in managed-care regulations from state to state. Working with faculty members Mark J. Schlesinger, Ph.D., and Karl S. Kronebusch, Ph.D., Thomas is helping to analyze and quantify how a state's managed-care rules affect physicians' satisfaction with the managed-care system in that state.

Thomas, who worked as the office manager for U.S. Rep. Bruce Morrison of Connecticut before earning her degree at Yale, says her work fits well with the job of raising three young children, but she misses politics. "I love politics," says Thomas, who lives in Hamden with her husband, lawyer Marvin Bellis, and children, Morgan, 8, Jack, 5, and Ronan, 2.

### A new derm professor, an interest in research

This summer **Maryam Asgari,**



M.D. '97, joined the faculty of the University of Washington, where she recently

completed her residency in dermatology. Concurrently, she has been working toward a master's in public health in epidemiology, for which she was awarded a fellowship by the Carl J. Herzog Foundation. She plans to continue research on the epidemiology of skin cancers along with clinical-outcomes research.

Asgari lives with her husband, Marc Marchiel, a lawyer, and their son Arman, who turns 1 this fall, in Seattle. By the way, Asgari thinks using Botox for cosmetic reasons is fine. "There are not a lot of things in our armamentarium that are effective and don't have side effects, so I think it's a good way to help people feel good about themselves. The patients are happy."

### 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 training programs. Drop us a line at [yym@yale.edu](mailto:yym@yale.edu) or write to Faces, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, and tell us why this person's story would interest fellow readers.



The names of class members appear in bold.

## 1942

### 60th Reunion Report

At the dean's reception I was heartily greeted by **Ludmil Chotkowski**. Since retiring from practice **Chot** has been living on the 100-acre family farm in Kensington, Conn., established by his father, an immigrant from Poland. Each summer **Chot** invites classes from local schools, as he did us, to share his harvest of blueberries, apples, pears and peaches. One child wrote, "Thank you for the apples. I'll be sorry when you are dead!" **Chot** has written and privately published a book debunking chiropractic (See *Books*, p. 18). His book was a resource for a current PBS documentary on the subject. **Carter Stilson** was the only other classmate at the reception. He was saddened by the disbanding of The Compleat Pediatrician, a group of pediatricians who have been meeting monthly with Al Solnit and John Schowalter at the Child Study Center for more than 40 years, focusing on developmental, psychodynamic and family relations issues as they occur in pediatric practice. The work of this dedicated group has contributed greatly to the quality of pediatric care in the New Haven area. **Carter** seemed to be consoling himself with a feast in which the main course was, would you believe, zucchini! Zucchini is also one of my favorites so we traded recipes. He also told me of a resource for natural foods in New Haven. After the reception came the fabulous New England clam-bake, which we enjoyed heartily, but no other classmates showed up so we joined my daughter Rachel and her classmates of '77.

**Leo** and Elizabeth **Kellerman** were at the Graduate Club dinner Saturday. They had attended the behind-the-scenes tour of the Woolsey Hall organ. I learned that **Leo** had been an alternate on the American



Olympic fencing team. Along with the **Kellermans**, the only other representatives of our class, we dined with the Class of '47. **Leo** had brought news of **Irv Wolfson's** recent bypass surgery, his second. **Moe** and Miriam **Tulin** had retired to Lexington, Mass., near their son. Having married senior year Lucille and I celebrated our 60th anniversary last September with seven grandchildren to show for it. I am still seeing patients. For the second year I have received the Yale Child Study Center Group Teaching Award for Outstanding Training of Child and Adolescent Psychiatry Residents.

Samuel Ritvo

## 1947

### 55th Reunion Report

The Class of 1947 experienced another successful reunion at Yale, with more classmates returning than most of the groups of our vintage, and we seemed to be the liveliest and possibly the most vocal. The programs, diurnally, were informative and exciting, especially the dean's explanation as to the building programs. If one has not recently visited Cedar Street, the expanse of buildings can be a shock almost leading to disbelief. The magnitude of the change is immense.

Friday evening's clambake had everything, including a Dixieland band called The Clam Diggers. They played toe-tappers, including requests from the audience, and seemed to enjoy the music as much as the alums. **Jack Cannon** and Marie Ziegler couldn't sit still, got up and danced, looked great. **Bill McClelland** was there with his brother Harry, a YSM grad now practicing in California. **Bill's** wife, Betty, was at home in Greenfield, Mass., sidelined by a cervical vertebral fracture. She's recovering nicely. The class had special reserved tables and **Bob**

**Chase** was having a field day with his camera. We seemed to be the last to leave the courtyard. The following day there was a delightful luncheon in the same spot attended by the same seemingly tireless gang, supplemented by Betsy Due Sullivan of the YSN Class '46W, a pleasant surprise.

Saturday night the older classes joined the 50th to welcome the most recent five-year group at dinner at the Graduate Club. The affair was well-planned, moved along just right, and again, our '47 tables were reserved. The food was exceptional and the wine perfect. Of course, we were not the most important group in attendance (some would argue that point). The 50th group was the primary honoree and managed the action well, but we did miss **Vic Machcinski's** music and **Brock Lynch's** dancing. The Class of '47 was not invited to offer words, probably a stroke of genius on the part of the organizers.

Among those attending our 55th were the **Barnes**, **George** and **Ellie**, from Tucson. He's retired but still teaches a few classes a week. **Roy** and **Margaret Breg** were there. **Roy**, who is still working actively, notes that retirement doesn't seem around the bend. Retiree **Jack Cannon** and his wife **Doris** came down from West Simsbury, enjoying the break from the GP load. **Bob** and **Anne Chase** are enjoying his retirement, splitting their time between Keene, N.H., and Stanford, Calif. Present also were **Bob** and **Sue Darrow**, living the good life after his adios to a busy practice. **Frank** and **Sherrie Epstein**—he is still working and recently journeyed to Eastern Europe to consult and advise at renal disease and therapy centers. **Bob** and **Claire Kerin**—now retired, **Bob** is an AYA representative. **Brock Lynch** has retired and loves it. He gave a dance exhibition in Europe recently. **Vic** and **Barbara Machcinski** are well into retirement life on Cape Cod. **Bob** and **Martha Newton**—he puts in fewer hours, but has no thoughts



of quitting. **Phil** and **Jo Philbin** spend the winter in Vero Beach, Fla., and the summer in Maryland. He is retired but busy with reading, golf, computer and family. **Ellis** and **Annalea Van Slyck** were in from Michigan. **Van's** the same, smooth as ever and no big problems. **Root Ziegler** and **Marie** are loving retirement in Essex, Conn., and Nova Scotia, but he's been experiencing rather severe low-back troubles, which have restricted some of their activities. You couldn't tell it from looking at them.

**Jo Philbin**, **Margaret Breg**, **Jane Frame** and **Martha Newton**, all YSN alums, attended their alumnae dinner on Friday as well as the YSM '47 activities on Saturday.

We hope all '47 grads will plan to be in New Haven for our 60th. Many are not too far away and their presence would add so much to this pleasant event.

**Phil Philbin**

## 1952

### 50th Reunion Report

*Fifty years as docs have past  
And we've returned to Yale at last  
To celebrate with mirth and levity  
Our lives, our work and our longevity*

Of our 42 known survivors, 13 of us and our significant others gathered from the four corners of the country. From Washington state **Phil Deane**, from California **Bob Nolan** and **Janiece**, from Florida **John Wolff** and from Vermont **Bob Gerety** and **Maggie**. Also with us were **Mo Bogdonoff** and **Diana**, **Frank** and **Barbara Coughlin**, **Dick Floyd** and **Mary**, **Jim Luce** and **Candace Myers**, **Bob Owen** and **Edith**, **Jack Roberts** and **Louise Regan**, **Mary Wheatland Schley**, **Doris Wethers** and our long-lost classmate **Bob Winters** and **Nete**. **Bob** came all the way from New York City.

I bring greetings to the class from **Karel Absolon**, **John Arnold**, **Max** and **Frances Bloom**, **Bill Centerwall**, **Art Husted**, **Bill**

**Johnson**, **Tom Kelly**, **Charlie Lester**, **Bill Letsch**, **Mo Morrison**, **Virgilio Peralta** and **Bob Schultz**.

Over the course of the reunion we had a great chance to revisit, reflect and talk about the past 50 years of our lives and renew those friendships formed at Yale.

We thank the alumni office for its wonderful work at hosting us. The weather was perfect and the luncheons, breakfasts and Friday evening clambake, as well as the final dinner at the Graduate Club, were all enjoyable gatherings.

The discussions for the reunion centered on the very important topics of women in medicine and women's health, particularly in regard to heart disease. **Dean Kessler's** discussion of the direction the medical school is taking was very informative. The building program adding 700,000 new square feet to the medical school campus illustrated to us the vitality generated and supported by the university.

As a surgeon I was also pleased to hear the plans for the rejuvenation of the surgical department under the leadership of **Dr. Robert Udelsman**. This should create a world-class department.

As medicine evolves so do medical curricula, and the faculty and student body have participated in discussions about the direction that change should take at Yale. There is, I think, a consensus that the Yale System, which makes a Yale medical education unique, will survive and flourish in the future.

Since our graduation in 1952 the class demographics have changed considerably. Women last year made up more than 50 percent of the entering class (we had 15 percent), with a much higher percentage of minority students.

To those graduates of 2002 in this rapidly changing environment both medically and economically, we pass the torch. Keep it burning! Best wishes

for as enjoyable and as rewarding a time in medicine as we have had.

Finally, as fund-raiser for the class (thanks to **Frank Coughlin**, now head of the Association of Yale Alumni in Medicine), I wish to thank all of my classmates who participated and made it a great year.

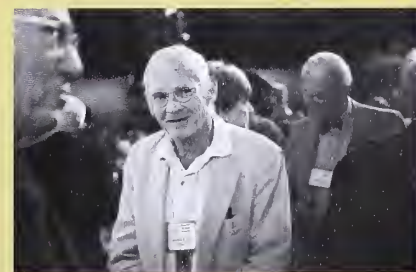
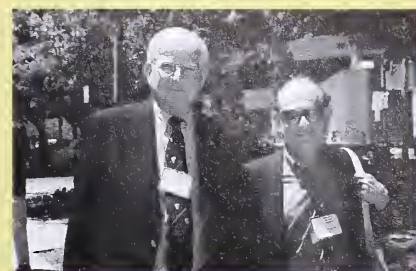
**Jack Roberts**

## 1957

### 45th Reunion Report

The Class of 1957 enjoyed the now customary Friday evening clambake, which was held in the courtyard of the renovated Harkness Hall, and an excellent luncheon on Saturday also in the courtyard. An important event occurred on Saturday morning, when **Gil Hogan**, until recently the president of the AYAM, received the Distinguished Alumni Service Award. We had our traditional class meeting on Saturday afternoon in the Boyer Center on Congress Avenue. We opened the meeting by remembering the 16 members of our class who have passed away. Then, sharing their professional experiences with us, **Vince Andriole** spoke on the characteristics of Yale medical students, **Hal Fallon** on life as a dean and **Gil Hogan** on the Association of Yale Alumni in Medicine.

The following classmates were present: **Vince Andriole**, **Jane Battaglia**, **Jack** and **Barbara Blechner**, **Harry** and **JoAnn Briggs**, **Jack** and **Anne Carey**, **Louis** and **Mady Cooper**, **Tom** and **Nancy Danaher**, **Jim** and **Coleen Dorr**, **Hal** and **Jo Ann Fallon**, **Bob** and **Joan Fishbein**, **Tony** and **Mary Fons**, **Liz** and **Ben Forsyth**, **Al** and **Vivian Fried**, **Gil** and **Carol Hogan**, **Stan** and **Carol Kilty**, **Bill** and **Priscilla Kissick**, **Ed** and **Naomi Levin**, **Jack Levin**, **Herb Newman**, **Howie** and **Gretchen Minners**, **Ray Phillips**, **Stan Simbonis** and **Ann Faulk**, **Gil**





and Marlene **Solitare**, **Don Stahl**, **Arthur Taub**, **Bill** and Barbara **Waskowitz** and **Herb Winston**. The 27 members of '57 appeared to make up the largest class contingent present on this reunion weekend. Approximately 30 percent are in practice and half of those in attendance indicated that they were fully retired. (At the time of our 40th reunion, one-third of the attendees had retired.)

Dinner was held at the home of Priscilla and **Bill Kissick** on Johnson's Point in Branford. As usual, the food was superior, and had been planned by Carol and **Gil Hogan**. The wonderful atmosphere that pervaded the entire evening reflected the genuine warmth of the relationships between the members of our class.

**Gil Hogan** compiled a wonderful classbook that included responses to questionnaires that he had mailed out earlier this year as well as pictures that many members of the class had provided. This was given to all who attended and also will be distributed to those who could not attend.

**Jack Levin**

## 1962

### 40th Reunion Report

The most frequently asked question this reunion was "Are you still practicing or have you retired?" The responses were "yes," "no" and "halfway"! The assembled group laughed, remembered, observed the present and looked forward.

Gathering in New Haven were Nancy and **Arnold Eisenfeld**, **Bruce Elfenbein** (Bruce was with us for Friday; he was involved in a bike race Saturday in Philadelphia), Carol and **John German** (who retired to New Harbor, Maine), Kate and **Steve Fricker**, Jane and **Fred Cantor**, Joyce and **Jim Spencer** (heading toward a move to Cape Cod), **David Seil** (looking toward retirement next year in Sarasota), Maureen and **Stan Matyszewski**, Rhonda and **Al**

**Lieberson**, Ann and **Joe Ross**, Trudy and **John Harrington**, Pat and **Joe Ferrone**, Flo and **Walt Karney** (now in Rockville, Md., after 32 years in the Navy), Peggy and **Dick Pschirrer**, Anita and **Fred Anderson**, Darlene and **John Foreman**, Norma Davenport and **Carter Marshall** (who came the farthest—from Tucson, Ariz.), Ann and **Bill Miller** (now dedicated to roses and fishing, not necessarily in that order!), Dianne and **Charlie Carl** (also celebrating a Yale College reunion), Carol and **David Nicholas** (still working in quality assurance for international health care), and Marcia and **Manuel J. Lipson** (who recently received a lifetime achievement award from the Massachusetts Medical Society for his work in rehabilitative medicine).

**Dick Collins** was called into emergency service for the month of June at the U.S. Embassy in Moscow. He sent his greetings to all. **Mickey Alderman** also sent his best regards; **Mickey** is involved in research projects lasting at least four or five more years. **Glenn Kelly** is retired and spends time in Colorado and Florida. **Spencer Brody** is still in Laconia, N.H., **Jon Aase** still consults in Albuquerque and **Rod Haft** is in San Antonio. **Woody Waldron** practices in Manhattan and **Bill Porter** (who dropped back a year) has retired to Laguna Miguel, Calif.

The New Haven skies were bright, the medical complex is growing, your classmates are getting grayer and we missed seeing the rest of you. Let us hear from you and plan to come join us in five years.

**Richard Pschirrer**

## 1967

### 35th Reunion Report

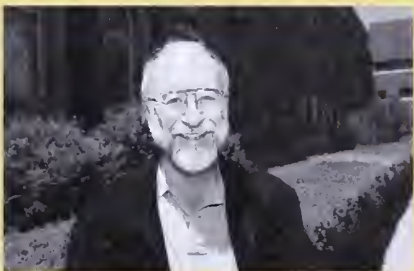
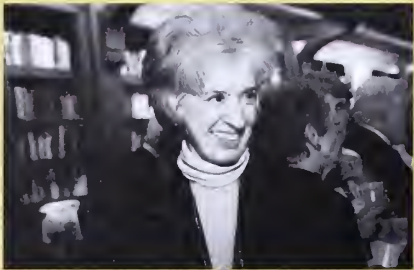
We reconvened as we have six times before, slipping at once into the old familiar comfort and confidence of friendships that have now lasted more than

half a lifetime. Those attending were **Dan** and **Elissa Arons**, **Mary Williams Clark** and Jerry King, **Alex** and **Trina Dora**, **John Drews** and daughter **Kate**, **Peter** and **Marian Egbert**, **Dick** and **Carol Heppner**, **Peter** and **Maureen Herbert**, **Bob Kirkwood**, **Tony Lovell**, **Steve** and **Chris Miller**, **John** and **Marilyn Pastore**, **Bill Perkins**, **Brian Rigney** and **Jessica Coviello**, **Dick** and **Caroline Swett**, **Martin** and **Karen Wand**, **Redford** and **Virginia Williams**, **Ihor Zachary** and **Peter Zeman**.

The mood was relaxed and a mixture of the playful and serious. Most of the group are around 60 now, and since our last meeting there have been some prostate and heart surgeries and the placement of a few stents. But in general these are men and women at their peak, and most are still working full blast. One level below day-to-day, however, everyone is now thinking about retirement and how to approach it. **Dora**, **Drews**, **Heppner** and **Dowaliby** have already left active practice—**Dora** and **Drews** were forced by physical problems, **Heppner** and **Dowaliby** made the choice. **Trina Dora** recently retired from her job as a pilot for United Airlines. **Drews** went to law school, as you probably know. **Heppner** is teaching at the medical school at Pittsburgh. **Dowaliby** is doing a lot of photography again, after a lapse of 30 years or so, and is teaching black and white dark-room photography at Paier College of Art, a small institution in Hamden, Conn. He remains on the clinical faculty at Yale and usually takes part in the clinical diagnosis course each year.

On Saturday morning at the Association of Yale Alumni in Medicine meeting, **Dan Arons** was honored for his long and outstanding service to the school. He received a standing ovation, vigorously supported of course by enthusiastic classmates.

For me, the second highest point of the weekend was watching **Redford Williams** and





**Dick Swett** at the Saturday lunch. Very intently, they were comparing their HDLs and LDLs and discussing the implications while eating strawberry shortcake that was just barely visible under mountains of whipped cream.

As always, we clustered together where we could, talking. We had hours at the clam-bake, hours at Saturday lunch and hours at our Saturday night dinner at Adriana's, which started at about 6 and broke up spontaneously about 11. Somehow I had the feeling that this time we were less pressed, less urgent, about having so little time together. People seemed relaxed, at ease with themselves and as always very much at ease with each other. **Zachary** and others mentioned that we must all put out some effort next time to get more of us to come. That should be easier now, with the new online Yale alumni directory. Aside from the numbers, everyone felt that it was an excellent meeting. I thought that we pretty much had time to say what we wanted to say and hear what we wanted to hear—that is, we are mostly OK.

**James Dowaliby**

## 1972

### 30th Reunion Report

Reunion this year provided a wonderful opportunity to visit with friends that we hadn't seen since the 25th and, in some cases, since graduating three decades ago. Everyone attending looked hale, hearty and, if anything, improved by benefit of years and experience.

Two class members arrived on Thursday, **Felix Freshwater** to attend the Plastic Surgery's grand rounds and **Bob DeBlasi** to visit with his son, Greg '03. Our crowd began to gain force of numbers by Friday evening's

dean's reception and clam-bake. Those in attendance included **Bob** and Louise **Glassman**, **Bob** and Chay **DeBlasi**, **Gary** and Meda **Strauss**, **Phil Cohen**, **Ed** and Barbara **Olinger**, **Dick** and Helen **Robbins**, **Jesse** and Beryl **Jupiter**, as well as **Phil** and Susan **Lebowitz**. Although everyone at the clam-bake gave good effort, it was clearly **Bob DeBlasi's** vendetta against crustaceans that led to the lobster shortage now facing the Northeast.

Saturday evening the Class of '72 gathered at the Graduate Club on the Green for cocktails and dinner. An influx of classmates who had not made it to the clam-bake rekindled our excitement. Those making the scene included **Bruce** and Valerie **Haak**, **Tom Horn** and Sue **Sciaraffa**, **Tony** and Marci **Jackson**, **Felix Freshwater** and Melody **Stokes**, **Mike** and Sally **Buckley**, **Charlie** and Susan **Scholhamer**, **Frank Kahr**, **Steve** and Roberta **Zeldis**, as well as **Phil** and Barbara **Rothfeld**. Joining them were the **Lebowitzes**, the **Glassmans**, the **DeBlasis**, the **Strausses**, the **Olingers**, the **Robbinses** and **Phil Cohen**.

**Phil Lebowitz**, the 30th reunion class gift chair, in thanking everyone for their pledges and contributions, described the Society of Distinguished Teachers, which our class and the Class of '67 have combined their efforts to help fund. Dr. Herb Chase, the school's deputy dean for education, hopes to inaugurate a program to support the salaries of outstanding clinician-teachers, who in turn would dedicate a substantial portion of their work effort to teach Yale medical students. Alumni with a special interest in underwriting this society should contact Eric Schonewald in the Medical Development office at (203) 737-2691 for more information.

**Harry Malech**, our class's social chair, who had planned the reunion dinner, had an acute herniated disk in his lower back and was not able to travel to the

reunion. **Phil** told those gathered at the dinner that **Harry** had phoned him to express his regrets, and that **Harry** had asked him to let everyone know that he was with them in spirit, encouraging all to e-mail him at hmalech@nih.gov. Showing the stuff of which our class is made, **Tom Horn** immediately produced his cell phone, found **Harry** recovering at home in Bethesda, and passed **Harry** (at least his voice) around the room for all to share. On to the 35th in 2007!

**Phil Lebowitz**

## 1977

### 25th Reunion Report

Observing their first quarter-century in medicine, members of the Class of 1977 met for their own celebration on Saturday evening at the Union League Café in New Haven. Over a quarter of the class was in town for a very busy and wonderfully sunny weekend.

During cocktails and hors d'oeuvres, Dean Kessler stopped in to extend his congratulations to the class. **Attilio Granata** and **Ricky Schneider**, co-chairs of the class's reunion planning activity, welcomed the class, first remembering during a moment of silence our two departed classmates, **David Kreis Jr.** and **Lawrence Biris**. **Ricky** then introduced **Howard Koh**, Massachusetts Commissioner of Health. Through **Howie's** initiative and leadership over the past several months, the class undertook a special effort to honor Dr. Morris Dillard, whom we were fortunate to have as our special guest at this reunion dinner.

Dr. Dillard was a favorite mentor to a number of classmates and was instrumental in setting up and continuing to support the Wednesday Evening Clinic over the past 25 years. Several members of the class have made special contributions to a fund honoring the Morris

Dillard Lectureship. (Others wishing to contribute should contact the medical school's development office.) The class heard from Dr. Dillard, as well as from several students reminiscing about the friendship, clinical acumen and support that he consistently bestowed upon this and many other classes. After a strong round of applause for our honoree, "the Commish" sang a wonderful a cappella tribute, "Wind Beneath My Wings."

During dinner, various stars from our 1974 Second-Year Show, *MephistoFollies*, reenacted their most memorable roles, thanks to the script that was lovingly kept and provided by **Julia Frank** and the director's score supplied by **Gail Sullivan**. Remember: "We're in the brotherhood of docs / The medicinal brotherhood of docs / The group that cures your ills / And sends you monstrous bills / That great, big brotherhood of docs!"

Led by **Alan Penziner**, members of the class recalled what they last heard from other classmates who could not attend these reunion activities. Current YSM political issues were roundly debated over dessert. As a special memento, those attending were given a bound copy of 41 recent biographies and e-mails, some with family photos, assembled by the alumni affairs staff. After the last cup of coffee, many stayed on to continue remembering and reliving a time of profound and sentimental impact upon each of us.

Attending for all or part of the weekend were: Larry and **Marcia Clark Arem**, **Harvey Berger**, **George Bolen**, **Jerry Brody**, **Artie** and **Sybil Duchin**, **Jim Fox**, **Julia Frank**, **Attilio Granata** and Claudia Dinan '80, **Karen Kelly** and Bill Levy '76, **Howie Koh** and Claudia Arrigg, **Wilma Korevaar** and Bob Pearson, Pat and **Rex Mahnensmith**, **Margie McKenna**, **Bob Mitchell**, Carolyn and **Mike Owens**, **Alan Penziner**, **Lenny Rappaport** and Betsy Weaver, **Rachel Ritvo**, **Steve Scheinman**, **Ricky Schneider**, **Simeon Schwartz**



and Ellen Greenebaum, **Gail Sullivan** and Mark Demers, **Polly Thomas**, Amy and **Ron Vender**, **Steve Warsof**, **Didi Wasserman** and **Sharon Weinstein**. **John Whitcomb**, whose family plans were altered by the threat of war in India, sent last-minute, heartfelt regrets.

**Attilio V. Granata** and **Ricky M. Schneider**

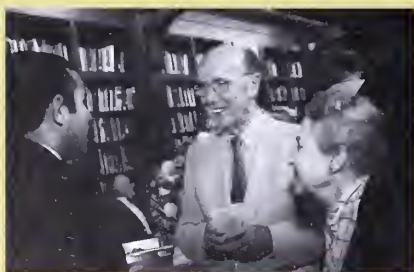
## 1982

### 20th Reunion Report

Greetings to the Class of 1982! Fourteen of us gathered in New Haven to celebrate our 20 years since graduation, catch up on what has happened in our families and careers and share memories of medical school days. We ate lobster and steak on Friday night at the clambake and lots of eclectic hors d'oeuvres at dinner on Saturday, but the food paled in comparison to the truly terrific time we had with each other. **Bob Rohrbaugh** and his wife, Ellen Quinn, in a stroke of sentimental genius, brought our class face sheet (the mug shots from the first day of school, remember?), and we all had a hilarious time looking at our old selves and wondering where everyone is. **Bob** is an associate professor of psychiatry at Yale and co-director of the psychiatry residency program. **Bob** brought news of **Augusta Simpson Roth**, a psychiatrist in Arizona, and also of **Steve Resnick**, who is practicing dermatology in Cooperstown, N.Y. **Paula Braverman** came from Philadelphia, where she is chief of the section of adolescent medicine at St. Christopher's Hospital for Children. **David Goldstein** attended reunion all the way from New Mexico, accompanied by his children, Amanda, 13, and Isaac, 19 months. We send regards to his wife, Marsha, who was unable to attend. **David** tells us that **Joyce O'Shaughnessy** is an oncol-

ogist in Dallas and that **Bob Pierattini** is practicing psychiatry in Burlington, Vt. **David** shared the "who traveled the farthest to reunion" award with **Bert Ungricht**, who came from Salt Lake City with his wife, Yvette, and their four children, Andrew, 15, Mary, 13, Emilie, 9, and Amy, 7. **Bert** does general ophthalmology with a retina specialty, enthusiastically enjoyed the winter Olympics and tells us that **Don Stromquist** is also in Salt Lake City practicing rheumatology. **Henry Stern** also traveled a distance with his wife, Cheryl, and their sons, Everett, 18, and Gavin, 16. **Henry** is head of MRI and nuclear medicine at the West Palm Beach VA Hospital. **Michael Katz** flew in from Virginia just for the clambake; he didn't want to miss reunion but needed to go back to attend the Stanley Cup finals in North Carolina on Saturday night! He is about to move to Florida to a new practice in pediatric and adult radiology. **Michael** and his wife, Cheryl, have three daughters, Elizabeth, 17, and twins Alexis and Shoshana, 14. He has visited **Fred Drennan** (gastroenterology) and **Terry Massagli** (rehab medicine), who live in Seattle, and also brought word of **Paula Chandler**, who is living in Houston. **Patty Kellner** arrived with her husband, Jim Heflich, from Ohio, where she is a family practitioner and avid birdwatcher and participates in the Case Western Medical School ambulatory teaching program. **Katalin Roth** traveled to reunion from Washington, D.C., where she is program director in primary care internal medicine at George Washington University. She and her husband, Phillip Singerman, have two sons, David, 18, and Adam, 15. **Katalin** brings news of **Sylvia Beck**, who is an ophthalmologist in Philadelphia and has two children, Sarah and Eric. **Jessica Herzstein** came down from the Boston area to attend reunion with her husband, John Ryan. **Jessica** has a busy occupational and environmental consulting practice, juggling that

with raising two daughters, Diana, 13, and Julia, 12. **Daphne Hsu** is head of clinical research in the division of pediatric cardiology at Columbia, where she did her residency in pediatrics. She and her husband, Jeff Rosen, have two sons, Bobby, 14, and Michael, 11. **Daphne** tells us that **Muriel Cyrus** is in Dallas with her three sons, and **Jeff Tepler** is practicing hematology/oncology at the New York Hospital Cornell Medical Center. **Patrick Toth** is also living in Manhattan. He practices interventional radiology at Hackensack Hospital in New Jersey. His wife, Hildegard, is also a radiologist and they have two sons, ages 8 and 10. **Pat** tells us that **Ron Voit** is practicing ob/gyn in Hilo, Hawaii, and that **Victor Perez** is a psychiatrist in Guam. There are several of us besides **Bob Rohrbaugh** who have stayed in or come back to New Haven and didn't have to travel at all to get to reunion. **Sandy Wolin** is associate professor of cell biology and molecular biophysics and biochemistry at Yale. She and her husband, Carl Hashimoto, have a 6-year-old child. **Carrie Redlich** is associate professor in the section of occupational and environmental medicine here. She has two children, Mara, 15, and Josh, 11. **Carrie** has been the pillar of the New Haven youth soccer league, having recruited and trained many Yale faculty to participate as coaches. **Stephanie Wolf-Rosenblum** sends greetings via **Carrie**. **Stephanie** is in New Hampshire, practicing pulmonary medicine. **Lynn Tanoue** is an associate professor of medicine at Yale (pulmonary/critical care). **Lynn** attended reunion with her husband, Larry Young '80; they have three children, Robert, 10, Marissa, 7, and Grant, 4, and wonder like everyone else who has children what we used to do on the weekends before there were soccer, baseball, ballet and music lessons. **Lynn** brought





news of **Stuart Gardner**, who is also in New Haven practicing pediatrics, and **Colin Lee**, who when last sighted was practicing interventional cardiology in Idaho.

So, where have 20 years gone? From what we hear, careers have been productive, children are growing and life gets busier and more complicated. Fortunately, e-mail, Palm Pilots and memories keep us all organized and connected. I have e-mail addresses for all of those who attended reunion and would be happy to share the list with any of you who did not. You can find me at [lynn.tanoue@yale.edu](mailto:lynn.tanoue@yale.edu). Those of us who attended the reunion had a great time and agreed that we should put some effort into getting more of the class to come to the 25th!

**Lynn Tanoue**

## 1987

### 15th Reunion Report

The Class of 1987 arrived back at Yale and met up at the clam-bake in front of Harkness Hall—barely recognizable compared to its '87 incarnation. Interestingly, there was almost no overlap in who attended the 15th and who attended the 10th reunion. Many of us arrived with children in tow and spent the slightly wet day Friday touring the campus, including museums, libraries, classrooms and, of course, some favorite spots like Sally's for pizza or Louis' Lunch for a burger sandwich. At the clambake, I ran into **John Keaney** with his wife, Donna. Alas, their kids, Christopher, 10, and Jake, 8, didn't make the trip. **John** is associate chief of cardiology at Boston Medical Center and is doing extensive basic science research while maintaining a busy interventional cardiology practice as well. He has time for golf but, as yet, no Harley Davidson (so he can't ride with me!). **John** relates that **Mike Gaziano** continues to do well at the Brigham and is now leading the well-known Physician's

Health Study. Word is that **Matt Miller** is also floating around Beantown, last seen in the public health field. **Jonathan Friedes** attended the reunion with his wife, Ippolita, and their 10-month-old daughter, Emilia. **Jon** is practicing obstetrics and gynecology and Baroque violin (check out [www.sohip.org](http://www.sohip.org)) in Boston. According to **Jon**, **Subba Gollamudi** is in Memphis reshaping corneas and enjoying life with his wife and two sons. **Thea Kapphahn** is practicing adolescent medicine at Stanford, is married and has a son, Jasper (aka "Bob the Builder"). Two M.D./PH.D.s who started off with our class are no doubt remembered: both **Susanna Lee** (radiology) and **Lee Goldstein** are at MGH—**Lee** just became a father in the last couple of weeks! I bumped into **Bob Malison** and **Gene Vining**, who remain in the New Haven area, but they vanished before I had much of a chance to chat. **Donna Klimowicz** also joined us at Scoozzi; she continues to work with difficult patients with mental illness as well as substance abuse problems. Her husband, Rick, is the director of occupational therapy at Ancora Hospital. They are planning on moving back to Connecticut next summer with their children, David, 8, working on his karate black belt!, and Abby, 2 1/2, working on dealing with her brother. Several classmates couldn't make the reunion but updated me by e-mail. **Doug Nelson** and **Roxanne Bartel** are happily living with their two children, Rose, 8, and Isaac, 5, in Salt Lake City. **Doug** is in pediatric emergency medicine and **Roxanne** is practicing inpatient psychiatry. They all love to ski and spend time in their mountain yurt. (Yes, their yurt.) **Charlie Brackett** is married to Joanne Hayes and working as a general internist in the Boston area—they're expecting their first child

in December. (Get ready for a major lifestyle change, **Charlie!**) **Leslie Vogel** and her husband, Luciano Rossetti, are living in Westchester, where **Leslie** is director of geriatric psychiatry at Westchester Medical Center/New York Medical College. **Leslie** is writing articles for the lay press when not being kept too busy with their children, Paola, 11, and Gabriele, 4. **Leslie** reports that **Lisa Cairns** is working in Atlanta at the CDC—same for **Kristen Mertz**. **Amy Justice** reports that she and hubby **Joe King** have been working at the Pittsburgh VA and at the University of Pittsburgh, concentrating on outcomes research—**Joe** in neurosurgery and **Amy** in HIV. Their two children, Daniel, 5, and Erin, 2 1/2, are doing beautifully. **Eric Jankelovits** is director of obstetric anesthesia and living happily in Stamford with his wife, Monica, and three daughters, Lauren, 9, Amanda, 6, and Carly, 3 3/4. **Bob Urban** is director of the glaucoma service at St. Luke's Cataract and Laser Institute, not too far from me, in Tarpon Springs, Fla. **Bob** and his wife, Jeannie, have two daughters, Victoria, 4, and Olivia, 2. **Jay Horowitz** was last sighted practicing ENT in East Brunswick, N.J., while **Mark Widmann** has relocated to the Morristown, N.J., area, where he is practicing thoracic surgery. **Elliott Levy** is living in Princeton with wife Nina and sons Tom, 5, and Cyrus, 2. He is working in the pharmaceutical industry doing cardiovascular clinical research and development; "No time for hobbies!" he reports. As for me, I'm practicing interventional cardiology and living with my wife, Jodi, in St. Petersburg, Fla. I spend what little time there is away from work riding my Harley, relaxing with Zachary, 10, and Andrew, 6, in the pool and occasionally chasing a little white ball through green grass fields. To better stay in touch, drop me an e-mail at [barryw@tampabay.rr.com](mailto:barryw@tampabay.rr.com). See you in New Haven in 2007!

**Barry Weinstock**





## 1992

## 10th Reunion Report

Our 10th reunion was a fantastic event! Twenty-five classmates returned to Yale from locations around the country—some from as close as New Haven and others from as far as California. Friday evening we met at Harkness to begin reminiscing over a bountiful feast. The tree we planted as a memorial to classmate **Lauren Weinstein** (who died in our second year) flourishes next to Harkness, and provides a lovely place for contemplation. On Saturday, thanks to **Karen Antell** and **Robin Perlmutter Goldenson's** efforts, a group of us, many with children, enjoyed time together at the Trolley Museum. Others toured the newly renovated Harkness dorm. Saturday night we reunited at Zinc for our class photo and dinner.

We have many personal and professional accomplishments, which I cannot describe adequately in the space provided. As such, here are brief updates of classmates attending the reunion. **Ahmed Abou-Zamzam** (vascular surgery in Calif.) and wife Sharon Lum (surgery) have three young children. **Rick Alaimo** (neurology) and wife Sarah have two sons. **Karen Antell** (family practice) and **Mitch Saltzberg** (cardiology) have two sons; together they are ready for any medical emergency! **Jim Chang** (hand surgery) and **Harriet Roeder** (psychiatry) from California have two daughters. **Tom Davenport** (plastic surgery) is moving from Boston to join a practice in New York. Reunion gift chairs (thanks!) **Michael Girardi** (dermatology at Yale) and **Nancy Dingott Girardi** (pediatrics) have four young sons. **Robin Perlmutter Goldenson** (radiology) and hus-

band Richard from Boston attended with almost-one-year-old daughter Samantha.

**Stephanie Goodman** (anesthesia in NYC) and husband Beau brought their two sons. **Nancy Harthun** (vascular surgery at UVA) attended with friend Sue Lubn. **Chai Kulsakdinun** (orthopaedics in NYC) is married to Julie Wang. **Laura Drabkin Marks** (pediatrics) and husband David live in Connecticut and have three children. **Julie Lund Sharpless** (endocrinology) and husband Ned, presently in Boston, have two children. **Matt Massicotte** (urology) and wife Emma, ophthalmology resident, live in Andover, Mass. **Tobenna Okezie** (orthopaedics) and new bride Christine are building a home in New Jersey. **Sean Roddy** (vascular surgery in New York) and wife Veronica brought their son and seven-week-old daughter. **Ken Rosenzweig** (therapeutic radiology) and **Stacey (Berg) Rosenzweig** (pediatrics) came with their three lovely girls. **Nate Schmiechen** (ER) and wife Malinda, now in law school, attended. **Nate** built a fabulous elephant slide for his two daughters! **Margaret Wallen-Friedman** (neurosurgery) and husband Leny brought Silas and Asher, both born during medical school, back to Yale! **Ping Wang** (internist) and husband Tom Sullivan settled in NYC. **Anne Wolf** (pediatric GI) and husband Richard Wehby continue renovation of their home in Boston. **Ross Zbar** (plastic surgery in New Jersey) frequently interacts with **Evan Fischer** (recently married!) and **Tobenna** in the OR! Thank you all for making our reunion a great success! Please update the alumni website ([info.med.yale.edu/ayam/](http://info.med.yale.edu/ayam/)) as you make life and career changes.

It is with great sadness that I report the death of our classmate **Yuly Kipervarg**. As some of you may know, **Yuly** had a long and heroic battle with colon cancer and passed away March 14, 2001. After leaving Yale, **Yuly** trained at UCSF in dermatology, and then had a successful prac-

tice in Marin County, Calif. He was a charming individual, a gentle and kind friend and a compassionate physician. He touched many lives and will be greatly missed.

**Anne Wolf**

## 1997

## 5th Reunion Report

Our fifth-year reunion brought people back from a distance—from as far as California, Washington and Montana! The clambake on Friday night was a cozy group. **Dana Meinke Nehring** has completed her internal medicine residency in Seattle, and she married Jon Nehring last August. They have moved to Helena, Mont., where **Dana** is working as a hospitalist at the VA Hospital. **Jason Gold** is starting his fourth year of general surgery residency at Yale, and has also gotten married to Ann Rich. They are expecting their first child this winter. **Jaimie Nathan** is in the midst of his general surgery residency at Duke after spending the last two years in a research lab. **Amy Taylor Nathan** has just finished a year as pediatric chief resident at UNC, and will stay on as a neonatology fellow. They have an adorable 18-month-old (I'm a little biased) named Christopher. **Peter Siekmeier** has completed his psychiatry residency in Boston, and continues at McLean Hospital doing a research fellowship in neural networking (similar to his Yale thesis work!). **Maryam Asgari** has finished her dermatology residency and is in Seattle doing an M.P.H., funded by an NIH grant. She was there with her husband, Marc, and their charming little boy, Arman, 10 months old. **Helena Nolesco** (who began with the class ahead of ours but graduated with us in '97) is a

rheumatology fellow at Yale after completing her medicine residency there.

The Saturday night dinner honoring the Class of '52 was a great success. **Michele Baker** was there with her husband, Jim Morgan, and their very cute, red-headed son, Samson, who is 11 months old. Michele is now a psychiatrist attending at Beth Israel Deaconess. **Dan Wolf** was there with his wife, Leslie. They are in the process of moving from Philadelphia to Boston, where **Dan** will do his psychiatry residency at McLean/Mass General. **Pieter Pil** has finished his general surgery residency at the Brigham in Boston, and has taken a sweet job as one of two surgeons on Martha's Vineyard. Joining him will be his wife, Karen, and their 13-month-old son, Gideon. **Chrys Delling Schmults** and Rob came from NYC, where **Chrys** is completing a dermatology residency at NYU and then will go on to do a Mohs Surgery fellowship. **Pieter Cohen** is on faculty at Cambridge Hospital after finishing his primary care medicine residency there. He is the director of the ambulatory education program for the residents, and he and Lauren are expecting their second child (their first, Austin, is 11 months old). **Kristina Crothers** and **Mark Skirgaudas** traveled all the way from San Francisco. **Kristina** finished her medicine residency at Stanford, and is now doing a pulmonary/critical care fellowship at UCSF. **Mark** is in a radiology residency and will do a musculoskeletal fellowship, also at UCSF. **Tony Aizer** made an appearance (although he was also busy with his 10th-year Yale College reunion). He is in the midst of a cardiology fellowship in NYC, and then has signed on for more punishment as an EP fellow.

Whew! That's a lot of news. For all of you who couldn't make it, we hope to see you at the 10th reunion!

**Amy Taylor Nathan**



## Disasters, natural and other, top the agenda for returning public health alumni

Disaster management was the topic of the day as public health alumni gathered on June 7 for their annual reunion. **Gilbert M. Burnham, M.D., PH.D.**, an expert in relief operations at the Johns Hopkins Bloomberg School of Public Health, led a morning workshop in which he framed the issues surrounding responses to disasters, whether natural or man-made, with a single question: "How do we put things back together?"

The United Nations, he said, defines disaster as a situation that "affects the community's ability to cope." The most vulnerable societies, he continued, are plagued by poverty, inequality and highly centralized governments. Human rights are often at risk when countries are in trouble, he said, and women and children are the most vulnerable. "Protection of women is a major, major issue," he said, noting that a quarter of Sudanese refugee women report having been raped or sexually abused. In Kenya, collecting firewood is a major risk factor for rape among Somali refugees.

While Burnham's talk focused on developing countries in strife, other speakers at an afternoon panel described the lessons learned on September 11.

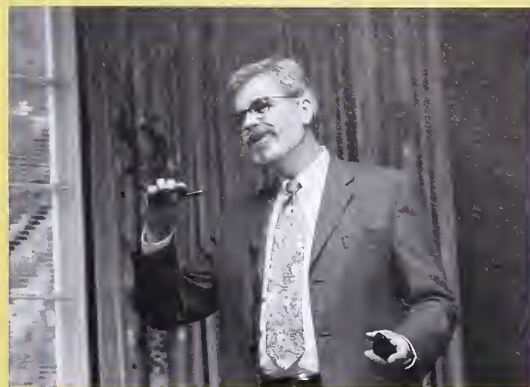
**Kelly Close, M.D., M.P.H. '92**, national coordinator of disaster volunteers for the American Red Cross Disaster program, saw problems firsthand at ground zero in Manhattan. She reported that unneeded volunteers showed up at the site, where there was no system for checking credentials. And families flocking to hospitals looking for loved ones needed some sort of "compassion center."

**Michael D. Israel, M.P.H. '80**, former CEO of the Duke Medical Center, believed his staff was well prepared for a disaster—until September 11. "As good as we thought our plan was, it

wasn't anywhere near what it needs to be," Israel told public health alumni.

Duke's plan had many strengths, said Israel, now COO for North Shore-Long Island Jewish Health System in New York. It established a clear chain of command, included a system for documenting care, set priorities for crisis response and created a common language for communicating during a disaster. But watching the events of September 11 and the disaster response made him aware of the Duke plan's deficiencies. Duke had previously planned for the potential of mass casualties in the tens or hundreds, not thousands. With that many casualties, the planning would have to take into account mass hysteria and triaging patients in numbers well beyond anything ever conceived of in the past. "In addition, these potential numbers made us realize that we would have to work with local government to make sure the streets and highways leading to the medical center were kept open for essential vehicles," Israel said after the panel discussion.

Long before September 11, **Scot Phelps, J.D., M.P.H. '95**, was already looking into disaster preparedness. Phelps, a paramedic and the manager of emergency life support programs at Phelps Memorial Hospital Center in Sleepy Hollow, N.Y., 12 miles from the Indian Point Nuclear Power plant and 20 miles north of Manhattan, was alarmed by the March 1995 nerve gas attack in Tokyo. A cult released the nerve agent sarin in the subway system, injuring 3,800 people and killing 12. Phelps said the Tokyo attack should alert hospitals that they need a plan for decontaminating large groups of people and for protecting health care workers in case of a chemical attack or spill. He said hospitals should recognize that most local ambulance crews are not trained in decontamination and that firefighters, who may have such training, will be at the site of an assault or attack and unavailable to help at the hospital.



JOHN CURTIS



TERRY DAGRAZI

**Gilbert Burnham (top) and Kelly Close, M.P.H. '92 (above), spoke about disaster management in the wake of September 11 at the public health reunion program.**

## A public health alumna looks back on the difference her mentor made



At a time when faculty wives “literally poured tea,” earning a master’s degree in public health changed **Sheila Wellington’s** life profoundly. The key

was finding a mentor, said Wellington, M.P.H. ’68, whose roles have evolved from that of faculty wife to director of two mental health centers to the first female Secretary of Yale. Wellington, the author of *Be Your Own Mentor: Strategies From Top Women on the Secrets of Success* and the president of Catalyst, a Manhattan nonprofit devoted to the advancement of women in business, received the EPH Distinguished Alumni Award for 2002.

When the director of the West Haven Mental Health Clinic left in the late 1970s for a new job, Wellington did not even consider that she might be promoted from assistant director—although she was actually running the place while her boss did research. A mentor advised her to tell the hiring committee that she would orient the new director and move on. In this way, the committee would be required to consider her value to the clinic. It did, and the committee quickly hired Wellington as director.

“That mentor changed me,” Wellington said at the reunion. She urged public health graduates “to be that person for someone else, preferably for someone who doesn’t look like you. Who knows what all of us will gain?”

Four other alumni were honored. **Raúl R. Cuadrado**, M.P.H. ’63, DR.PH., professor in the public health program at Nova Southeastern University in Florida, was given the 2002 Award for Excellence in Public Health Education. Inducted into the Alumni Public Service Honor Roll were **Linda K. Contreras**, M.P.H. ’83; **Adrian J. Pinsince**, M.P.H. ’85; and **Alan J. Siniscalchi**, M.P.H. ’78.

### Spotlight on surgery

The Yale Surgical Society sponsored a well-attended grand rounds on the Thursday afternoon of reunion weekend, with a talk by **Martin C. Robson, M.D., HS ’73**, (below) the first chief resident in Yale’s plastic surgery section. Robson, professor emeritus at the University of South Florida, described how surgeons came to recognize the significance of bacteria counts in the success rate of human skin grafts and in the healing of delayed wound closures. Also at grand rounds, the society presented its Sam Harvey Award to José Roberto Borrromeo, a post-doctoral fellow in vascular surgery.



TERRY DAGRADI

### 2002-2003 Association of Yale Alumni in Medicine

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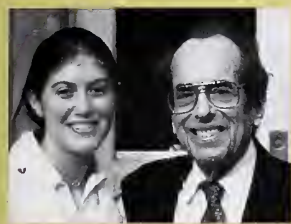
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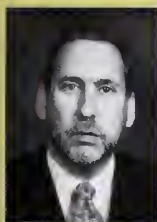
1940s



**Paul W. Hoffert, M.D.** '45, (above right) of Mamaroneck, N.Y., notes that his granddaughter Rachel Light (left), a member of the Class of 2006, represents the family's third generation at the School of Medicine. Rachel Light's uncle, **Marvin J. Hoffert, M.D.**, graduated with the Class of 1972.

1970s

**Edward C. Halperin, M.D.** '79, the



L.R. Prosnitz Professor and chair of the Department of Radiation Oncology at Duke Uni-

versity, has been named vice dean of the Duke University School of Medicine and associate vice chancellor for academic affairs at the Duke University Medical Center.

**George L. Kelley, M.P.H.** '74, of Albany, Ga., will be profiled in the 56th edition of *Marquis Who's Who in America*. Kelley is also the subject of a notice in *Volume VIII, Dictionary of International Biography*, for distinguished service in international mental health and education.

**H. Steven Moffic, M.D.** '71, a professor at the Medical College of Wisconsin (MCW), recently received two awards. The



Golden Apple Teaching Award was presented in June by the residents in the department of psychiatry and behavioral medicine at MCW. The Hero of Public Psy-

chiatry Special Speakers Award was presented to Moffic in May by the American Psychiatric Association. Moffic is also director of Luminous, a managed behavioral health care system developed by the department and comprising a network of 238 clinics and 1,742 providers.

**Daniel W. Rahn, M.D.** '78, HS '80, FW '81, professor of medicine and vice dean of the Medical College of Georgia (MCG) School of Medicine and senior vice president for medical affairs and chief medical officer for MCG Health, was installed in April as the seventh president of MCG, Georgia's health sciences university in Augusta. Rahn was on the faculty at Yale until 1991.



**Barbara S. Webster, R.P.T., PA-C** '78, received the 2002 Alice Hamilton Award from the American Industrial Hygiene Association (AIHA) in June. Webster is a researcher with the Liberty Mutual Research Center for Safety and Health in Hopkinton, Mass. She received the award for her work in the areas of cost and disability burdens of musculoskeletal disorders and the diagnosis and treatment of low-back pain in the workplace.



**Patricia Hellman Gibbs, M.D.** '87, HS '90, received one of six Bicentennial Medals for Distinguished Achievement from Williams College in Williamstown, Mass. The presentation was made at the college's 200th anniversary celebration in April. Gibbs and her husband, **Richard D. Gibbs, M.D.** '86, are the founders and directors of the San Francisco Free Clinic, which serves the uninsured.

1980s

**E. John Kuhnley, M.D., FW '81**, has relocated from Winchester, Va., to Lynchburg, Va., to serve as medical director for the Child and Adolescent Unit of Virginia Baptist Hospital. Kuhnley also notes that his daughter Lisa graduated from Shenandoah University in May; his daughter Sheila graduated from Penn State University in August. Lisa has a one-year-old son, Christopher.



**David L. Mork Jr., M.P.H.** '82, former vice president of operations at South Jersey Health Systems, was appointed vice president of operations for the South Georgia Health System in Valdosta, Ga., in January.

**Benhur Lee, M.D.** '95, an assistant professor at the University of California, Los Angeles, School of Medicine, was named a recipient of the Rockefeller Brothers Fund Charles E. Culpepper Scholarship in Medical Science for the year 2002. Lee will receive \$100,000 a year for up to three years to fund his research on how HIV attaches itself to dendritic cells.



**Tori Williams Reid, Ph.D.** '99, writes with this news: "I have departed from the laboratory and work for Accenture, a technology consulting firm. I am quite happy to have returned to my home state of North Carolina. My best news is my new husband, Marc V. Reid. We were married on April 13."



**WANTED: EARLY COPIES OF YALE MEDICINE**  
Calling all alumni who may be contemplating an attic-cleaning: we'd like your back issues of *Yale Medicine*. Of particular interest are copies of the *Alumni Bulletin* from the 1950s and 1960s. If you have copies to donate, please drop us a line at the address on the masthead on page 3 or phone 203-785-5824.

A bid to fight hunger

Among the more interesting items at the medical school's annual Hunger and Homelessness Auction have been an evening at the Met with an opera-singing medical student, a weekend at a faculty member's vacation home on Martha's Vineyard and dinner for eight lovingly prepared by an accomplished biochemist. Last year the auction raised more than \$30,000 for New Haven shelters and soup kitchens. This year student organizers are hoping to get alumni involved in the auction, which has been a student and faculty event throughout its 10-year history. "We'd love to have alumni attend the event, and we welcome their donations," said Brenda Ritson, a second-year student and the auction's co-chair. The event will take place on November 21 from 4 to 6 p.m. in Harkness Auditorium.

For information send an e-mail to: [hhauction@yale.edu](mailto:hhauction@yale.edu) or contact Ritson directly at: [brenda.ritson@yale.edu](mailto:brenda.ritson@yale.edu) or by phone at: 203-507-4663. Donations may be made online at [info.med.yale.edu/yaxis/auction](http://info.med.yale.edu/yaxis/auction)

**SEND ALUMNI NEWS TO**  
Claire Bessinger, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu).

**Philip B. Chase, M.D.** '43, of Farmington, Conn., died March 24 at Central Maine Medical Center in Lewiston at the age of 86.

After graduating from Yale, Chase served his internship at Albany Hospital in New York. He then entered the Army Medical Corps during World War II and was stationed at the Aspinwall Veterans Hospital in Pittsburgh. He retired as a captain in 1946 and moved to Strong, Pa., where he worked for two years as a family practitioner. In 1948 he had a year of postgraduate training in internal medicine at the University of Pennsylvania. In 1949 he married Kathleen Knippel of West Bend, Wis., and then moved to Farmington, where he had a general practice of medicine. In 1963 he became a physician at the Student Health Service of Tufts University in Medford, Mass.

**Richard J. Cleveland, M.D.**, HS '61, of Wellesley, Mass., died June 11 at Tufts-New England Medical Center after a long battle with brain cancer. He was 70.

Cleveland received his bachelor's degree from Tufts University and his medical degree from the Medical College of Virginia (MVC). He completed his postgraduate training at Yale and MVC. During his career, Cleveland was chief of cardiovascular surgery at the University of California, Los Angeles, chair of surgery at Tufts and surgeon-in-chief at the New England Medical Center. He also served on the Tufts faculty as professor of surgery and was chair of cardiothoracic surgery at St. Elizabeth's Medical Center of Boston. Cleveland served as a member of the Tufts Office of International Health Affairs and was a health care consultant.

**Jack W. Cole, M.D.** '66, of Camden, Maine, died June 17. He was 81.

Cole earned his bachelor's degree from the University of Oregon in 1939 and his medical degree in 1944 from Washington University in St. Louis, Mo. After completing his surgical residency at the University Hospital of Cleveland, he taught at Western Reserve University. Cole then served as captain in the Army Medical Corps and as chief of surgery of the 120th Station in Bayreuth, Germany. In 1963 he became professor and chair of the department of surgery.

Cole joined the faculty at Yale in 1966 as ensign professor and chair of the department of surgery. He then served as director of the division of oncology and of the Yale Comprehensive Cancer Center from 1975 until 1984, when he became vice chair for the department of surgery under William F. Collins Jr., M.D. Cole was also a professor at the Institution for Social and Policy Studies.

During the late 1960s, Cole was awarded a \$3 million grant for improvement in the area of trauma care. As part of the endeavor, the Yale Physician Associate Program (YPAP) was conceived to train medical personnel to assist in surgical and medical management. In 2001, on the 30th anniversary of the YPAP, Cole was honored as its founder.

**J. Russell Elkinton, M.D.**, former professor of medicine at the University of Pennsylvania, died April 6 in Concord, Mass., at the age of 91.

Born in Moylan, Pa., Elkinton earned his medical degree from Harvard in 1937. He came to Yale in 1940 as a research and visiting fellow in medicine, where he focused on the study of body fluids and electrolyte physiology. In 1942 he became an instructor in medicine and in 1945 was named assistant professor. Elkinton was recruited in 1948 by Penn to develop its chemical section into a top research center in blood chemistry and kidney disease. In 1962 he was named a full professor.

Elkinton, editor emeritus of the *Annals of Internal Medicine*, edited the twice-monthly publication of the American College of Physicians from 1960 to 1971. Circulation more than doubled during his term. He also published a number of books and scientific papers, the last in 1985 on migraine headaches, from which he suffered.

**Carl Gagliardi, M.D.** '50, a pediatrician from La Plata, Md., died at his home on February 19 of liver disease. He was 81.

After receiving a bachelor's degree from Yale, Gagliardi was a captain in the Army Air Corps during World War II, serving as director of the School of Tropical Meteorology in the Panama Canal Zone. He earned his medical degree at Yale and went on to teach at Wayne State University and the University of Michigan. Gagliardi practiced at the Downriver Pediatric Associates in Lincoln Park, Mich., for 27 years before moving to Maryland upon his retirement in 1990.

He was a president of the Wayne County and Michigan medical societies and a delegate to the American Medical Association for six years.

**John H. Killough, M.D.** '45, of Granbury, Texas, died at the age of 83 on April 12 in Weatherford, Texas.

Born in Dallas, Killough served in the Navy during World War II. He was a graduate of Southern Methodist and Johns Hopkins universities and attended Yale and the University of Pennsylvania medical schools. During his career Killough worked at the Naval Medical Research Center in Cairo for eight years.

**Knowles B. Lawrence, M.D.** '34, of Needham, Mass., died May 10 at Beth Israel Deaconess Medical Center from complications following surgery. He was 93.

Lawrence, a graduate of Yale College and the School of Medicine, served in the Army with the Sixth General Hospital during World War II. During his medical career he was an associate professor of surgery at Boston University School of Medicine and chief of surgery at Glover Memorial Hospital in Needham.

**Gustaf E. Lindskog, M.D.**, former chair of the Department of Surgery, died August 4. He was 99.

Born in Boston, Lindskog graduated from the Massachusetts Agricultural College (now University of Massachusetts) and spent a year at Princeton pursuing a graduate degree in botany. He changed his field of interest to pediatric medicine and earned his medical degree from Harvard in 1928. Lindskog did his residency training in surgery at Yale from 1929 until 1932. After a year as a National Research Council Fellow at the



Massachusetts General Hospital, he returned to Yale. In 1936 he became an assistant professor of surgery (gastroenterology). He was an associate professor of surgery (gastroenterology) from 1942 until 1948 when he attained full professorship. Lindskog was named the William H. Carmalt Professor Emeritus of Surgery in 1971. During his tenure at Yale he was also chair of the department of surgery from 1960 until 1966.

During World War II, Lindskog served for four years as a commander in the Navy Medical Corps and was stationed at the Philadelphia Naval Yard.

In 1943 the field of chemotherapy developed at Yale with the work of Drs. Louis S. Goodman, Alfred Gilman and Lindskog, when they used nitrogen mustard in the treatment of a patient with lymphosarcoma.

**Joseph Massaro**, M.D. '44, died at Manchester Memorial Hospital in Connecticut on March 6 at the age of 89.

Massaro earned his bachelor's degree in chemical engineering from the University of Maine in 1934. He was employed by the Dupont Chemical Company and the State of Connecticut Health Department before pursuing a medical degree at Yale. He interned and was on the staff at St. Francis Hospital in Hartford. In 1946 Massaro established a practice in Manchester; he also was on the staff at Manchester Memorial Hospital and a past president of the medical staff. He was president of the Manchester Medical Association, the Hartford County Academy of General Practice and the Connecticut Academy of General Practice. He retired in 1977.

**Harry D. Patton**, PH.D. '43, M.D. '46, former chair of the University of Washington (UW) department of physiology and biophysics, died of cancer on May 26 at the age of 84.

Patton graduated from the University of Arkansas and earned his doctoral and medical degrees from Yale. In 1948 he joined the newly established department of physiology and biophysics at UW and served as chair from 1966 to 1983. During his years as a teacher and researcher, Patton was known for his editing and major contributions to a basic textbook, *Physiology and Biophysics*. He was also co-author of *Introduction to Basic Neurology*. Patton and his colleagues were among the first in the world to record the electrical activity of individual cells in the spinal cord. He also contributed to research on the spinal-nerve pathways responsible for muscle control.

Among his life's pleasures, Patton built furniture, a harpsichord and a clavichord in his basement wood shop in his Madrona, Wash., home. He and his family also loved cruising on their boat in Puget Sound, and to Alaska and the San Juan Islands in Washington.

**Henry A. Riedel**, M.D. '43, a retired pediatrician, died June 7 at his home in Dana Point, Calif. He was 86.

Riedel earned a degree in economics at Northwestern University before going on to Yale for his medical degree. He interned at Johns Hopkins Hospital and completed his residency at Los Angeles Children's

Hospital, serving as chief resident in his last year. From 1945 to 1947, Riedel was a medical officer in the Army. He set up a practice in Beverly Hills, Calif., and in 1954 he moved to Newport Beach, Calif., to establish one of the area's first medical practices. He remained a solo practitioner, making house calls until his retirement in 1974, then working as a school physician for the Los Angeles Unified School District until 1981.

Riedel was a founding member of the Orange County Pediatric Society (since renamed California Chapter 4, American Academy of Pediatrics), and served on the staffs of Hoag Memorial and St. Joseph's hospitals, Children's Hospital of Orange County and the University of Southern California and University of California at Irvine medical schools.

**Albert J. Solnit**, M.D., HS '52, former Connecticut commissioner of mental health and addiction services and a pioneering force in child psychiatry, died June 21 following an auto accident in Litchfield County, Conn. He was 82.

A native of Los Angeles, Solnit came to Yale in 1948 as a psychiatric resident. In 1949 he joined the faculty as an instructor in psychiatry and in 1952 he was also appointed an instructor in pediatrics. From 1953 to 1960 he held the title of assistant professor of pediatrics and psychiatry and in 1960 advanced to associate professor. In 1963 he joined the Child Study Center, and in 1966 was named director, a position he held until 1983. From 1964 to 1970 Solnit was a professor in the departments of pediatrics and psychiatry and in the Child Study Center. In 1970

he was named a Sterling Professor, attaining emeritus status in 1990.

Solnit served as commissioner of the Department of Mental Health and Addiction Services (DMHAS) from 1991 until 2000. He also headed Gov. John G. Rowland's Blue Ribbon Commission on Mental Health.

Solnit was "an absolute champion of the child," said Benjamin S. Bunney, M.D., chair of psychiatry. "No matter what position he held, whether it was at the Child Study Center or with the DMHAS, he was as great a champion as there will ever be for that cause."

**Frank B. Wisner**, M.D. '32, died February 7 at Knapp Memorial Hospital in Weslaco, Texas, at the age of 95.

Born and raised in Montana, Wisner practiced medicine in Springfield, Mass., after receiving his medical degree from Yale. He then enlisted in the Navy during World War II and served as a lieutenant commander aboard the USS Cossatot from 1942 to 1945. After the war he practiced for five years in Mercedes, Texas, before moving to San Diego, where he was in practice for 30 years.

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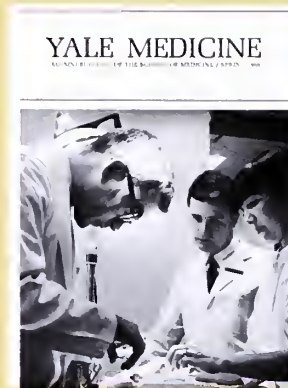
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Claire Bessinger, *Yale Medicine*,  
P.O. Box 7612, New Haven, CT  
06519-0612, or via e-mail  
to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu).

"A steam engine in pants" *continued from page 29*

It was hoped that the time made available by curriculum revision would also result in research theses of higher quality. The research thesis had been a requirement for the doctorate of medicine at Yale almost continuously since the inception of the school. The first thesis found in the school's historical library was written by Charles Hooker, later dean of the School of Medicine, in 1823. In spite of this long history, no time had ever been allotted in the curriculum to do the necessary research. Now more advanced research could be undertaken.

Winternitz indicated in his report for 1924-1925 that by allowing time for the student to pursue his particular interests, the opportunity for study in selected fields would be expanded, compatible with a true graduate education. Winternitz's vision was imaginative and exciting, and although it was not completely realized, it formed the basis of the Yale System of medical education. Winternitz stated that the annual grading system would be abolished and that the student would be allowed to select the sequence of studies from the courses offered in the school. The number of courses and the time taken to complete them would depend on the student, who would require the instructor's permission. Group examinations and the research thesis would be used to monitor the student's accomplishments. Closer cooperation with the graduate programs in the biomedical sciences would occur. During the preliminary part of the medical curriculum, students could be enrolled in both the graduate school and the medical school. Winternitz's plan would have allowed graduate students to switch to the medical school if their interests became more clinical.

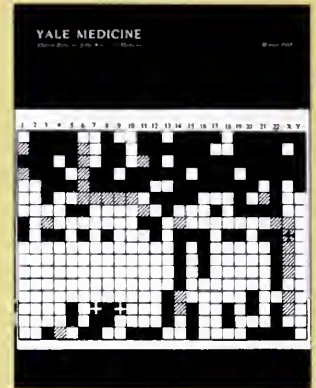
The medical faculty adopted many of these components as educational policy at the beginning of the 1926-1927 academic year, including elimination of the traditional annual "class" system, elimination of "final" examinations and greater educational freedom for students, which would place greater responsibility on them. Instead of final examinations, there would be a comprehensive, weeklong examination twice a year, qualifying students to pursue clinical medicine. The third and fourth years of medical school would remain unchanged, with emphasis in the fourth year on the natural treatment and study of disease. Although the "university" aspects of a joint medical school/graduate school venture were not included in his 1924-1925 report, Winternitz had outlined the Yale System of medical education as we know it today. **YM**



#### SPRING 1966

"If I understand the Yale System correctly, its aim is to minimize compulsion and maximize diversity in the experience of the student, to minimize conformity in medical thought and maximize independent critical thinking by the student, to provide each student with a personal experience in scientific medicine by providing the stimulus and facilities for a scholarly inquiry by all. Systems possess little intrinsic merit in themselves; their merit lies in what they attempt to accomplish and the magnitude of their accomplishment. By seeking the expression of the best independent critical thought of its students, in my opinion the Yale System provides its students with the best preparation for medicine of the future. True, occasionally an errant student may adopt positions distasteful to his mentors. But quickly we, who are the faculty, learn that this is in reality the best consequence of the educational system. Unless the young seek to improve and change they are not worthy. Without conflict, there is no progress. No doubt it is impossible to express in quantitative terms the accomplishments of the Yale System of medical education. Nonetheless, many of us who have experienced it are deeply grateful!"

—Halsted R. Holman, M.D. '49,  
chair of the Department of  
Medicine at Stanford, speaking at  
the dedication of the Laboratory  
of Clinical Investigation.



#### WINTER 1985

"Plans are finalized and construction will begin soon of an ambulatory care facility that will consolidate clinics and offices of the Faculty Practice Plan [precursor of the Yale Medical Group] which are currently scattered in 17 locations throughout the Medical Center. ... The four-story glass, concrete and brick building will be located on the southeast corner of Howard and Davenport avenues. With adjacent parking and a pedestrian bridge to the hospital, the new facility will include specialty and consultative services, X-ray and laboratory services, and a pharmacy. It will not include hospital beds or one-day surgery facilities.

The Yale Faculty Practice Plan was established in 1981 to bring together administrative, management and billing and collection activities of the existing clinical practice of the full-time faculty. ... The building [known today as the Yale Physician's Building] of about 90,000 square feet will be constructed at an estimated cost of \$9 million on land presently owned by the Hospital and used as part of a parking lot."





UNIVERSITY OF TORONTO

INCORPORATED A.D. NINETEEN HUNDRED AND FORTY

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Please complete the card below and return it in an envelope to Yale Medicine Publications, Yale University School of Medicine, P.O. Box 7612, New Haven, CT 06519-0612

## Alumni Notes

11/02

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Name

Address

City, State, Zip

Daytime telephone with area code

Fax

E-mail

Date

New address

Yale degree  Year(s)

M.D.  \_\_\_\_\_

M.P.H.  \_\_\_\_\_

PH.D.  \_\_\_\_\_

PA-C  \_\_\_\_\_

M.M.Sc.  \_\_\_\_\_

House Staff (HS)  \_\_\_\_\_

Fellow (FW)  \_\_\_\_\_

Other ( \_\_\_\_\_ )  \_\_\_\_\_



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Yale Alumni can help you stay connected with fellow alumni of the School of Medicine, School of Public Health, Physician Associate Program and the medical school's doctoral fellowship and residency training programs. Share your personal and professional news for publication in the *Alumni Notes* department of *Yale Alumni* and on the Web, using the online form at [info.med.yale.edu/ayam](http://info.med.yale.edu/ayam).



Had I been forced to take tests, I never would have graduated — I WAS TOO busy absorbing and learning. Yale is a wonderful place to begin a medical career.

I was a good student in college, but Yale medical school, and particularly the trust and freedom of its system, opened doors in my brain I never dreamed existed.

Medical education is not winning the battle for humanism, intellectual curiosity and honesty in its medical students, and the medical profession is suffering for it.

I suspect the deficit was in the faculty or curriculum, not among the students or the system.



# Yale medicine

winter 2003

Frankenstein  
revealed

14

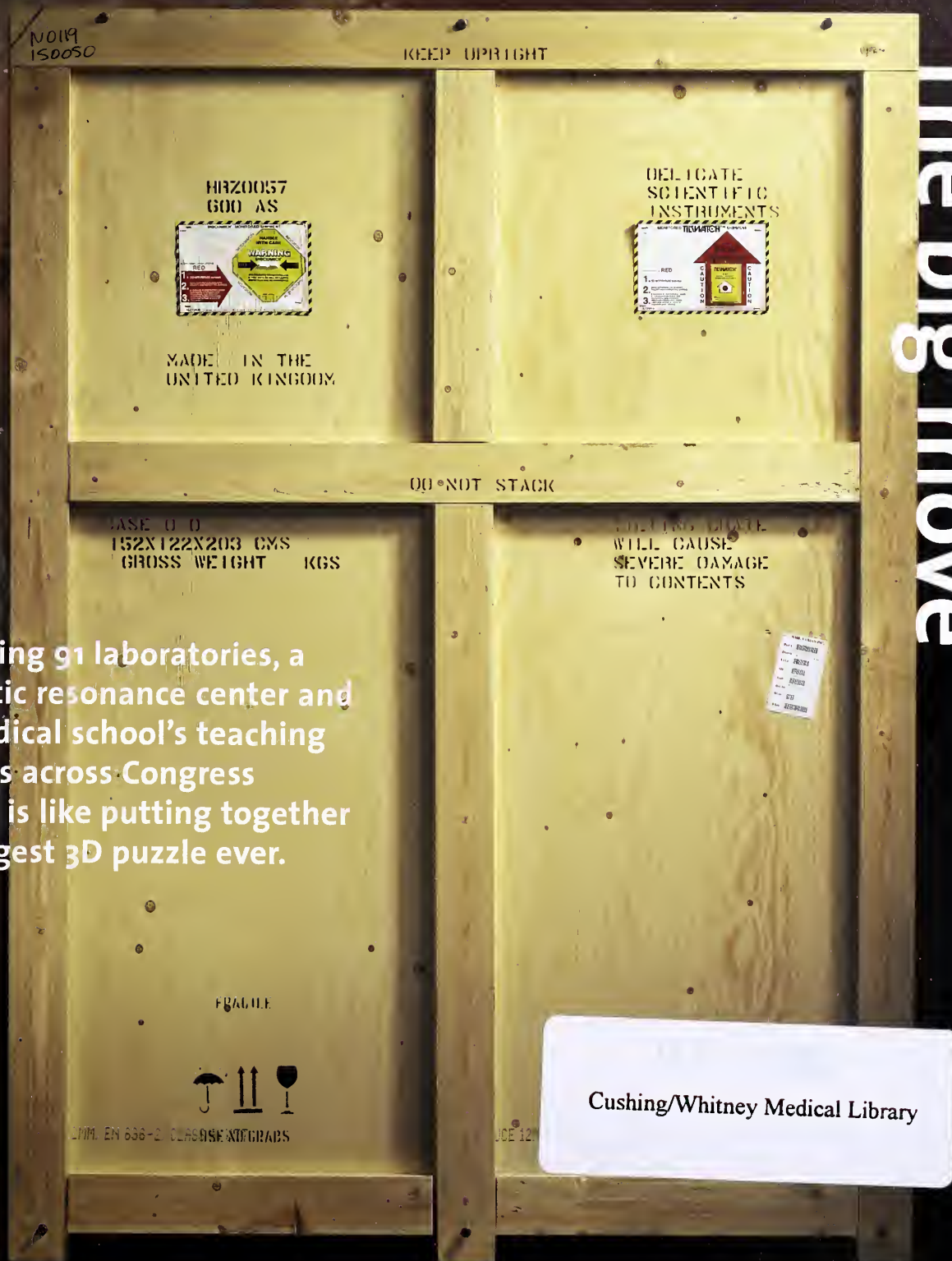
A first-year  
grandmother

16

Medicine  
of the future

30

The big move



Relocating 91 laboratories, a magnetic resonance center and the medical school's teaching facilities across Congress Avenue is like putting together the biggest 3D puzzle ever.

20

Cushing/Whitney Medical Library





## CONTENTS

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10	Findings
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### ON THE COVER

The magnet for a 600 MHz spectrometer that will be used to analyze liquid protein structures awaited unpacking as the staff of the Magnetic Resonance Research Center prepared to move into new quarters in the Congress Avenue Building. Over the course of 48 consecutive days this winter, movers will transport more than 200,000 items from 38 separate locations around the medical center into the new building.

*Photograph by Frank Poole*

### BACKGROUND

As contractors worked on the final phase of interior construction in November, a set of plans showed details of the building's laboratory component. In all, the building contains 136,600 feet of wet-bench lab and lab-support space, as well as facilities for teaching and the care of laboratory mice.

*Photograph by Daphne Geismar*

### 16 Long road to Cedar Street

The first grandmother to enter medical school at Yale, 40-year-old Karen Morris is where she's always wanted to be: on her way to becoming a physician.

*By Cathy Shufro*

### 20 The big move

Relocating 91 laboratories, a magnetic resonance center and the medical school's teaching facilities across Congress Avenue is like putting together the biggest 3D puzzle ever.

*By Marc Wortman*

### 30 A futurist's view

With smart dust, surgical robots, transgenic replacement organs and a 150-year life span now conceivable, Richard Satava says now is the time to face the ethical challenges that technology will bring to medicine.

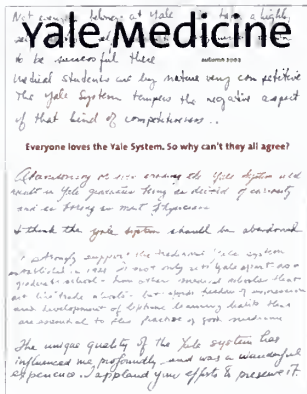
*A Yale Medicine interview.*

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### On the Web

[info.med.yale.edu/yymm](http://info.med.yale.edu/yymm)

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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### The Yale System, in black and white

Congratulations on the autumn issue of *Yale Medicine*. The handwritten letters on the front and back covers convey the human quality and the personal and professional benefits of the Yale System like nothing else could.

George S. Goldman, M.D. '29  
McLean, Va.

Thank you so much for the issue on the unique Yale System. I learned much about its origins, development and problems that I never knew before.

For me, the Yale System was also crucial and affected me even before I entered medical school. I suppose as an extension of the system's philosophy, I was accepted after three years at the University of Michigan, with no degree and no major. I wonder if others were chosen with that background, or if I was a one-time experiment! If there are others like me among our readership, please let me know.

That confidence in me, and my idiosyncratic way of approaching requirements, helped me to later petition out of redundant residency requirements, subjective board certification, and to enter the managed care beast from an academic laboratory perspective. The latter has won me some recognition and respect as an objective assessor of managed care. Without the Yale System, I'm sure I would never have taken these risks.

H. Steven Moffic, M.D. '71  
Milwaukee, Wis.

### In praise of Milton Winternitz

I read the article adapted from Dr. Gerard Burrow's *A History of Yale's School of Medicine: Passing Torches to Others* with interest. While I haven't read his entire book or account of Dean Winternitz's career at Yale, I take it from this portion ["A Steam Engine in Pants," Autumn 2002] that he is acknowledging the unique and significant contribution Dean Winternitz made to the school.

While I am greatly relieved to see this, I also wish to add a footnote that I suspect he has omitted in his history.

During my tenure at the School of Medicine from 1984 to 1993, I became aware of the fact that, in spite of Dean Winternitz's enormously important work on behalf of the school, nothing at Yale is named for him. So, when it was decided to create a special medal to be given to individuals in honor of their contributions to the School of Medicine, I suggested that we create a Winternitz medal.

Burrow was dean then. In vain I argued on behalf of the "Winternitz medal," because in the end Burrow vetoed this idea, saying that Winternitz was too "controversial." As a result, the medal now contains the portrait and name of Dr. Peter Parker, an interesting person (and Burrow's suggestion) but, in my opinion and that of a number of alumni who actually knew Winternitz, not so worthy a person as Winternitz for this recognition.

I have always regretted this oversight, and I continue to hope that one day the Yale School of Medicine will repay the debt it owes Dean Winternitz by naming something of proper stature after him—perhaps, in part, because he dared to be controversial.

Ann Pecora Diamond  
New Haven, Conn.

### Remembering Gustaf Lindskog

On page 62 of your last issue, a good one, I read of the passing of G.E. Lindskog. As house staff, I scrubbed many times with Dr. Lindskog, who was chairman of surgery with a specialty in thoracic surgery. He taught me a lot and I learned to respect his demands for excellence. During the more than six years that I worked with him, he was very good to me and we became friends.

Frank J. Lepreau, HS '45  
Westport, Mass.

Sadly, the autumn issue stirs memories of my mother's terminal bout with lung cancer in 1952. With Dr. Lindskog's passing, I am reminded of the connections between them and with her willingness to be his experimental patient in radioactive colloidal gold treatments. It did help her through the last few months of her life—for that I was grateful.

George M. Isbell  
Mount Dora, Fla.

### The health of nations, the art of medicine

The article "A World of Difference" [Autumn 2001] caught my attention, though I've been slow responding. I have practiced "bush medicine" in Alaska, in rural California, in Lima, Peru, in 1960, etc., and had to rely on eye, ear, nose and palpation, auscultation, etc. The old (Osler) simpler techniques of physical diagnosis should not be forgotten or neglected.

How I would have enjoyed Yale's International Program! Keep it going!

Elizabeth F. Elsner, M.D. '48  
Assonet, Mass.



**yale medicine**

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**On the move on moving day**

When cardiovascular researcher Jeffrey Bender and hundreds of his colleagues unpack their labs and offices in the Congress Avenue Building later this winter and spring ["The Big Move," p. 20], a new chapter in the School of Medicine's history will begin in earnest. For the first time in a decade, the medical school's legendary space crunch will ease, at least for a time, and the occasion will mark the completion of a process that began in the late 1980s. The design of the new building has a special purpose behind it, that of knitting together basic biology, physics, chemistry and human health, of making clinical observations relevant at the molecular level (and vice versa) and, ultimately, of alleviating human suffering.

"We have the opportunity now to make an enormous difference in people's lives," Dean David Kessler says of the new building. "We have the world's best scientists and the world's best labs. This building will move medicine forward."

A faculty-led committee initially recommended a version of the Congress Avenue Building in the early 1990s. A dozen years, 560,000 bricks and \$176 million later, it is a reality. In addition to the 363 laboratory rooms shared by 91 research teams, it also contains state-of-the-art teaching space, an advanced facility for breeding and caring for transgenic mice (a research model invented at Yale in 1980) and a major new center for research employing magnetic resonance imaging and spectroscopy, another field pioneered significantly at Yale.

If you're curious about the new space and want to see architect Robert Venturi's sketches or recent photos of the construction, the school has a website full of wonderful detail. You can visit the Congress Avenue Building online at [www.med.yale.edu/cab](http://www.med.yale.edu/cab). It's just a click away, and there are no boxes to unpack.

Michael Fitzsosa

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**SECOND OPINION BY SIDNEY HARRIS**

"BUT IT MAY BE EASIER TO UNDERSTAND THE MEANING OF BIOENGINEERED LIFE."

## Hoping for the best, preparing for disaster

The lessons of September 11, at the core of a new Yale course, put public health in the spotlight.

This past fall, Yale's School of Public Health introduced a new course on coping with disasters. Earthquakes, hurricanes and volcanoes are on the agenda, as well as famines, wars and epidemics. But the real focus is how to confront the ongoing threat of bioterrorism.

Since September 11, 2001, universities across the nation have been developing public health programs aimed at training students and professionals for future terror attacks and emerging health threats, including anthrax, smallpox and other methods of germ warfare.

Yale's new course is just a first step toward plans to develop a Yale Center

for Bioterrorism and Disease Outbreaks. Such a move would have been unimaginable a few years ago for lack of interest, necessity and—most important—funding. Today, however, public health is under a welcome spotlight, viewed with increasing importance as part of the Bush administration's goals for homeland security.

Of the government's \$2.9 billion budget for fighting bioterrorism, \$20 million was earmarked this year for developing a nationwide disaster response network of academic public health programs linked with state and community health agencies. Already, some 20 universities have received funds from the Centers for Disease Control and Prevention (CDC). In September, the Association of Schools of Public Health, in cooperation with the CDC, approved Yale's application for a grant to establish a Yale Center

for Public Health Preparedness, but has not yet decided whether to award nearly \$1 million in funding.

Heading up the Yale initiative is Brian P. Leaderer, M.P.H. '71, PH.D. '75, deputy dean of the School of Public Health and vice chair of the Department of Epidemiology and Public Health. Along with other leaders in public health, Leaderer is confident the focus on bioterrorism will spill over into more resources for disaster response in general.

"Bioterrorism looms as a real potential problem," Leaderer says. "But if you think about it, many of the competency areas in bioterrorism would apply to a large range of public health events."

In the classroom, students taking "Public Health Management of Disasters" get a broad overview of the practical consequences of disasters at home and overseas. They also learn about the complexities of orchestrating people and agencies that are involved in disasters—the police, the military, hospitals, fire departments, federal investigators, charities, support services, religious groups, families of victims, phone companies, electric companies and the media, to name only a few.

Public health, says course co-director Linda C. Degutis, M.S.N. '82, PH.D. '94, can provide leadership in disaster planning and emergency response. "Who's where, and what's everybody doing? Somebody's got to know," says Degutis, associate professor of surgery (emergency medicine) and public health. "Who are the players? What are their capabilities? What we're trying to highlight in the course is how public health can play that coordinating role."

Degutis, along with David C. Cone, M.D., associate professor of surgery (emergency medicine), tries to get students thinking about disaster relief from all angles. In Florida, for example, how do you handle a large elderly population in the aftermath of a hurricane? How do people dependent on Meals on Wheels get food when the roads are



TERRY DAGRADI

Learning to direct people and health resources in a bioterror emergency is the focus of "Public Health Management of Disasters," offered at

the School of Public Health for the first time this year. From left, students Emily Cheung, Eli Blitz, Sarah Reese and Brian Stout.



washed out? How do you shelter older, more fragile people in a gymnasium?

Examining the lessons of September 11, for which scientific studies of disaster management of the aftermath are only now being completed or published, Degutis and Cone rely on anecdotal accounts by disaster workers, as well as media accounts such as *The New York Times'* detailed reporting on the structural collapse of the Twin Towers.

Guest speakers with nationally recognized expertise supplement lectures by core faculty. One guest, Eric K. Noji, M.D., M.P.H., is an epidemiologist with extensive field experience with disasters such as the Kobe, Japan, earthquake. Recently appointed as a special assistant for homeland security and disaster medicine to the U.S. surgeon general, Noji has been advising public health schools such as Emory's in starting up public health preparedness centers.

"Public health is a growth industry now for several reasons," says Noji. "Before, there was no career pathway for faculty; now there is. There was no money to support research; now there is. A lot of things which prevented programs like this are no longer the case."

Aside from the influx of funds, the other motivation for disaster management education has been student demand. Even before Yale started thinking about a public health preparedness center, Degutis and Cone were planning a disaster course: students, jolted by September 11 and an anthrax fatality close to home in Connecticut, had asked for one.

Neha Vibhakar, 24, a second-year student in environmental health sciences, reorganized her schedule so she could take the disaster management course.

"Hopefully, we won't have to use it," said Vibhakar, who plans to study medicine after finishing her public health degree. "But it's a tool that every doctor needs to have."

—Anne Thompson

## For AAP's voice on smallpox, vaccine question, especially for the young, is crucial

When the American Academy of Pediatrics' committee on infectious diseases reconvened for the first time after September 11, 2001, bioterrorism was a topic. Several people had died after coming in contact with anthrax-laced letters, and there was concern that future attacks would involve smallpox. The committee needed a pediatrician to serve as a liaison between the academy and the Centers for Disease Control and Prevention (CDC) in discussions of smallpox.

Robert S. Baltimore, M.D., volunteered and has since found himself the academy's main spokesman on the topic.

"I had no idea what I was in for," said Baltimore, professor of pediatrics and epidemiology, sitting in his office at the School of Medicine. Although he specializes in pediatric infectious diseases, Baltimore, like his peers in the academy, had no specific experience with smallpox. The virus had not been seen in the United States since 1949, when Baltimore was in grade school. His own research focuses on infections in newborns and hospital-acquired infections, and Baltimore studied smallpox only generally as an infectious diseases fellow in the 1970s at the Walter Reed Army Medical Center and the Army Institute of Research.

So Baltimore started educating himself, reading about the virus and collecting a grim photo archive on his computer showing the effects of smallpox on children. He had help from colleagues in the department's infectious diseases division, who met every two weeks throughout 2002 to discuss bioterror-related topics in their journal club. "The group wanted to make sure we had a very detailed knowledge," Baltimore said.

As the academy's representative, Baltimore holds conference calls with the CDC's "smallpox working group" and travels to Atlanta for CDC meet-



Robert Baltimore

ings. In addition, he has become embroiled in the debate over how best to vaccinate the public in the event of an attack. At issue are competing proposals of mass vs. "ring" vaccination—whether to inoculate everyone, or just those in the vicinity of people infected.

In the fall, CDC officials were moving away from the center's earlier support for a ring vaccination strategy and recommended making the vaccine available to the general public. [As *Yale Medicine* went to press President Bush announced plans to inoculate up to 500,000 frontline troops and 10 million civilian health care and emergency workers against smallpox, but advised against vaccination for the general public at this time.] Baltimore thinks mass vaccination would be a mistake, and on behalf of the academy has advocated the alternate approach. Children are more susceptible than adults to serious complications, he said. And there is the worry that individuals who avoid vaccination for health reasons might be exposed to the live vaccinia virus anyway, through contact with those who have been vaccinated.

*continued*

*continued from page 5*

There are three situations in which the vaccine could be fatal. In people with certain skin conditions, including eczema, the vaccine can spread, causing pustules to form over the entire body. Those with immune systems compromised by AIDS or chemotherapy, for example, may also become seriously ill from the vaccine. And in rare cases, some of those vaccinated will develop oozing, infected sores in the injection site that spread and invade deep tissues without healing.

In the first two instances, said Baltimore, children are more at risk. Many skin disorders disappear with adulthood, which means more children have them, and immune deficiency may not be apparent in young children.

For adults, the fatality rate for smallpox vaccine is about one per million. For infants, the rate is about 5 per million and there are serious adverse reactions in about 400 per million—a rate that decreases with age. The CDC has the antidote for severe reactions, an antibody-rich blood product known as vaccinia immune globulin, but current quantities are minuscule. Baltimore also is concerned about the vaccine itself. The CDC is diluting stockpiles of the old vaccine to stretch it while new vaccine is manufactured. But neither the diluted version nor the new one has been tested on children.

Even if at-risk children and adults are not inoculated, they can be infected through contact with people who have received or administered the vaccine and have it on their skin. “Mass vaccination carries with it risks that can’t be justified,” Baltimore said. “The information that all public health people have been given is that the chances of a smallpox outbreak are remote. Should there be additional information that says this isn’t true, we would say this should be reconsidered.”

—Anne Thompson

## **An appreciation of the human form, in the studio as well as the operating room**

From his house in Old Lyme, Conn., Wayne O. Southwick, M.D., surveys a green tidal marsh, and beyond, the blue waters of Long Island Sound. The breadth of that vista, punctuated by four former fishermen’s cottages near the water and two lighthouses in the distance, reminds Southwick of the open spaces of his native Nebraska.

Southwick attributes his interest in art to the landscape of his childhood. In the town of Friend (pop. 1,100), boxcars and silos were the only embellishments, and “I thought of them as sculptures,” says Southwick, former chief of orthopaedic surgery at Yale. Now, as he looks out on Smith Neck marsh 32 miles east of New Haven, Southwick is surrounded by real sculptures—his own and those of his mentor, the Italian-born Bruno Lucchesi. Southwick also sees his own work when he walks down Cedar Street, where his bronze of a young

man and woman playing basketball, *An American Dream*, stands near the Jane Ellen Hope Building. And this winter, a show by members of the Yale University community includes his bronze of a woman nursing a 2-year-old, *Taking Nourishment*. Southwick is among 19 artists exhibiting work at the Yale Physicians Building Art Place. The show, running from October through March, includes works ranging from pastels to shadow boxes, quilts and jewelry.

Southwick says that the qualities that led him to pursue orthopaedics also drew him to sculpture. And sculpture, in turn, has influenced the way he sees the human body as a physician. Interning at Boston City Hospital after earning his medical degree at the University of Nebraska in 1947, Southwick discovered that he enjoyed treating broken bones. “I love the anatomy of the human frame,” he says. In medicine, he often felt he had little to offer patients, especially before the advent of penicillin. He chose orthopaedics, doing a residency at Johns Hopkins, because “I like doing things.”

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## **FOR AN EXPERT FROM IRAN, REASONS TO WORRY ABOUT AIDS**

**An emerging epidemic of HIV/AIDS in Iran could have disastrous consequences for the country and the region, according to Kaveh Khoshnood, M.P.H. '89, PH.D. '95, assistant professor of epidemiology at the School of Public Health and a native of Iran. Although 70 percent of Iran's 20,000 AIDS cases are drug users, according to UNAIDS, the government only recently lifted a ban on drug treatment centers, Khoshnood told congressional staffers in Washington on October 15. The briefing was organized by the American Iranian Council. “This shift in government policy created an opening for the Iranian medical and public health community to become engaged in a national debate regarding alternative approaches to drug addiction and the HIV/AIDS epidemic,” said Khoshnood, who along with Yale colleagues has brought Iranian physicians to Yale to study science-based models for treatment of opiate addiction and prevention of HIV infection.**

—John Curtis



Instead of going to the movies, he and his wife, Ann, wandered in museums and even went to Paris to see an exhibit of his favorite artist, Aristide Maillol, the 20th-century French sculptor of the female nude. But it wasn't until the early 1980s that Southwick began lessons in sculpture at Lyme Academy, not far from his home. There he met Lucchesi and began weekly trips to New York City to study with him.

Sculpting sharpened Southwick's powers of observation as a physician. Looking for scoliosis, "I could see the symmetry or asymmetry of the body more acutely after looking at models and various positions of the spine, but more than that—the other way round—I think knowing what's underneath the skin helps you think about sculpture."

Ironically, sculpting also requires suppressing anatomical knowledge. Southwick says sculptures work better if they exaggerate certain features, like the anterior superior iliac spine (the pelvic bones). The head should be smaller than in real life, the neck longer. These alterations "orient your view of things."

Southwick has retired from surgery (while his son, Steven M. Southwick, M.D., professor of psychiatry, carries on the family name at Yale). The senior Southwick and Lucchesi recently collaborated on a sculpture for the new Connecticut Hospice building in Branford, Conn. Southwick felt honored to work with Lucchesi. "In my mind, he's the greatest living representational sculptor." Lucchesi himself has three sculptures on the Yale medical campus, including a bronze of a mother and child in the atrium of Yale-New Haven Hospital.

Lucchesi appreciates that Southwick is using his talents to create realistic sculpture at a time when "everyone is doing a block with a hole in it." He describes Southwick's discovery of the art form as a revelation: "A neophyte finds a new religion: he finds sculpture—and he transmits that enthusiasm to other people."

As for the work itself, what does Lucchesi think? "He trained me," Southwick says with a laugh. "He thinks I'm better than I was before."

—Cathy Shufro

et cetera ...

#### YALE SCIENTISTS AMONG MOST CITED

Yale University ranks fifth among federally funded U.S. universities for the citation impact of its published research, according to a *Science Watch* survey.

The ranking was calculated by using publication and citation data to gauge how often during the past five years papers by Yale authors were cited by other scientists in 21 major fields of science and the social sciences. That number was then compared with a worldwide cites-per-paper average.

The four universities that ranked above Yale in the two-part survey were Harvard, which came in first, followed by Stanford, the Massachusetts Institute of Technology and the University of California, San Diego.

"We consider citations to be very significant," said Chris King, editor of *Science Watch*, a newsletter published by the Institute for Scientific Information in Philadelphia, "because they reflect what scientists themselves deem to be important. When they cite a paper, they're saying, 'This work is important. It's germane to what I'm doing.'"

—Jennifer Kaylin

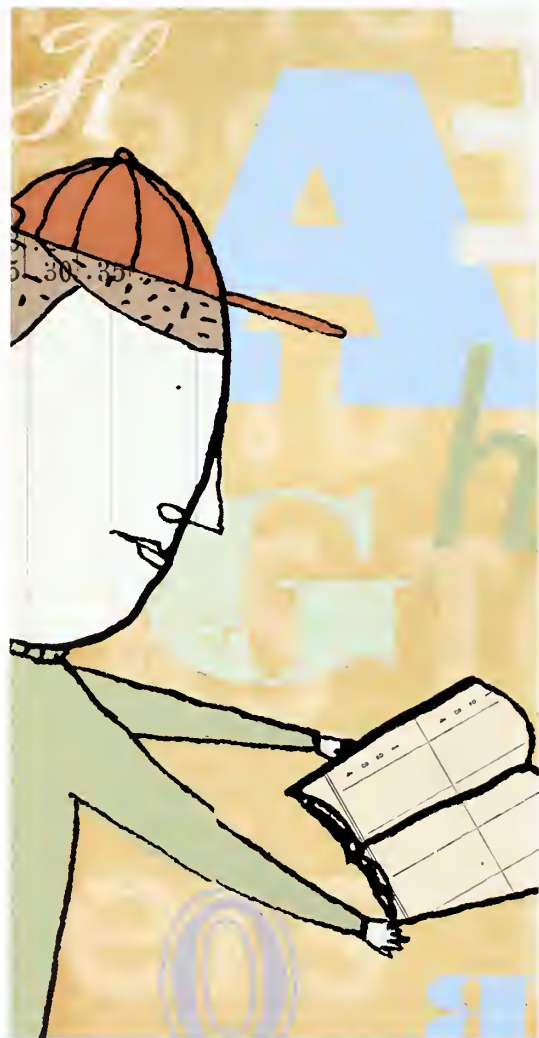
#### THREE JOIN INSTITUTE OF MEDICINE

Each year a few dozen select physicians and scientists are named to the Institute of Medicine of the National Academy of Sciences to serve as unpaid advisors to the government. Among those elected last October for their contributions to health and medicine were three Yale faculty members: Michael H. Merson, M.D., the dean and Anna M.R. Lauder Professor of Public Health and chair of the Department of Epidemiology and Public Health; Richard P. Lifton, M.D., PH.D., chair and professor of genetics and professor of medicine and molecular biophysics and biochemistry; and Michele Barry, M.D., HS '77, professor of medicine and public health. As members they will contribute their knowledge and professional judgment to the development of findings and the formulation of recommendations, most of which relate to public policy.

—John Curtis



Orthopaedist Wayne Southwick's *Taking Nourishment*, on display in the current Art Place exhibit at the Yale Physicians Building, was inspired by the work of sculptor Aristide Maillol.



## Brain scans reveal disruption in the neural circuitry of children with dyslexia

Using functional magnetic resonance imaging (fMRI), researchers led by a husband-and-wife team at Yale have found a neuronal short circuit in dyslexic children and identified an area of the brain that is linked to skilled reading. Their finding builds on a previous study that linked poor reading in adults with dyslexia to a specific region in the brain. "Because this finding coincides with findings in adults, it shows dyslexia is persistent," said Sally E. Shaywitz, M.D., professor of pediatrics with an appointment in the Child Study Center and co-author of the study. "It shows there is an urgency for early intervention. And we were able to identify an area of the brain that correlates with skilled reading, the word-form area in the back of the left side of the brain."

Shaywitz and her husband, Bennett A. Shaywitz, M.D., professor of pediatrics and neurology with an appointment in the Child Study Center, found that neural circuits in the word-form area, also known as the occipito-temporal area, are disrupted in children with dyslexia.

"By seeing the disruption on brain imaging it says to us as physicians and scientists that dyslexia is as real an entity as any other medical disorder," said Bennett Shaywitz, co-principal investigator of the study and lead author of the paper in the July 15 issue of *Biological Psychiatry*.

Also contributing to the work was John C. Gore, Ph.D., now at Vanderbilt University.

This study follows one in 1998 in which the Shaywitzes and colleagues found a disruption in posterior neural systems for reading in the brains of dyslexic adults. That finding begged a key question. "We did not know if this disruption was just the end result of years of poor reading or if it was there from the beginning of the time a child should be able to read, which is around 6 or 7 years old," said Sally Shaywitz.

The team used fMRI to scan the brains of 70 dyslexic readers and 74 nonimpaired readers ages 7 to 18 while they performed reading tasks with real words and "pseudowords," made-up words that the children were asked to pronounce. The tasks mimicked the problems dyslexic children face in sounding out words. The team found evidence of a functional disruption of the neural systems involved in skilled reading, confirming the hypothesis that the defect is present at a young age.

"We believe dyslexic children are born with this disruption," Bennett Shaywitz said.

The nature and cause of the disruption are not clear. "That's the next step," he said. With colleagues at Yale, he's using magnetic resonance





## AS THE SPERM TURNS, SUCCESS

Although intracytoplasmic sperm injection—in which a single sperm is placed inside a mature egg—increases the chances of a successful pregnancy, it also carries a risk of genetic abnormalities in children. Now two Yale scientists have devised a method for selecting genetically healthy sperm to lower those odds. Gabor B. Huszar, M.D., HS '76, and Attila Jakab, M.D., found that healthy sperm develop a receptor that recognizes an acid in the female reproductive tract; they then devised a method of using the acid to identify the most robust candidates. Huszar and Jakab presented their work at the European Society of Human Reproduction and Embryology's June meeting in Vienna.

—John Curtis

spectroscopy to study brain cells in the region that is disrupted.

According to the Shaywitzes, about one in five children has dyslexia, which affects children without regard to level of intelligence. Typically, dyslexics compensate by using other parts of the brain to read.

"Instead of being able to develop systems in the back of the brain they develop systems in the front of the brain, but it is very laborious," said Sally Shaywitz. "It's not that they don't learn to read at all, but it's harder to read."

Although symptoms appear as soon as children start to read, most dyslexic children are not diagnosed until they're in the third grade, she said. "There is absolutely no question that the earlier a child is identified, the more difference you can make," she said, adding that early placement in preventive

and remedial programs can help children with dyslexia. The programs use exercises, games and rhymes to help dyslexic children break up words into their individual parts. "If you start at the beginning you can have a good chance of helping that child in an efficient way. What we think—and we have some evidence to support this—is that we can help the area of the brain that is disrupted."

—John Curtis

## A CLOSER LOOK AT CLOT-BUSTERS

Clot-busting drugs are almost always administered to stroke patients incorrectly, sometimes with serious consequences, according to a recent Yale study.

Researchers reviewed the medical records of 63 patients who received thrombolytic therapy between 1996 and 1998. They found departures from recommended practice 97 percent of the time. "Major deviations from protocol were present in two-thirds of the cases and were associated with serious or fatal consequences," said Dawn M. Bravata, M.D., principal investigator of the study published in the *Archives of Internal Medicine*.

Errors ranged from incorrect dosages and delays in administering the drugs to giving them to at-risk patients. Responsibility for the drugs' misuse was widespread, the study found, and detours from protocol occurred all along the health care pathway. Why? "It's a hard drug to give properly," Bravata said. "It's not something doctors do every day."

—Jennifer Kaylin

## CATS AND THE PREGNANT WOMAN

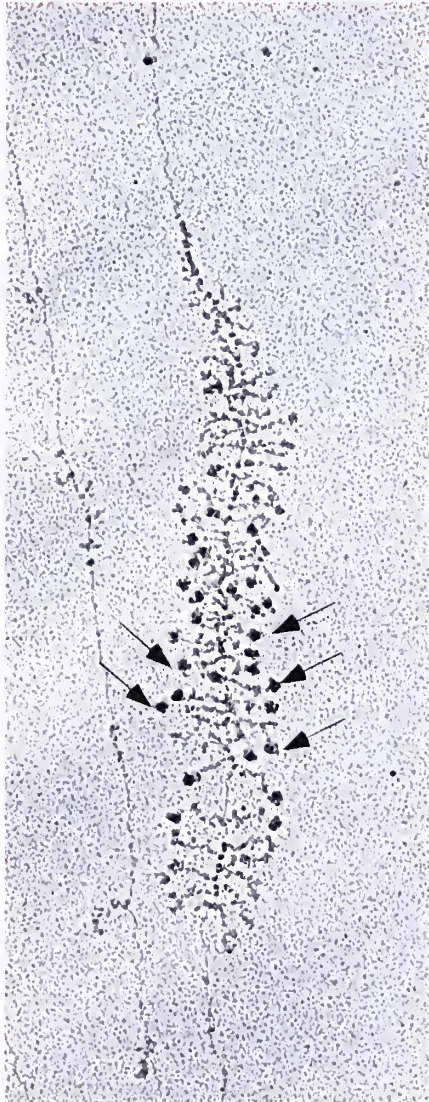
There's good news and bad news for pregnant women who live with cats. On the up side, they face little risk of contracting toxoplasmosis from their feline companions. On the other hand, there's one less reason to avoid cleaning the litter box.

Jeffrey D. Kravetz, M.D., an assistant clinical professor of medicine who has two cats, decided to review the literature about cat-related diseases after his wife became pregnant. He found that casual contact with a cat does not put a woman's unborn child at risk. "It's never been proven that toxoplasmosis (an infection that can cause miscarriages or damage to fetuses) comes from direct cat contact," he said. According to Kravetz it's much more likely a woman will get the infection by eating undercooked meat or digging with bare hands in contaminated soil.

Kravetz, whose review article appeared in the *Archives of Internal Medicine* in September, advises pregnant women who must change a litter box to do so daily, wear gloves and wash their hands afterwards. "Basically, use common sense and don't worry," he said.

—Jennifer Kaylin

et cetera...



ANN BEYER AND YVONNE OSHEIM/UNIVERSITY OF VIRGINIA

Ribosomal DNA (center) forms the trunk of the “Christmas tree” in this electron micrograph of a chromatin spread from yeast. Ribosomal RNA forms the branches; each of the balls indicated by arrows is an ssU processome.

## An unlikely assembly plant

If the ribosome makes the body’s proteins, what makes it? Oddly enough, a giant.

Imagine that you’re out for a stroll in your neighborhood, passing the same familiar landmarks you see every day, when you suddenly come upon an enormous factory. Now imagine how astonished you’d be to learn that the behemoth had been there all along, but no one had been able to see it until now. That’s about how surprised Susan J. Baserga, M.D. ’88, PH.D. ’88, was to find the cellular equivalent of an assembly plant hiding in plain sight.

Baserga and colleagues discovered and purified a new cellular entity, dubbed the ssU processome, which plays a key role in the making of ribosomes, the cellular machinery responsible for manufacturing all proteins. Surprisingly, the ssU processome, undetected until now, is nearly as large as a ribosome, about 80 Svedberg units.

“We were surprised to discover that it takes a complex as big as a ribosome to make a ribosome,” said Baserga, associate professor of molecular biophysics and biochemistry, therapeutic radiology and genetics. The ssU processome, a complex of RNA and many proteins, wasn’t detected until now because previous techniques used to look for RNA-protein complexes filtered out the larger ones, leaving only smaller material. “We were able to find it because we made our extracts—the starting material for purifying RNA-protein complexes—differently,” said Baserga. The mass spectrometry work of collaborator Donald F.

Hunt, PH.D., of the University of Virginia, also figured prominently.

The researchers, who reported their work last June in *Nature*, named the complex a processome “because it’s essential for processing the RNA that becomes part of the ribosome,” said Baserga. The “ssU” in the name stands for small subunit, because the complex is required for processing small ribosomal subunits, but not large ones. Though they’re not sure exactly how it functions, Baserga and co-workers believe the ssU processome and its proteins help fold ribosomal RNA into the proper configuration. It’s already known that the RNA portion of the ribosome is “the business end” that facilitates the ribosome’s protein-producing work, so properly processed ribosomal RNA is essential to the ribosome’s function, noted Baserga. The ssU processome appears to be so critical to cell growth and health, in fact, that Baserga suspects that defective processomes may be at the root of some diseases for which the causes are not well understood.

Researchers also are interested in the basic science behind RNA processing in all types of cells, Baserga added. “There’s pretty good reason to think that RNA was the first molecule, and that DNA and all the other molecules came from RNA. So studying anything that affects RNA metabolism brings you closer to understanding basic cellular processes.”

Next, the research team wants to explore how the ssU processome assembles into the huge complex it eventually becomes. “We think there’s a definite order of assembly,” says Baserga. Working with helicases—enzymes that fold and unfold protein and RNA—one of her students hopes to “freeze” the process in mid-course, providing a snapshot of assembly in progress. Baserga’s group will continue to tease out the exact details of how the ssU processome coaxes ribosomal RNA into the proper form. “That,” she said, “is going to be the next 10 years or so of work.”

—Nancy Ross-Flanigan



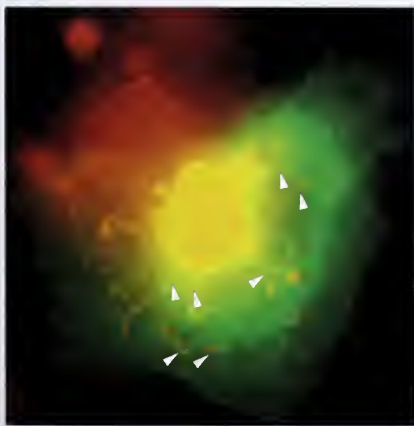
## Nature studies offer a new view of the immune response, from a dendritic perspective

When the body is under pathogenic attack, it is the long-armed dendritic cells in the skin that identify the foreign invaders and instruct the body's killer cells to fight them. Understanding how these multitasking sentinels operate could be central to producing the next generation of vaccines to combat diseases such as cancer and HIV, according to immunologists at Yale and Harvard who published their findings last August in *Nature*.

Discovered in 1868 by the German scientist Paul Langerhans, dendritic cells became of interest to immunologists in the 1960s but have only recently revealed their operational secrets. It took a novel imaging approach to observe the role the cells play in precipitating the body's immune response.

By tagging the relevant molecules with green fluorescent dye, the groups from Yale and Harvard used video imaging of cultured cells to chart the pathway of an antigen, a protein that stimulates an immune response. For the first time, scientists observed molecules moving in a live dendritic cell.

Dendritic cells reside in the skin, constantly feasting on the proteins that surround them. If a foreign antigen is present, it is consumed and trans-



AMY CHOW AND DEREK TOOMRE

Arrows point to the tubules found to carry foreign antigen and MHC class II molecules from the lysosome to the surface of a dendritic cell.

ported to an acidic compartment deep within the dendritic cell called a lysosome. Aided by enzymes, the lysosome chops the proteins up into more manageable chunks called peptides. Meanwhile the dendritic cell travels to the killer T cells in the lymph, which ultimately deal with invaders.

But how do peptides get from the enclosed compartment, the lysosome, at the cell's core—so impenetrable that Yale's Ira Mellman, PH.D., chair and professor of cell biology, calls it "Dante's seventh level"—to its surface, where they can interact with T cells?

Under Mellman's supervision, graduate student Amy Chow and associate research scientist Derek Toomre, PH.D., watched the growth of long thin tubules that became the peptides' escape routes. They begin emanating from the lysosome shortly after a foreign invader is detected, and finally fuse with the cell's surface. Chow saw the green-glowing carrier molecules drag the freshly chopped peptides along the tubules.

At the cell's surface, the carrier molecules display their cargo of peptides, flagging those that represent dangerous invaders differently from those that came from the body's own harmless proteins. T cells respond by self-destructing if the peptide is benign and by propagating if they must unleash their arsenal on it.

"Dendritic cells sit at a critical nexus, deciding whether to respond or ignore a protein. Most immunologists so far have been T-cell-centric, but T cells can't do anything unless a dendritic cell instructs them," said Mellman. "Dendritic cells are like cellular psychiatrists. They bring out the deep-seated problems, wait for them to come to the surface and then interpret them."

Jacques Banchereau, PH.D., director of the Baylor Institute for Immunology Research in Dallas, said the unprecedented inside view of how dendritic cells operate offered by the *Nature* studies could pave the way to a more rational approach to vaccine design.

—Celeste Bieber

## et cetera ...

### A PROMISING TARGET

Yale researchers have shown that an artificial gene switch can induce the growth of new blood vessels in a mouse model, a new approach to gene therapy that has implications for heart disease and cancer. The technique uses an engineered transcription factor to switch on inactive genes that are already present in the mouse and has the potential to spur the growth of new vessels in tissue that has a diminished blood supply. The principle could also be extended to control overactive genes that need switching off, such as those for cancerous tumor growth.

In previous gene therapy trials, patients have been injected with the genes that encode the growth factors that drive angiogenesis, the process of vessel formation. But Yale's Frank J. Giordano, M.D., and colleagues at Sangamo BioSciences used a viral vector to deliver the genes that code for the switch, a zinc finger protein transcription factor dubbed Vegfa-ZFP. The mouse then produced the transcription factor, which switched on the growth genes. Healthy blood vessels formed and wound healing was augmented, according to the paper, published online in *Nature Medicine* on November 4.

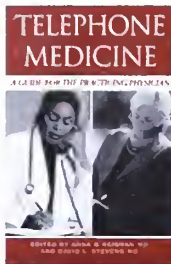
—Celeste Bieber

### FROM THE MOUTHS OF TICKS

An anti-coagulant protein in the saliva of the deer tick allows it to suck blood from a single wound for days, according to Yale scientists. The identification of the protein, called Salp14, could lead to therapies for clotting disorders or vaccines against tick-borne diseases.

Mosquitoes and tsetse flies can feed for only a few seconds before clots form. Exactly how ticks bypass this natural defense had been a mystery. "Tick saliva has an array of potent pharmacologic functions," said Erol Fikrig, M.D., principal investigator for the study, published in the December issue of *Insect Molecular Biology*. Fikrig said Salp14 blocks the actions of prothrombin, a key participant in the cascade of reactions that lead to blood clots. "If we study it in more detail, it could be used to combat any disease where clot formation is a problem," said Fikrig. "But this is just the tip of the iceberg."

—Celeste Bieber



### Telephone Medicine: A Guide for the Practicing Physician

edited by Anna B. Reisman, M.D., assistant professor of medicine, and David L. Stevens, M.D.

*American College of Physicians-American Society of Internal Medicine, (Philadelphia) 2002*

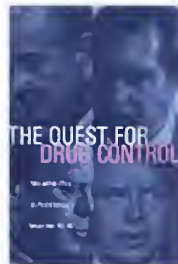
Designed to focus on reacting to calls from patients, the book is specifically developed for internists but is applicable to other primary care physicians. It covers medicolegal considerations and the challenges of the telephone interview. A clinical section of the book provides evidence-based guidance for the management of 13 common medical problems over the phone. The book also offers guidance on incorporating telephone medicine in the workplace and includes a teaching curriculum.

### The Quest for Drug Control: Politics and Federal Policy in a Period of Increasing Substance Abuse, 1963-1981

by David F. Musto, M.D., HS '67, professor in the Child Study Center and professor of psychiatry and the history of medicine, and Pamela Korsmeyer, former research associate in the Child Study Center

*Yale University Press (New Haven) 2002*

Between 1963 and 1981 various administrations attempted to deal with a rising tide of illicit drug use that was unprecedented in U.S. history. This book provides a close look at the politics and bureaucracy of drug-control policy during those years, show-



ing how they changed under presidents Johnson, Nixon, Ford and Carter and how much current federal drug-control policies owe to those earlier efforts.

Musto and Korsmeyer base this analysis on a unique collection of 5,000 pages of White House documents from the period, all of which are included on a searchable CD-ROM that accompanies the book. These documents reveal the intense debates that took place over drug policy. This investigation into the decision-making processes that shaped past drug-control efforts in the United States provides essential background for evaluating future approaches to the drug problem.

### Living Color

by Albert Rothenberg, M.D., HS '60, former clinical professor of psychiatry

*York Press Ltd., (Toronto) 2001*

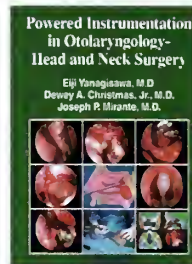
A knife is plunged into a famous huge red painting named *Who's Afraid of Red, Yellow, and Blue?* and a mysterious tale of creation and destructiveness unfolds. Morris, an alcoholic artist, his biographer wife, Marica, and a young idealist named Charles are all caught up in the meaning and purpose of the slashing, the real and created worlds of color and betrayal.

### Be Your Own Mentor: Strategies From Top Women on the Secrets of Success

by Sheila Wellington, M.P.H. '68, Betty Spence and Catalyst

*Random House, (New York) 2001*

All of us, from birth onward, learn by emulating others. Yet when it comes to our profes-



sional lives, we often forget that what we see, we imitate and what we imitate, we become. This is obviously a positive thing for those who have found successful, encouraging mentors in their fields, but finding those mentors is still much easier for men than for women. In *Be Your Own Mentor*, Wellington seeks to provide women not only with advice on locating appropriate mentors, but also with the tools to mentor themselves and the opinions, advice and encouragement of women leaders worth emulating.

### Powered Instrumentation in Otolaryngology: Head and Neck Surgery

by Eiji Yanagisawa, M.D., HS '59, clinical professor of otolaryngology, Dewey A. Christmas Jr., M.D. '65, HS '70, and Joseph P. Mirante, M.D.

*Singular, Thomson Learning (San Diego) 2001*

### and— Atlas of Rhinoscopy: Endoscopic Sinonasal Anatomy & Pathology

by Eiji Yanagisawa

*Singular, Thomson Learning, 2000*

These two recent books by Yanagisawa and colleagues vary in scope from the highly specific to the comprehensive. *Powered Instrumentation in Otolaryngology* provides details on mucosal preservation through powered instrumentation for such procedures as sinusotomy, polypectomy, anrostomy, rhinoplasty and liposuction. Also mentioned are the best approaches to rapid



healing using this technique for power dissection in the sinuses, nose, larynx and at the skull base, as well as facial plastic surgery. *Atlas of Rhinoscopy* is a full-color volume of outstanding photography detailing endoscopic sinonasal anatomy, pathology and surgery. It also illustrates the techniques of rhinoscopy, sinuscopy and nasopharyngoscopy. Yanagisawa includes useful clinical cases that illustrate the application of knowledge to real-life experiences, and covers new surgical techniques such as powered instrumentation and computer-aided endoscopic sinonasal surgery.

### A Primer of Transference-Focused Psychotherapy for the Borderline Patient

by Frank E. Yeomans, M.D. '81, John F. Clarkin and Otto F. Kernberg

*Jason Aronson (Northvale, N.J.) 2002*

Transference-Focused Therapy (TFP) is a psychodynamic treatment designed especially for borderline patients. This book provides a concise and comprehensive introduction to TFP that will be useful to both experienced clinicians and students of psychotherapy. TFP has its roots in object relations and it emphasizes that transference is the key to understanding and producing change.

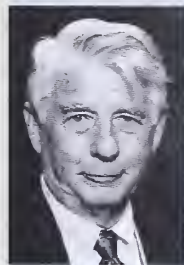
*The descriptions above are based on information from the publishers.*

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](mailto:cheryl.violante@yale.edu)





TERRY DAGRADI



JOHN CURTIS (3)

#### NOBEL PRIZE VARMUS

### A question worth answering: why don't cancer cells die?

When cells become cancerous, they grow unrestrained and sometimes ignore signals that would normally induce them to die. "What are the genetic functions," Nobel laureate Harold E. Varmus, M.D., asked in a November 1 campus talk, "responsible for sustaining the life of cancer cells?" Varmus, president and chief executive officer of Memorial Sloan-Kettering Cancer Center and the former director of the National Institutes of Health, gave the keynote address at the 2002 Graduate Student Research Symposium, an annual event that brings speakers to campus and provides graduate students a venue for presenting research in progress.

In his address Varmus described how his laboratory has used new ways to study those genetic functions in mouse models of lung and ovarian cancers. Varmus and colleagues controlled expression of a mutant gene by dosing mice with the antibiotic doxycycline: in this way they could induce lung cells to become cancerous. Halting the drug dosages abruptly reduced the expression of that gene, *K-ras*, and triggered the death of the tumor cells, causing the cancers to melt away.

His laboratory is attempting to understand how genes like *K-ras* "protect cells from cell death" and what happens when the cells lose *K-ras* function and die. From there, the goal will be to figure out "how to trigger a similar response in humans," which, Varmus suggested, could prove key to developing new treatments for the deadly cancers.

—Marc Wortman

#### MARIA MARCHETTI-MERCER

### A disheartening view of AIDS in South Africa

"I will give you a picture that will sound a bit bleak," Maria C. Marchetti-Mercer, Ph.D., told an audience at a lunch sponsored by the Center for Interdisciplinary Research on AIDS in September. Marchetti-Mercer, head of the department of psychology at the University of Pretoria in South Africa, proceeded to paint a landscape of social and political turmoil and its relationship to the growing HIV/AIDS pandemic. With the end of apartheid in the 1990s, political violence gave way to criminal and domestic violence. The country has seen increasing incidents of "family murder," the killing of all family members by a parent. Added to this mix is the impact of HIV/AIDS, which is estimated to have left at least 660,000 orphans and reduced families to poverty as breadwinners die or become incapacitated.

"Poverty doesn't cause AIDS," Marchetti-Mercer said. "But it does create a context where people are more vulnerable."

People with HIV/AIDS are stigmatized, and society offers little in the way of social, economic or psychological support. As a result, Marchetti-Mercer said, poverty and crime will only increase. "I think we are moving toward another lost generation," she said, referring to the orphans the epidemic has left. "This whole cycle of poverty and criminal and domestic violence will go on because of the impact of HIV/AIDS."

—John Curtis

#### EUGENE A. SHINN

### African dust brings nutrients—and toxins

For centuries winds have carried dust from Africa and deposited it on islands in the Caribbean and locations in Florida and South America. The dust provides essential nutrients to the upper canopy of the Amazon rain forest and, in the Bahamas, contributes to the formation of red soils known as pineapple loam.

As early as 1846, however, Charles Darwin was complaining about the pernicious effects of African dust as he traveled through the Canary Islands. In recent years the dust has carried traces of fertilizers, pesticides, mercury, arsenic, bacteria and a fungus called *Aspergillus* that has devastated sea fans on Caribbean coral reefs.

According to Eugene A. Shinn, Ph.D., a geologist with the U.S. Geological Survey in St. Petersburg, Fla., the dust also has implications for human health. "It causes lung infections," Shinn told students at the School of Forestry & Environmental Studies in November. He also believes African dust is linked to increases in asthma throughout the Caribbean.

Since the 1970s deforestation and drought in Africa have caused huge dust storms. When they reached the Caribbean, the effects were obvious. "In San Juan, Puerto Rico, people could feel it in their chests. They had headaches," Shinn said.

Shinn is working with microbiologists and physicians to study the problem, but as he cautioned at the start of his lecture, "This is a bad-news/bad-news story."

—John Curtis

#### ANDREA TONE

### In history of birth control, a male influence

Although birth control is widely viewed as a women's issue, men have played a large, if unrecognized, role in reproductive rights, Andrea Tone, Ph.D., professor of history at the Georgia Institute of Technology, said at a History of Medicine and Science lecture in December. "If you examine sources not usually considered vital to the history of birth control—arrest records, credit reports, trial transcripts, patent applications, post office records, military investigations, FTC and FDA records and men's letters—you encounter a cast of characters who are not only fundamental to the history of modern contraception, but who are also often men," said Tone, author of *Devices and Desires*, a history of contraception from 1873 to 1973.

Among those men was Julius Schmid, who, in 1883, found a use for animal intestines beyond making sausages. He did what Europeans had been doing since the Renaissance and turned the delicate but impermeable membranes into condoms. To skirt laws against such devices, condoms and diaphragms were marketed as "French goods and medicines."

Late-19th-century physicians favored condoms as an effective means of birth control. And, letters of that time reveal, contraception was on the minds of husbands as well as wives. "Men discussed how anxious they were to protect their wives' health and welfare from the toll of uninterrupted childbearing," Tone said, "and they worried how they, as breadwinners, could afford to feed another mouth."

—John Curtis





## A monstrous notion

by Rachel Engers

Exhibit on Frankenstein looks at the intersection of scientific knowledge, creative power and human arrogance.



**ABOVE** Physician Giovanni Aldini (1762-1834) conducted experiments using electricity on newly executed criminals that produced an opening of the eyes, a quivering of the jaw and contortion

of muscles. This illustration from his essay on galvanism shows doctors reanimating corpses. Shelley made explicit references to galvanism in her revised 1831 edition of *Frankenstein*.

**TOP** Films from the 1930s produced this enduring image of Victor Frankenstein's monster, here on a U.S. postage stamp.



With his flattened pate, horrid scars and a set of neck bolts to keep his head on straight, the monster popularly known as “Frankenstein” is a lurching, grunting, remorseless killer. This image, made famous by a series of 1930s films starring Boris Karloff, can be seen on everything from cereal boxes to postage stamps and has come to represent the notion of science out of control. Any new technology that calls into question our traditional understanding of what it means to be human, from cloning to xenotransplantation, seems inevitably to raise the specter of author Mary Wollstonecraft Shelley’s hideous monster. Nearly two centuries after its creation, *Frankenstein* continues to haunt us.

According to Susan E. Lederer, PH.D., associate professor of the history of medicine, the story continues to maintain its hold on the popular imagination. “It’s alive and it’s escaped,” says Lederer. “These represent primal fears about human agency and responsibility for creation.”

Lederer was the chief curator of “Frankenstein: Penetrating the Secrets of Nature,” a 1997 exhibit at the National Library of Medicine (NLM), and mounted a modified version of the show this summer in the rotunda of the Cushing/Whitney Medical Library. From the Yale archives, she added rare books on galvanism and the supposed reanimation of the dead that influenced Shelley’s 1818 novel. The exhibit examines how the author used the “scientific advances and controversies of her era as a metaphor for issues of unchecked power, self-serving ambition and their effect on the human community.” It also looks at how playwrights, filmmakers and cartoonists have transformed the image of the monster and how Frankenstein’s monster continues to emerge in debates about modern science. Over the next four years the traveling exhibit, drawn from the exhibit sponsored by the NLM and the American Library Association, will visit 80 libraries across the country.

While the idea for *Frankenstein* came to 18-year-old Mary Shelley in a dream, the monster reflected the curiosity of physicians and natural philosophers of her era in reviving the drowned and reanimating dead tissue using electricity. These researchers, according to the exhibit text, aimed to benefit humankind and end death and disease through their investigation into the mysteries of nature.

Assembled in secret from body parts gathered from graveyards and slaughterhouses, scientist Victor Frankenstein’s creation has flowing hair, black lips and shriveled yellow skin, which “scarcely covered the work of muscles and arteries beneath.” Despite his grisly appearance, the nameless monster is intelligent and sensitive. He seeks human companionship and educates himself by reading the works of Homer, Milton and Goethe. Only after his maker rejects him does the creature turn to rage and murder. The tragedy of the story is Victor Frankenstein’s arrogance and failure to take responsibility for his creation.

The monster in the novel is different from and more complex than the version that has been popularized. The collection of artifacts shows an 1823 English playbill for “Presumption, or the Fate of Frankenstein,” which portrayed the monster as a speechless brute. This marked the beginning of the simplification of the author’s tale that continues in films and commercial culture today.

The exhibit also explores the novel’s often-forgotten subtitle, *The Modern Prometheus*. This figure in Greek mythology was a symbol of optimism to Mary Shelley, who noted that he used “knowledge as a weapon to defeat evil by leading mankind beyond the state where they are sinless through ignorance, to that in which they are virtuous through wisdom.” Thus despite Victor Frankenstein’s utter failure, the exhibit points out, the author suggests the possibility that we can make responsible choices about scientific discovery.

Rachel Engers is a freelance writer in Branford, Conn.



TOP A portrait of Mary Shelley writing.

ABOVE References to Frankenstein continue to shape public debate and fears about new scientific advances, such as cloning, interspecies organ transplants and genetic engineering. Opponents of genetically altered foods created this postcard.

# Long road to Cedar Street

The first grandmother to enter medical school at Yale, 40-year-old Karen Morris is where she's always wanted to be: on her way to becoming a physician.

By Cathy Shufro  
Photographs by Terry Dagradi

For first-year student Karen Morris, the path to the human anatomy lab included careers as a cosmetologist, a secretary and then an associate's-level nurse while she worked toward her bachelor's degree at night.

You might say Karen Sarena Morris' cover was blown at the White Jacket Ceremony. As young as she looks, the first-year medical student could no longer sustain the fiction of being an ordinary student the moment her four daughters and 2-month-old grandson arrived to watch the annual rite of passage. Morris, 40, may have been on the accelerated track for becoming a grandmother, but it took her a long time to get her white jacket.

Morris had set her sights on medicine as a child. At age 11, she decided to become a doctor so she could take care of her ailing grandmother, who died while Morris was still a teenager. Motherhood at 16 and marriage to a man who frustrated her attempts to enroll in college deflected Morris from her goal. She ran a beauty salon, worked as a secretary and eventually earned a nursing degree. But although she found a certain measure of fulfillment as a nurse, her desire to study medicine never waned. Under the tent on Harkness Lawn on that warm August afternoon, Karen Morris began to realize a dream deferred.

The daughter of an office worker and a police officer in Harrisburg, Pa., Morris was a strong student who seemed destined to be the first in her family to attend college. She did manage to finish high school in 1980 after giving birth during her junior year to daughter Nikki (now 23). But after Morris married the man who had been her boyfriend since fifth grade, now a machinist, she discovered that he opposed her plans to go to college. She studied cosmetology instead, and ran a beauty shop out of their home. Each fall, she proposed starting college, and each fall, she said, her husband pressured her to wait—until the children were older, until finances were less strained.

"As bright as I am, it took me about nine years to realize he was never going to say OK," Morris recalled during a lunchtime interview at Marigold's, the medical school dining hall, a few weeks into the fall semester.

By then the mother of five children, Morris at age 29 quietly enrolled at Harrisburg Area Community College. When her husband interfered with her studies, she said, they separated. After working all day as a secretary, Morris would do homework alongside her children at the kitchen table and continue on while they slept, surviving on four hours of sleep. She chose a nursing major, telling herself, "You have five kids. Let's be realistic: you can't be a doctor anymore." She completed her associate's degree summa





**As she wrote down her age and listed her children on each application form, Morris thought, “They’re just going to laugh this application off the desk.”**

cum laude in 1996, and with her children’s encouragement, she enrolled at nearby York College to work toward her bachelor’s degree in nursing.

Finding jobs first at a state psychiatric hospital and then at a prison with 3,000 male inmates, Morris enjoyed nursing but craved more responsibility. “It’s one thing to follow through on a treatment plan, and it’s another being the one responsible for formulating that treatment plan,” she said. Her 40th birthday loomed as a deadline in Morris’ mind, and she had only a few years to go. She realized, “If I don’t try this, I’m going to regret it. My heart was set on being a doctor.” And so, while pretending even to herself that her goal was a master’s in nursing, she began taking the prerequisites for medical school. She was too embarrassed to approach the college pre-med advisor, so she searched the Internet to assemble a list of course requirements. She did well in science.

It was online that she first heard of the MCAT. She also discovered the Minority Medical Education Program, a summer enrichment course for prospective medical students. The six-week program is funded by the Robert Wood Johnson Foundation and offered on 11 campuses including Yale’s. As an African-American, Morris qualified, and in July 2001 she left her hometown and her children for the first time to attend the program in New Haven. By

then, she and her former husband were on good terms, and he stayed with their children.

When she took the MCAT a few months before, Morris hadn’t even finished organic chemistry, and she hadn’t had the money for a prep course for the exam. She dreaded getting her scores and was pleasantly surprised when they fell within the competitive range she was shooting for. But as she wrote down her age and listed her children on each application form, Morris thought, “They’re just going to laugh this application off the desk.”

Morris lacked the money to travel to faraway interviews, so she applied to only four schools—and got into three. She chose Yale over Penn State and Pitt; Johns Hopkins rejected her. Morris earned her bachelor’s degree magna cum laude in June and now lives in New Haven with her two youngest children, 16-year-old Shar-Dae and 14-year-old Ashley. (Firstborn Nikki is a college graduate with a degree in information systems, and Morris’ 62-year-old mother just started community college in Atlanta.) Morris is financing her education through grants and a loan.

She is awed by the talents of her well-traveled, multilingual classmates, but she reminds herself of her own strengths, including years of experience taking care of patients and confidence gleaned from coping with difficult

1986



Karen Williams married Gregory Morris at Martin Luther King Baptist Church in Harrisburg, Pa. Although they later divorced, they are now on good terms.

KAREN MORRIS (3)

1996



Morris’ children threw a party when their mother graduated summa cum laude with her associate’s degree in nursing from Harrisburg (Pa.) Area Community College and received the school’s award for outstanding achievement in nursing. Here Morris poses with Shar-Dae (kneeling), Ashley, Nikki, Amber and Gregory.



**“It’s remarkable,” Assistant Dean Forrester Lee says of her mid-life career change, “that she would say, ‘This is what I want to do’ and go back and do it.”**

situations, such as trying (without success) to resuscitate a naked male inmate in a shower room and caring for a prisoner with AIDS awaiting permission to go home to die, word that would come one day too late.

“Even though there are times when I felt really inadequate listening to some of their experiences,” she said of her classmates, “I know that the path I took also gave me so many rich experiences that are going to help me in my practice.”

Cardiologist Forrester “Woody” Lee, M.D. ’79, HS ’83, said Morris was one of just a handful of students who stood out among the 100 participants at the summer program for minority medical school candidates. “It wasn’t just because she was older,” said Lee, who is assistant dean for multicultural affairs and director of the summer program. He said Morris’ enthusiasm and curiosity had enlivened the entire group. When Morris received her certificate at the end of the course, Lee said, “the whole group spontaneously stood up and clapped. Everybody was almost in tears.”

Lee said most people considering a demanding career change in mid-life would decide it was too late. “I think it’s remarkable that she would have the presence of mind to say, ‘This is what I want to do’ and go back and do it. I don’t know where that kind of strength comes from.” He said Morris has what Sir William Osler called *aequanimitas*,

a “calmness amid storm” that serves physicians well. As Lee describes Morris, “Nothing seems to faze her. She’s steady and sure with her voice, with her presence, with her vision of what she wants to do.”

As far as anyone knows, Morris is the first grandparent to matriculate in medicine at Yale, but she’s not the first Yale medical student to begin her studies at 40. According to Associate Dean for Student Affairs Nancy R. Angoff, M.P.H. ’81, M.D. ’90, HS ’93—who herself started medical school at age 39—“what makes her unique are her incredible drive and commitment and the odds she’s been up against to come here. ... She understands life, and she knows what it means to work hard and face adversity and keep on going. I think she’s going to be a great leader.”

For Morris, how she experiences the daily life of a medical student “depends on the day.” Case conferences are easy to follow; biophysics is not. “Sometimes I think, ‘I can do this.’ There are other days when I think, ‘I don’t have a clue what they’re talking about!’” But those days don’t get her down. “All in all, I am still in awe that I am here, and I’m enjoying it.” **YM**

Cathy Shufro is a contributing editor of *Yale Medicine*. Terry Dagradi is a photographer with Med Media Group at the School of Medicine.

2000




**LEFT** Morris is surrounded by her children (clockwise from lower left): Ashley, Gregory, Nikki, Shar-Dae and Amber. Shar-Dae, now 16, and Ashley, 14, moved with their mother to New Haven last summer when she started medical school.

**RIGHT** Karen Morris gestures toward her grandson, Ronyay, after the White Jacket Ceremony last August. Sitting behind the baby is Morris’ mother, Betty Williams. Ronyay’s admirers include Dean Forrester Lee, to left of Morris, and Dean Nancy Angoff, holding a folder.

2002



TERRY DAGRADI



Relocating 91 laboratories, a magnetic resonance center and the medical school's teaching facilities across Congress Avenue is like putting together the biggest 3D puzzle ever.

By Marc Wortman  
Photographs by Frank Poole and  
Daphne Geismar



# The big move

Laboratory flasks in the Boyer Center lab of cardiovascular researcher Jeffrey Bender, kept company by a colorful soap dispenser, await packing in late autumn. Over a 48-hour period this winter, crews will move the entire contents of the Bender lab, packed into 2,450 cartons and onto dollies. Bender is one of 91 principal investigators moving into the new building.

Jeffrey Bender stands in empty lab space that will house his Program in Vascular Disease and Cardiology. The new arrangement will bring together scientists now doing related molecular work in scattered locations and make collaboration easier. "The daily interaction," he says, "will be a huge advantage for everyone."



he laboratory of Jeffrey R. Bender, M.D., HS '83, stretches east along the top floor of the Boyer Center for Molecular Medicine on College Street and toward the New Haven Green. Here Bender, a professor of cardiovascular medicine and immunobiology, directs a program investigating how inflammatory events in blood vessels cause atherosclerosis.

It is the kind of work that could one day lead to new ways of treating or preventing stroke, heart attack and the rejection of transplanted organs.

Over the decade that his laboratory has occupied its Boyer Center space, it has filled up to bursting with the specialized tools and materials of molecular biology. Among them is a supply of costly reagents in Revcos, special deep freezers that hum along at minus-80 degrees Celsius. The laboratory also maintains a supply of radioactive isotopes and uses closet-sized biosafety cabinets for working with hazardous and sterile materials. Then there are five refrigerator-sized CO<sub>2</sub> incubators precisely calibrated to keep the millions of cells floating in petri dishes within them alive. The vital core of the laboratory, those cells have been isolated from normal and diseased humans and mice. Many of the cells have been genetically manipulated to study the biological mechanisms that underlie atherosclerosis. The cells

represent a lifetime of work. "It would be devastating," said Bender, "if we lost them."

At some point this winter, a team of movers will pack nearly every single item in Bender's laboratory—the contents of 700 shelves and drawers and larger discrete items according to the mover's count—into 2,450 cartons and put them on dollies for easy transport. The laboratory staff will transfer the contents of the freezers and incubators into transport coolers designed for the task while a team from the Office of Environmental Health and Safety decontaminates, wraps and seals the laboratory's equipment. Then the movers will load some of the material into trucks. What does not get shuttled by truck will be pushed, dolly by dolly, along a carefully mapped, 3,100-foot-long route through five separate medical center buildings and across a new pedestrian skybridge into the north wing of the new Congress Avenue Building. The movers will pass through the north wing and cross another bridge over the new building's lobby into the south wing. Eventually they will arrive by elevator on the fourth floor and head down the hall to what is now pristine, empty laboratory space.

Once there, every item will be unpacked and put in its designated spot. The biosafety cabinets, freezers and incubators will be checked for contamination and then plugged in, and their environments will be tested and recalibrated as necessary. All of the frozen reagents, living





FRANK POOLE

cells and radioactive isotopes will be returned to their storage units. If everything goes according to plan, 48 hours after the move begins Bender's laboratory will be up and running in its new home.

Now, multiply that scenario by 91. That is how many principal investigators, scattered throughout the medical school, will be moving into the new building over the course of 48 consecutive days starting in mid-winter. In total, the movers will pack up more than 200,000 individually tagged pieces of equipment, shelf- and drawer-loads and other items from 363 laboratory rooms in 38 separate locations around the medical center. All of it should arrive at precisely pinpointed locations in 180 rooms in the new space. With a schedule planned to within 15-minute intervals, from 8 a.m. until 7 p.m. six days a week (Sundays are reserved for any problems that arise), effectively one quarter of the medical school's research laboratories will be packed, hauled, pushed and trucked to new quarters in the new building. "It is an enormous, three-dimensional puzzle," said Caroline Freeman Tunis, president of Freeman Enterprises, a New York City-based relocation management consulting firm planning the move. "A move of this type puts a faculty member's life's work at risk. We have to work for perfection." Perfection is a tall order. Nothing in Yale's history—and little in the history of any medical center—compares to the scale and complexity of the move.

#### **"A remarkable opportunity"**

The new, 457,000-square-foot Congress Avenue Building is by far the medical school's largest facility and Yale University's largest new building in 70 years. (Among Yale buildings, only Payne Whitney Gymnasium and Sterling Memorial Library are larger.) More than a decade in the making and brought to fruition under the leadership of Dean David A. Kessler, M.D., and Yale President Richard C. Levin, the \$176.6-million structure is a big part of Yale's half-a-billion-dollar commitment to expand and renew its medical facilities over the next decade. (The space vacated by the move will gradually be renovated for other uses, including a planned neuroscience research center.) The new Center for Drug Discovery, built as an extension of the B wing of Sterling Hall of Medicine, is the latest structure in the expansion of the medical school.

"We're all a bit nervous, a little intimidated by the logistics of moving to a new place," said Carolyn W. Slayman, Ph.D., Sterling Professor of Genetics and deputy dean for academic and scientific affairs. "But people understand it's a remarkable opportunity. Everyone who tours it is excited."

The excitement is for a building with the complex mission of incorporating, enhancing and expanding the central research and teaching missions of the medical school. Slayman and faculty colleague Arthur E. Broadus, M.D., Ph.D., chaired the committee that planned the building. Designed by famed Philadelphia architect and former Yale

Douglas Rothman, director of the Magnetic Resonance Research Center (MRRC), stands in one of the massive steel boxes that will shield the center's powerful magnets. Two million of the 7 million total pounds of steel in the new building are found in

the MRRC's research floor. With the new equipment, Yale scientists will gain as much as a 16-fold increase in image resolution, says Rothman: "We'll be able to move from imaging systems down to imaging actual biological processes."





School of Architecture faculty member Robert Venturi and the Boston firm Payette Associates, the tripartite building is composed of two block-long wings skewed at slight angles and meeting in a large lobby facing the corner of Congress Avenue and Cedar Street. A narrow central courtyard stretches back from the lobby to Howard Avenue (See *A Building for the 22nd Century*, p. 26). The football-field-and-a-half-long complex stretches from Cedar Street to Howard Avenue and is squeezed into a short block between Congress Avenue and Gilbert Street, occupying the site of the former nursing dormitory at 350 Congress Avenue and several smaller buildings. Already the Congress Avenue and Cedar Street corner has formed a new center of gravity for the campus.

That shift reflects a real change for the medical school. Many important activities will move to the new building. The six-story south wing will house some 700 researchers, while the three-story north wing will contain six teaching laboratories in anatomy and histology for the 136 first-year medical and physician associate students, along with a 152-seat auditorium and six seminar rooms. Space beneath the lobby and courtyard houses new core research facilities serving the entire university. These include the Animal Resources Center, with facilities for production of transgenic and knockout mice and vivarium space for 74,000 rodents, and the Magnetic Resonance Research Center (MRRC), eventually to house nine magnets for imaging studies of humans, animals and cells.

Just as important as the expanded and more modern research and teaching space, the new building brings together previously far-flung scientists to encourage collaborations among different disciplines. It will be home to nine distinct research programs, two in basic science and seven in disease areas (See *Of Mice and Magnets*, p. 29). The basic science programs were selected to complement the clinical programs and to encourage research translating basic science discoveries into medical advances. "The building," said Slayman, "is mapped out so that basic researchers are next door to clinical researchers. There will be hallway conversations, people going in and out of each other's labs, sharing equipment, borrowing reagents. There will be an upsurge in communications that we expect will speed discovery."

The new building will also allow clinical research to grow. Bender will direct a new Program in Vascular Disease and Cardiology. Investigators now scattered in laboratories in four different buildings will share a large common laboratory area. Sitting in his present Boyer Center laboratory, which opened just over a decade ago, Bender said, "I am currently in what is considered premier research space at Yale, with outstanding colleagues. I don't need better, but the opportunity to bring together a group of investigators focused on cardiovascular disease is great. The daily interaction will be a huge advance for everyone." And, as space opens up in existing buildings after the move, other fruitful juxtapositions are being created in what is known around campus as the "backfill" process.

### Seven million pounds of steel

The basic science programs include a new Program in Human Genetics and Genomics, to be headed by Richard P. Lifton, M.D., Ph.D., a Howard Hughes Medical Institute investigator and chair of genetics. Created to promote the use of genetic approaches in the study of human disease, this new program will sit on a middle floor to foster collaborations among scientists throughout the building. Under the direction of Richard A. Flavell, Ph.D., the other basic science program—the Section of Immunobiology—expects its previous focus on the basic biology of the immune system to expand into disease-oriented studies in its new home. Interactions among colleagues working in rheumatology, pulmonary disease and infectious disease are expected to grow.

Magnetic resonance imaging of biological activity has become a front-line research method. Yale has pioneered work using the imaging technology to study diabetes and psychiatric and neurological disorders in children and adults. The Congress Avenue Building will house a greatly expanded MRRC serving the entire campus. Six of the multi-ton magnets now housed beneath Fitkin Memorial Pavilion will be rolled, craned and pulled to the new center, which sits beneath the new building's courtyard. Three new imaging systems will be installed as well, including a 23-ton, 4-tesla human magnet, which arrived late one night last September from Germany, to great fanfare and fears for its safe passage over the last few, and most treacherous, feet to its new home.

Along with a rigging crew, security guards, the construction manager, a New Haven police officer and a crowd of curious, late-night onlookers, about 15 engineers and scientists from the lab and their spouses were on hand as the delicate magnet and its housing were hoisted off a flatbed truck by a seven-story crane and lifted over 50 feet into the air to clear electrical and telephone wires. After it was successfully lowered into the loading dock at midnight, those on hand toasted it with champagne. Over the next four hours, riggers inched the magnet down a 30-foot corridor and into its room in the MRRC. It had to be positioned in the room with an accuracy of better than 10 millimeters, or it could not be successfully used, according to Douglas L. Rothman, Ph.D., director of the MRRC and an associate professor of diagnostic radiology. "They accomplished this feat," he said, recalling the building of the ancient Egyptian pyramids, "using a panoply of wedges, ramps, skates, blocks and tackles, ropes and levers that would have made a Pharaoh proud." (Plans call for the addition of a state-of-the-art, 11.7-tesla animal magnet and, funding permitting, a 7-tesla human magnet.)

The magnet's destination was an iron and copper-lined room specially constructed for the purpose. Much of the design work was done by Terry Nixon, director of facilities at the MRRC. According to Nixon, even the slightest

## A building for the 22nd century

When the planners and architects set out to create the Congress Avenue Building, they needed to think 100 years ahead, since the expectation is that the new structure will still be around and contributing to medical science a century from now. That's hard to do when even a year can bring huge changes in science.

The building's architect, Robert Venturi, head of the Philadelphia firm Venturi, Scott Brown & Associates, said, "You're changing, always changing in science. We purposely designed it in the tradition of the general American loft

building, a simple form and space to make it as flexible as possible."

That flexibility had to take into consideration Yale's need for a major increase in research and educational space and the limits of the long narrow building site between Cedar and Howard streets. The result is two slender, elongated wings that extend two stories underground. The complex packs an enormous amount of space—nearly half-a-million square feet—into a single city block. While meeting space and programmatic needs, the new building needed to fit in with the largely Georgian, low-scale buildings along Congress Avenue. The three-story north wing com-

plements the other buildings and reduces the street-level impact of the six-story south wing behind it. Venturi said he chose a varied palette of colored and patterned brick and limestone above the new building's granite base to break up the surface rhythm of the structure's 700 huge windows, "so it would not appear so big and would seem more cheerful."

The entry to the building's lobby is a concave opening intended to correspond to the entrance to Sterling Hall of Medicine and is the only sculptural form in the structure. It opens into a three-story-high, sunlit atrium, the complex's centerpiece. A glassed-in sky-bridge passes overhead between

the wings and a large staircase leads out to the courtyard.

To ensure that the building will be around to contribute to science in the 22nd century, according to Reyhan T. Larimer, AIA, the Yale project manager in charge of the building's construction, "no expense was spared in making it watertight." A watertight membrane wraps the entire building. "Every piece of stone, every piece of material," she said, "was made to shed water and to make sure water will not go into the cavity of the building." A century from now, scientists and students should still be working comfortably in what is today's most advanced medical sciences facility.



The Congress Avenue Building, seen from the south (above) and east. Altogether the structure packs 457,000 square feet into a single city block.



radio frequency in the environment creates background noise that washes out the signals picked up by the ultra-high-sensitivity imaging magnets. Containing the magnetic field—80,000 times stronger than the earth's—required building the MRRC rooms out of 11-inch-thick steel plates. Two million of the 7 million total pounds of steel in the new building are found in the MRRC's research floor. (The floor above brings together faculty members currently housed in disparate locations around campus.)

Reflecting the growing demand for imaging studies, new faculty are being recruited to the recently formed Section of Bioimaging Sciences, which united imaging research faculty within the Department of Diagnostic Radiology. The present yearlong waiting list for magnet time should all but disappear. The new magnets will also greatly enhance what those experiments can "see," offering as much as a 16-fold increase in image resolution. "We'll be able to move from imaging systems down to imaging actual biological processes," said Rothman. "For instance, as opposed to saying a region of the brain is not functioning properly in neural imaging studies, we could say which specific neuronal circuit or neurochemical pathway within that region is not functioning."

#### **A large space for small groups**

For years, students in first-year gross anatomy and histology courses have attended classes in overcrowded laboratories originally intended for 50 students and lacking modern air-removal and computer systems. Now, they will move to spacious, state-of-the-art laboratories. "It's not just that it looks nice and doesn't smell bad," said Herbert S. Chase, M.D., professor of medicine and deputy dean for education. "There is a strong basic science component to our curriculum and an emphasis on dialogue. The Congress Avenue Building is symbolic. It represents Yale's unified commitment to science, education and clinical medicine." Students will also benefit from proximity to researchers. The classroom facilities in the north wing will bring students into everyday contact with research faculty. "Students will bump into somebody who just gave a lecture on the way to his or her lab," said Chase. "That won't be lost on the students. Rubbing shoulders with scientists will shape the way students think about the curriculum."

During the past two years, the faculty has moved to structure the curriculum increasingly around small-group learning and use of technology. "We've cut out 25 percent of the time in the classroom in the past two years," said Chase. "Students learn much faster, and small groups help students become independent thinkers. However, the lack of conference rooms with computer facilities has made it hard to switch." The new facilities should speed the transition.

Chase believes that in the new building "the curriculum will be much more richly textured. We'll move students

along more quickly in doing the same old activity of sitting in the room with the professor." William B. Stewart, PH.D., chief of the Section of Anatomy and Experimental Surgery, believes that access to computers will greatly enhance students' experiences in gross anatomy. Computers will be mounted above each dissection table. Teaching spaces will also have large screens and projectors as well as Internet connections at every work space. "Anatomy and the computer are a perfect marriage," said Stewart. "Students will have the chance to feel the bile duct, look at an X-ray and look up information about it on the Web all at once."

Moving the current anatomy program over to the new building presents a number of thorny issues. "We have a large number of specimens that we're scratching our heads about," said Stewart. "They're unique and priceless." Movers face the challenge of bringing them through the halls while ensuring minimal disruption of normal activity. Stewart is confident that "nearly everything will be able to go."

Making sure that Stewart is correct is the responsibility of Freeman Enterprises, which has hired a moving firm experienced in handling complex hospital and laboratory moves. Tunis' colleague Shellie Peck has been working on-site at Yale since January 2002 to inventory the contents of all the facilities to be moved and to plan the move sequence. She and the staff of the Office of Environmental Health and Safety have tagged every item according to a numerical and color coding system that indicates the type of handling it requires and the exact time and pathway for its move. Each tag also serves as the address to which every piece of equipment goes in the new building. "We have databases within databases that keep track of each item," said Tunis. "We all identify a move with moving a household, but a lab move is very different. If something arrives at the wrong place, it can extinguish a lifetime of work."

Inventorying contents was not the only job. Faculty members needed to be reassured that their laboratory property would be handled with appropriate care and understanding. "P.I.s [principal investigators] are possessive and rightfully so," said Reyhan T. Larimer, AIA, the Congress Avenue Building project manager in the School of Medicine's Project Management and Construction office. "You have to get their trust first." Larimer has been working closely with Tunis, Peck and their 10-member team in preparing the new building for the move. The building was designed with generic laboratory space which will then be customized for the needs of the individual investigators as they move in. Everything in the Freeman Enterprises' inventory had to be matched up with the new space into which each laboratory will move to make sure that all equipment would fit and have the proper plumbing, power, communications and air-handling systems available. Should a freezer or incubator arrive at a site that could not handle its needs, research could be interrupted, or worse.

Anatomy professor William Stewart stands in the education wing's dissection room, which will have Internet connections at every work space. "Anatomy and the computer are a perfect

marriage," says Stewart. "Students will have the chance to feel the bile duct, look at an X-ray and look up information about it on the Web all at once."





### Across the street and 1,840 miles away

Following Freeman Enterprises' detailed choreography, the giant dance of the move will proceed with a daily crew of 48 to 60 movers. Every carton or piece of equipment will be placed on dollies and either rolled into 26-foot trucks that will shuttle back and forth at the rate of three to five trips per hour or be pushed through the hallways. The farthest single push will be through more than 3,800 feet of hallway. The movers' feet may ache by the end. According to Freeman Enterprises' estimates, the movers will push the contents of the Yale laboratories more than 1,840 miles in total, the equivalent of walking from New Haven past Denver.

In some cases, the most direct route is not available because the hallways are used by medical center patients. Moreover, many items that might be moved more efficiently by truck cannot leave the interior of the medical school because of safety and health regulations. These include a variety of hazardous materials such as radioactive isotopes, contaminated equipment and so-called "select agents," biological materials such as certain highly toxic bacteria and infectious viruses strictly controlled by the federal government. Robert C. Klein, associate director of the Office of Environmental Health and Safety, has worked closely with faculty, Larimer and Freeman Enterprises to prepare for the move. He said, "You need to make sure the wrong things don't get moved and the right things aren't moved in the wrong way." He points out that the medical school routinely moves hazardous materials. "The hazard doesn't change [with a project this size]," he said, "just the volume." Most hazardous items will either be placed in special sealed carts designed to capture any inadvertent spill or leakage or be carried personally by Klein and his staff or laboratory staff.

Shortly before the movers arrive in Bender's laboratory, Klein and his staff will have decontaminated and sealed all the equipment that previously contained hazardous materials. The movers will move quickly through the laboratory, packing tagged items into cartons. Bender is confident about the move. "I'm not overwhelmed by the logistics," he said. "They will be surmountable with good organization." If all goes according to plan, his laboratory's contents will arrive at their new destination on schedule and intact. Despite the move's complexity, he anticipates losing no more than two days' research productivity. "Moves are always unsettling," he said, "but it's definitely worth it." Two days after Bender closes the door to his laboratory in the Boyer Center for the last time, he plans to walk into his new laboratory and start up exactly where he left off, alongside a host of new neighbors and colleagues. **YM**

Marc Wortman is a contributing editor of *Yale Medicine*. Frank Poole is a photographer based in New Haven. Daphne Geismar is a graphic designer based in New Haven.

### Of mice and magnets: what's inside the Congress Avenue Building

When admissions candidates toured the medical school in recent years, their student guides didn't go out of their way to show off Yale's overcrowded and poorly ventilated first-year gross anatomy and histology laboratories. That will be changing. "We will be putting the new building on the tour," said Associate Dean for Admissions Thomas L. Lentz, M.D. '64, professor and vice chair of cell biology. "Hopefully it will help in recruiting." A tour of the new building should also help attract the faculty who are expected to join the expanded research programs it will house.

What visitors to the north wing will find are **three floors of new teaching facilities**. The new anatomy and histology laboratories have been designed to improve interaction among students and faculty, with a U-shaped configuration replacing the traditional straight line of workbenches. The new building also provides computer network connections at every laboratory and seminar-room work space, as well as wall monitors and other audiovisual display systems. The small-group teaching focus at Yale will be enhanced by the six seminar rooms dispersed among the student laboratory spaces. A 152-seat auditorium adjacent to the large atrium lobby will bring students and faculty together for lectures and conferences.

Core research facilities serving the entire Yale campus fill a warehouse-sized space two floors below the lobby level. The **Animal Resources Center** will offer services for production of transgenic and gene-knockout mice, which are used as animal models in disease studies. On the two floors above, the Magnetic Resonance Research Center will serve investigators throughout Yale with nine powerful imaging magnets. Bioimaging faculty will have a large, open area for working together on advanced computational studies. Douglas L. Rothman, PH.D., director of the center, notes one pleasant advantage for him in moving from the center's current home in the Fitkin Memorial

Pavilion basement: "It will be the first time I've had a window since 1985."

The six floors of the massive south wing will house nine research programs. The two basic science components, the **Section of Immunobiology**, chaired by Richard A. Flavell, PH.D., and a new **Program in Human Genetics and Genomics**, directed by Richard P. Lifton, M.D., PH.D., will be neighbors of seven clinical research programs. They are:

**Arthritis and Autoimmunity**, under the direction of Joseph E. Craft, M.D., HS '77, a group that has, among other accomplishments, developed new tools for early diagnosis of lupus and is testing second-generation vaccines for Lyme disease;

**Asthma and Lung Diseases**, which is directed by Jack A. Elias, M.D., and has recently been credited with identifying two genes that cause pulmonary emphysema;

**Diabetes and Bone Diseases**, composed of three groups, one working on the causes of type I diabetes and led by Robert S. Sherwin, M.D., a second, directed by Gerald I. Shulman, M.D., PH.D., focusing on understanding the molecular basis of insulin resistance in patients with type II diabetes, and a third group looking at bone development, under the leadership of Arthur E. Broadus, M.D., PH.D.;

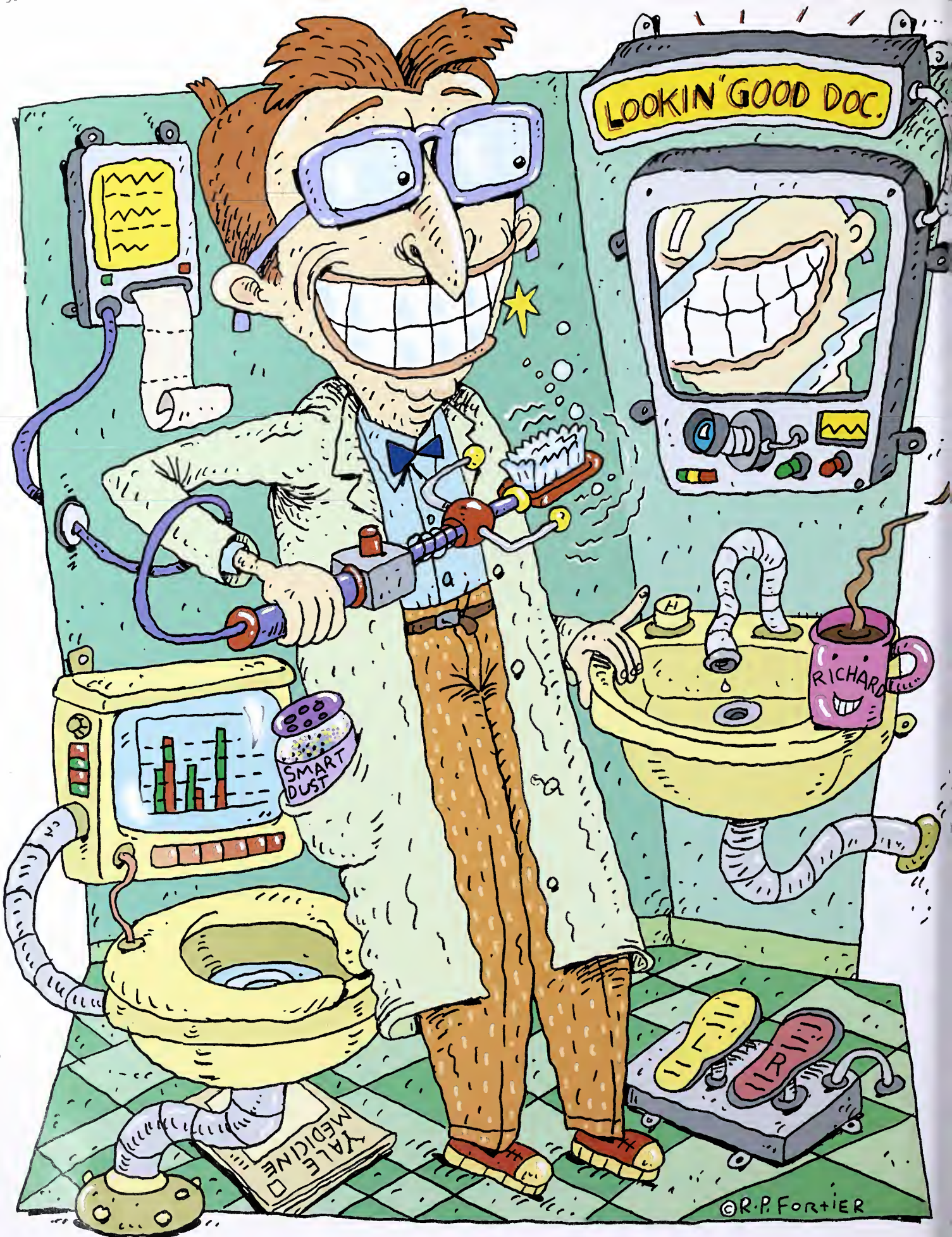
**Digestive Diseases**, directed by Henry J. Binder, M.D., recently won an NIH core grant to support its wide-ranging studies of the gastrointestinal tract and liver;

**Hypertension and Kidney Failure**, which studies the causes of diseases that affect 50 million Americans, under the leadership of Peter S. Aronson, M.D., and in close collaboration with Lifton;

**Infectious Diseases**, led by Keith A. Joiner, M.D., focuses on how parasites live in their host cells in the hopes of developing drugs to kill the pathogens causing such widespread diseases as malaria and toxoplasmosis; and

**Vascular Disease and Cardiology**, headed by Jeffrey R. Bender, M.D., HS '83, will bring together previously scattered researchers working on the genetics of heart disease, the leading cause of death in the United States.







## A futurist's view

**With smart dust, surgical robots, transgenic replacement organs and a 150-year life span now conceivable, Richard Satava says now is the time to face the ethical challenges that technology will bring to medicine.**

Every few months Richard M. Satava, M.D., visits colleagues at a lab at MIT where there's a coffee cup with his name on it. The cup also has embedded in it something called "smart dust," an electronic medium so small that it is barely noticeable as it receives and transmits information. When Satava places his cup in a coffee machine at the lab, the cup's smart dust tells the machine's smart dust how he likes his coffee, right down to the cream and sugar.

For Satava, a faculty member in the Department of Surgery from 1998 until last July, when he moved to the University of Washington, this smart dust has implications and applications far beyond the frivolity of getting his coffee right. [Satava came to Yale from DARPA, the Defense Advanced Research Projects Agency, which was established in 1958 in response to the Soviet Union's launching of Sputnik.] It is one of many technologies that offer the promise of longer, healthier lives. These technologies sit on the cusp of biology, engineering, nanotechnology and other sciences. They will revolutionize, he believes, not only medicine but also society. Some of these technologies are already in use; others soon will be. Society's task is not only to understand how to harness them but also to address how they will change what it means to be human.

Associate Editor John Curtis met with Satava before his departure last summer for Seattle to discuss the "biointelligence age" and its implications.



GALE ZUCKER

**You have described modern society as having entered “the biointelligence age.”**

**What does this mean?**

The biointelligence age is marked by the intersection of technologies to do things you can't do with a

single technology. It has become obvious that one of the most important things about the future of science and research is that the major disruptive technologies that are going forward are going to be coming from interdisciplinary research.

#### **What are disruptive technologies?**

Mobile communication is an example. We've gone from a telephone to a cell phone, and we've gone from dumb stuff to smart stuff. It may be in the not-too-distant future that there won't be any phones in any homes. Why do you need a phone at home if you've got one on your watch everywhere you go?

And so what used to be only a scientific research tool, as you saw with the Internet, became something that intruded in virtually every person's life. That's a disruptive change. Those technologies that are disruptive are no longer coming out of information or engineering alone, but from the intersection of two technologies. And you have enormous potential: disruptive technologies will displace other previously successful technologies. So that's the origin of the biointelligence age.

We had the agricultural age, the industrial age and the information age. If we look at our technologies, what we're seeing is that they're getting smaller and smaller in scale. And they're becoming smarter and smarter. So things like microsensors are going to be virtually everywhere. They're like a smart bar code. They interact, you can program them and they can tell you about themselves without having to be scanned.

#### **Where would these microsensors be?**

Virtually everywhere. This was coming out of Xerox Park Research Lab and the University of California, Berkeley, under the program Smart Dust. These particles are so tiny—they're the size of the head of a pin or smaller—but they're entire intelligence systems that have sensors on them that can sense the environment and store information. You can't see them without a microscope; that's why they're called dust.

**“The robot is not a machine. The robot is an information system.”**

They communicate with each other. So the environment is going to be smart instead of dumb. They're going to be in the food you eat, the clothes you wear, embedded in your body, absolutely everywhere. For example, when you came into this room, this desk would know it was you and rearrange itself for you.

Have you been able to buy anything lately that doesn't have a bar code on it? Probably not. But it's dumb. In the future, it will be smart. You plant the field and you spray it with the fertilizers and insecticides and smart dust—maybe a thousand different sensors per millimeter—and as the food comes up the smart dust gets incorporated into the plants. And the plants talk to the harvester: “Pick me. I'm ready. Don't pick me. I'm not ready.” It goes into the store. You've got a little handheld and you talk to the artichokes. “How ripe are you? How much do you weigh?” A world that used to be dumb and unconnected now gets connected, and that information gets shared.

#### **How is this going to be applied to medicine?**

We will have sensors throughout our bodies. So, as doctors, we'll be able to continuously monitor the health of individuals.

At DARPA we came up with something that got called the millennium toilet. The only place that we could monitor somebody and give a physical examination every single day would be in the bathroom. Everybody has to do their morning hygiene. What today is a dumb bathroom would become a smart one. When you brush your teeth, your toothbrush takes your blood pressure and looks for cavities. When you look in the mirror there is a little camera that looks at your eyes to check your diabetes or hardening of the arteries or any of the thousands of diseases that we can pick up by looking at your eyes. When you go to the toilet, it would check what's in there. If, for example, Grandma was supposed to be taking her digitalis and she's got Alzheimer's disease and can't remember, the toilet would know. Because there is supposed to be a certain level of the byproduct, and if it's not there that means she didn't take her medicine. So she can be reminded. So we would postulate that in the future we would be able to make the room a smart room and it would actually be kind of an aid for you.

#### **How do you envision technology affecting surgery?**

Eventually the majority of surgery will be done by computers, but we're talking a minimum of 50 to 100 years from now. You can do a total body scan of the patient; this is called the holographic medical electronic representation, or HOMER. You can



plan the operation on the HOMER. You'll have the opportunity to do it on the computer two or three different times and edit them together and get the perfect operation. And when you have got the perfect operation, the robot will do it faster, quicker, more efficiently and more precisely than you could. It's possible that you could just send the operation file somewhere, to India, and let the robot in India do it. You don't have to be there once you've programmed it exactly to the patient's specifications.

The robots, I think, have turned out to be the key, one of the major innovating components of the future of surgery. The important issue here is that the robot is not a machine. The robot is an information system. It sends bits and bytes back and forth and works in the information world. Most of the people I have talked to are thinking of them as nothing more than extensions of your arm. And that unfortunately is a very narrow vision of what they are.

You can give the surgeon X-ray vision because you can overlay where the blood vessels are inside of the organ. When you look at the liver, you can see all the bile ducts and all the arteries and the veins, which aren't visible to the naked eye. And then you can use that same data afterwards, when they finish the operation. And so we will know exactly what you have done with your surgery and how good your outcomes are. In addition to that, taking the analogy of the aviation industry, the robot is also a recorder. Every time I make a motion, it sends a signal to the arm to move in a specific way. All you do is tap into that and send it to the black box behind the surgeon. It's just like the black box behind the pilot when he flies the airplane. So we will have continuous recording and we'll be able to use that system to monitor how good the surgeon actually is. And this will help surgeons to improve the quality of their surgery.

**A few years ago you were testing "smart shirts" on climbers on Mt. Everest. These shirts could monitor vital signs and transmit them to base camp. Where does that technology stand now?**

About 18 months ago a company was set up for this, and this spring they're supposed to come out with the first commercial version that anybody can buy. And by that I mean you or your doctor can go to the store and order one of these shirts and you put it on, and it will begin taking your vital signs.

**How much will they cost?**

The probable production cost is somewhere between \$50 and \$75, so you should be able to buy the shirt for \$100 or \$200.

Not very expensive. And it's washable, you can use it for a long period of time and then you connect it to a little transmitter that sends the information on for analysis.

**Who would want to wear one of these?**

Oh, there are many, many people, whether they be the people who have a chronic disease like asthma, congestive heart failure or heart arrhythmia. There is a whole host of people that you can monitor various vital signs on. I think it would be super to put them on every high school or college athlete and be able to see how well they're performing. Every year we lose half a dozen young strong kids playing sports because they had some kind of unknown abnormality. And these can pick them up. There is a whole slew of different diseases that we know about that if we would screen for them we could prevent these deaths.

**Any technology has potential for misuse as well. Can you protect the confidentiality of the massive amounts of medical information that would be gathered and stored electronically?**

I always tell this little story and it has to do with the security of the medical record. When I was in the military in California, we were able to arrange it so that the people would come to their family practitioners in the morning. If they had something wrong and needed a surgeon, we'd see them that same afternoon. And so what would happen is they would have seen the doctor in the morning and then gone shopping or gotten lunch



## “If I am all pieces of metal and artificial organs, am I still human?”

or something, and they'd come back and see us. And every Saturday from the grocery, from the commissary over at the PX, from the department store, they would come with shopping carts full of medical records that people had left sitting on the checkout counter. Now I ask you, is electronic security better than people bringing back shopping baskets full of these medical records? It's not an issue really of whether or not it's secure. It's clearly, in my view, much more secure than anything we have today. But it's not perfect, and yet 95 percent of security breaches are from people on the inside misusing legitimate access to the information. The hackers that you read about in the newspaper account for less than 5 percent of all the losses of security of information. It's not a technical issue. Security is absolutely a regulatory issue or a human behavioral issue.

### What ethical issues do these new technologies pose?

The ethical issues that the new technologies are raising are far beyond anything that most people are addressing at this time. Security of medical records pales in comparison to the implications of the new technologies that are coming. Human cloning is one of them. There will be a human clone in 12 months. End of story. There is no question about that. And the reason is that there are two very reputable, very talented scientific groups offshore that have decided for reasons of their own that it is ethical to clone a human being. One of the groups has 200 families that have tried every single known method of creating their own child and have not been able to. Should we deny these families the opportunity to have children if we have the technology to give it to them? I don't know. On the other hand we don't want a version of *Brave New World*, where the gammas do all the physical work and the betas do all the clerical work and the alphas do all the management.

And that's brought to the forefront that there are many technologies that are accelerating so rapidly and we have not even looked at the potential behind them. When they come on the scene, we're going to be completely unprepared.

We need to look at a number of the issues in advanced technologies, no matter how hypothetical. There is research on apoptosis and telomerase, which we believe are the keys to longevity. There is no known human that has ever lived more than 120 years that's been documented scientifically.

Now you can control when a cell lives or dies, and you can make them live longer. They have allowed some rats to live the equivalent of three to five life spans. That is similar to

living 360 years instead of a maximum possible 120. What happens if we just double a human's average life span so everybody now lives 150 years? What is the implication of that? Am I going to have one career for 130 years or 150 years? When do I retire? Do I ever? How do we feed all the additional people? We are on the threshold right now. Who is looking at the implications of longevity?

A number of researchers are looking at salamanders and flat worms and beginning to find genes for regeneration. In these animals, if you cut off a leg they will grow a new one. Scientists at MIT and Massachusetts General Hospital have been growing synthetic organs made with stem cells and a vascular substrate. We now have a world with synthetic organs. What does that mean? It means a lot of things. Transplant is not going to be a problem. More important for me as a surgeon, right now I know about 20 different operations I do for different stomach problems. If you have an ulcer I do this procedure, if you have a cancer I do another procedure, if you're bleeding I do still a different procedure. In the future, if you have something wrong with your stomach, regardless of what the problem is, the stomach will be removed and replaced with one grown with your own stem cells. And, since I will do the same operation over and over, instead of many different ones, it will be possible for me to perfect the technique to provide you with a much better outcome.

Why should I repair an organ? The only reason for repairing now is that we cannot replace entire organs on everyone every time. What we will have in the not-too-distant future, approximately 10 to 20 years from now, is patients will have all these replaceable parts.

This prompts a very fundamental ethical question: what does it mean to be human? If I am all pieces of metal and artificial organs, am I still human?

This is just one of the many enormous ethical problems that technology is going to put on our plate. And the challenge is, are we courageous enough at this time to face them, or are we just going to scorn them out of ignorance? People say, "Well, that just cannot happen—that's just *Star Trek*." And then Dolly appears on the scene and we're unprepared for the question of human cloning. So I think we have had a warning, and it's time to look at these technologies and say, "Yes, they sound futuristic, but since we can't predict the future, it is incumbent upon us to look at them and be more prepared than we have been in the past." YM



**CLOCKWISE FROM TOP RIGHT**  
 1) Edmund Crelin, professor emeritus of surgery, and student Harsimran Singh listen to remarks by Deputy Dean Herbert Chase at a reception for the founding members of the Society of Disting-

guished Teachers in September. 2) Nancy Angoff, associate dean for student affairs, with student Michael Shapiro, who portrayed her in his class's second-year show last year. 3) Ralph Horwitz, chair of medicine, Marie Egan,

associate professor of pediatrics, and Michele Barry, professor of medicine and public health. 4) Society members Leo Cooney Jr., professor of geriatric medicine, and Lynn Tanoue, associate professor of medicine.

**Distinguished company**

Founding members of the new Society of Distinguished Teachers gathered for a reception on September 24 in the Beaumont Room. More than 60 members attended, all recipients of major teaching honors such as the Bohmfalk Prize, the Francis Gilman Blake Award, the Leah M. Lowenstein Prize, the Healthcare Foundation of New Jersey Humanism in Medicine Faculty Award and the Betsy Winters House Staff Award. Society members are expected to participate in curriculum discussions, advise junior faculty and mentor students. The society was formed to identify and reward outstanding teachers in an era of increasing demands on the time of both clinicians and basic scientists. The society will create term-limited chairs in medical education, with financial support. The society will also develop educational leaders to foster innovation in the curriculum. Members of the society will be asked to help raise funds for these initiatives.



ERIC KANE (4)

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## Neurobiologist named university provost

Susan Hockfield, a basic scientist and a dean, becomes first medical school faculty member to hold post.

In another era, the appointment of **Susan Hockfield**, PH.D., as provost might have been remarkable because of her gender. But since the 1970s, three other women—Hannah H. Gray, Judith Rodin and Alison F. Richard—have held Yale's top academic post.

"What is perhaps more unusual in my appointment as provost at Yale is that I'm a scientist," Hockfield, the William Edward Gilbert Professor of Neurobiology, said in December. Hockfield, who was appointed dean of the Graduate School of Arts and Sciences in 1998 and reappointed last fall to that post by President Richard C. Levin, is the first medical school faculty member to hold either position.

In her new job, she is the university's chief educational and administrative officer, overseeing academic policies and activities throughout the university. All deans report to her, and she has institutional responsibility for the allocation of resources, chairing the university's budget committee.

In an interview, Hockfield said she is excited by the opportunity to serve during "a terrific new era for Yale" in which the university is focusing on science and engineering, internationalism, the rebuilding of the campus and, most recently, review of the Yale College curriculum. "The university is more unified and the campuses really talk to one another," Hockfield said. And compared to a decade ago, a time when the physical plant had declined drastically, its buildings and grounds are in great shape. "Yale is now in a fabulous period of renewal. Who would have guessed that a 300-year-old university could turn as sharply and move as quickly?"

Hockfield, who joined the Yale faculty in 1985, has retained her laboratory on the third floor of Sterling Hall of Medicine while serving as graduate school dean. She directs a program of research focusing on the development of the mammalian brain, with a special interest in the progression of brain tumors, especially gliomas. She is the author of more than 90 scientific papers and is primary author of the text *Molecular Probes of the Nervous System: Selected Methods for Antibody and Nucleic Acid Probes*. She hopes to continue her scientific work while serving as provost but doesn't yet know to what extent that will be possible. Her focus is on the work ahead.

"I have said that being graduate school dean is the best job in the university, because of the breadth and diversity of the academic activities of the graduate school," she said. "But the provost engages an even larger array."

Hockfield succeeds Alison Richard, an anthropologist who has been named vice-chancellor of Cambridge University in the United Kingdom. President Levin announced in January that Hockfield will be succeeded as graduate school dean by **Peter Salovey**, PH.D., chair of the Department of Psychology and deputy director of the Center for Interdisciplinary Research on AIDS, based at the School of Public Health.



Yale President Richard C. Levin applauds after announcing the appointment of Susan Hockfield, right, as provost in mid-December.

## Three professors, authorities in genetics and immunology, receive Sterling honor

Three faculty members at the School of Medicine have been named to Sterling chairs, one of the university's highest tributes.

**Richard A. Flavell**, PH.D., known for his pioneering research on gene structure and critical genes of the immune system, has been appointed Sterling Professor of Immunology. **Richard P. Lifton**, M.D., PH.D., the newly designated Sterling Professor of Genetics, has identified genes that can make people susceptible to cardiovascular disease, renal disease and osteoporosis. **Ira Mellman**, PH.D., the new Sterling Professor of Cell Biology, is studying how individual cells organize their internal components to accomplish higher-order functions relevant to cancer and the body's natural immunity to cancer.

Flavell's laboratory is trying to understand how the immune system recognizes and responds to infectious agents and why it sometimes attacks the body's own cells. Since 1988, Flavell has served as chair of the Section of Immunobiology at the School

of Medicine and as a Howard Hughes Medical Institute (HHMI) investigator.

Lifton received the 2002 Basic Research Prize from the American Heart Association for his discovery of mutations that cause hypertension and low blood pressure, findings that have established the central role of the kidney in blood pressure regulation and allowed Lifton and colleagues to identify new therapeutic targets. He is chair of the Department of Genetics and has been an HHMI investigator since 1994.

Mellman is exploring fundamental questions of membrane traffic—how molecules find each other and their intended sites of residence inside cells. His research team has focused on two areas: identifying the molecular mechanisms responsible for directing membrane components to their correct locations in epithelial cells, neurons and lymphocytes; and determining how the immune system processes antigens, agents that induce the formation of protective responses to foreign invaders as well as to cancer cells. A member of the Ludwig Institute for Cancer Research since 1999, Mellman chairs the Department of Cell Biology at Yale.



Richard Flavell



Richard Lifton



Ira Mellman



**Elizabeth H. Bradley, M.B.A.,**

PH.D. '97, associate professor of epidemiology and public health, left, and **Barbara I.**

**Kazmierczak, M.S., M.D., PH.D.,** assistant professor of medicine and microbial pathogenesis, were recipients of the 2002 Donaghue Investigator Program Awards for Health-Related Research. The awards, announced in October by the Patrick and Catherine Weldon Donaghue Medical Research Foundation, provide grants of \$100,000 a year for five years to prepare medical researchers for an independent research career and for leadership in research to benefit human life. Bradley's research objective over the five-year period is to examine why clinical care often deviates from clinical guidelines that are widely supported by scientific evidence. She is the first recipient from Yale's School of Public Health. Kazmierczak is interested in determining how the lung defends itself against microbial pathogens and hopes to develop a better understanding of how epithelial cells contribute to innate and acquired immunity to reduce the risk of opportunistic infections.

**John A. Elefteriades, M.D. '76, HS '83,** professor and chief of cardiothoracic surgery, has received several honors this year, including appointment to the editorial board of the *American Journal of Cardiology*, election to a three-year term on the American College of Cardiology Board of Governor's Steering Committee and appointment as secretary

of the International College of Angiology for a two-year term. Elefteriades also delivered the annual Stanley K. Brockman Visiting Lecture at MCP Hahnemann University School of Medicine in June.

**Robert H. Gifford, M.D., HS '67,** professor emeritus of medicine, was honored in May upon his "second" retirement, after two years of teaching science to the students of Sacred Heart/St. Peter's School. A benefit to honor Gifford raised \$25,000 for scholarships. Faculty at the school also created the Robert H. Gifford Science Award, which will be given annually to an outstanding science student.

Gifford brought the first science curriculum to the parochial school after he retired from Yale in 2000 as the medical school's deputy dean for education. The addition of the science program has allowed the students to gain an appreciation for how scientists collect information and the importance of paying attention to detail.

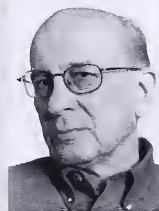
**R. Lawrence Moss, M.D.,** associate professor of surgery and a recent addition to the School of Medicine faculty, has joined the staff at the Yale-New Haven Children's Hospital as surgeon-in-chief. He is known for his leadership in clinical research in children's surgery and the development of evidence-based surgery. Moss is spearheading a clinical trial in 12 centers across the country to investigate different ways of treating premature newborns who suffer from necrotizing enterocolitis, a severe inflammatory disorder of the intestines.

**Frederick Naftolin, M.D., D.Phil.,**

professor of obstetrics and gynecology and professor of molecular, cellular and develop-

mental biology, received the Arnaldo Bruno International Prize for Gynecology from the National Academy of Italy. The prize was presented in June by the president of the academy. Also present at the award ceremony was the president of the Republic of Italy. Naftolin, honored for his "superior scientific activity," has spent more than three decades studying the metabolism and action of ovarian steroid hormones, particularly estrogen and its congeners.

**Pasko Rakic, M.D., PH.D.,** chair and professor of neurobiology and the Doris McConnell Duberg Professor of Neurosci-

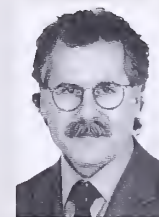


ence, received the 15th annual Bristol-Myers Award for Distinguished Achievement in Neuroscience Research for his discovery of the principles and molecular mechanisms of neuronal migration. He was awarded \$50,000 and a commemorative medallion. The latest research from Rakic's laboratory indicates that genes associated with neuronal stem cell differentiation in early development also have a role in maintaining neuronal structure and their connections in the adult brain, thereby participating in the origin of neurodegenerative diseases.



**Alan C. Sartorelli, PH.D.,** the Alfred Gilman Professor of Pharmacology, and **Elias Lolis, PH.D.,** associate professor of pharmacology, were among the recipients of the 2002 Glaxo-SmithKline Drug Discovery and Development Award announced in October. Six researchers will split a \$500,000 unrestricted research award to support development of HIV/AIDS therapeutics. Sartorelli will receive \$100,000 for his research, which focuses on making certain enzyme inhibitors work more effectively. Lolis is attempting to counter the likely side effects of some of the experimental entry inhibitor drugs.

**Douglas W. Vaughn, M.D., D.D.S.,** assistant professor of anesthesiology, has been appointed medical director of



perioperative services at Yale-New Haven Hospital, where he served as clinical director for the Department of Anesthesiology. In his new position, Vaughn will work to streamline operations, improve operating room efficiency and continue excellence in patient care and safety.

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## With diverse roots and much in common, Class of 2006 is welcomed to Yale

As with many of the classes that have come before, the Class of 2006 is a group of individuals with strong similarities and equally striking differences. About half the students attended Ivy League colleges, yet not all came to Yale straight from their undergraduate studies. Among the new students are a jet fighter pilot and a 40-year-old grandmother (See *Long Road to Cedar Street*, p. 16). Also in the group are a record-breaking equestrian, a juggler who demonstrated his skills at a lunch for the new class, and students who organized programs or businesses that developed patient information software, published books and taught self-defense to women and teenage girls. The class includes students born in Saudi Arabia, Nigeria, Vietnam, Cuba, Austria, China, Norway, the United Kingdom and Canada and students fluent in a variety of languages including French, German, Yiddish, Hebrew, Chinese and Japanese.

On the afternoon of August 27, these 55 women and 45 men gathered under a tent on Harkness Lawn for a ceremony that both unites them in a calling and symbolizes their profession. "Donning a white coat marks a rite of passage," said Charles J. Lockwood, M.D., FW '89, the new chair of obstetrics and gynecology, and keynote speaker at the White Jacket

Ceremony. "A white coat is a potent and durable symbol of medicine's rich past and exciting future."

Tracing the history of medicine in the United States, Lockwood noted that many teaching techniques of the 19th century are still in vogue, as are humanism and a reverence for life.

"What has changed is the quality and quantity of material that must be taught," he said, recalling his first day as a medical student 25 years ago. "My dean told us that over the next four years we would double our vocabulary." He became a physician before personal computers, before AIDS, before PET scans and before FedEx could deliver specimens overnight.

"Indeed, the structure of DNA had only been discovered 25 years before. What occurred over the next 25 years is too amazing to contemplate."

Dean David A. Kessler, M.D., closed the ceremony by asking for a promise from the new students. "Becoming a doctor is a privilege," he said. "In exchange for that privilege I want you to change the world. I want you to do some good. The request I have of you is for the rest of your life."

—John Curtis



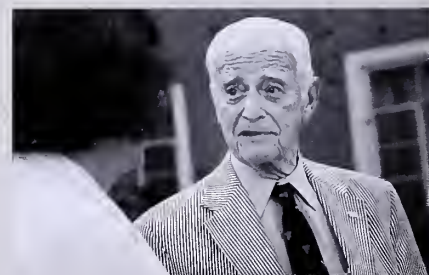
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**FROM TOP 1)** Nana Akua Asafu-Agyei and Calvin Barnes wait to don their white jackets during the ceremony on Harkness Lawn in late August. **2)** Michael Reel was joined at the ceremony by his wife Susan and their one-year-old daughter, Julia. **3)** Kendra Klang received her white jacket from Dean David Kessler. **4)** Among the more than 40 alumni who attended the ceremony was Lycurgus Davey, who received his medical degree in 1943.





JOHN CURTIS

Physician Associate Program graduates Kristen Cushing and Christine Ho wait for the procession in Harkness Auditorium to begin.

### Be true to yourself, your education and your profession, PA grads urged

In her Commencement address, Ina Cushman, PA-C '86, president of the American Academy of Physician Assistants, urged the graduates in the Physician Associate Class of 2002 to hold three values dear: "Be true to yourself. Be true to your profession. Be true to your education," she said. "These three pieces add up to a whole and complete life.

"Do not lose sight of who you are and where you came from," she continued. "Do not lose sight of what is important in your life. Take time to think about your family, friends and colleagues. Actively seek balance in

your life. There is a time for work and a time for play."

William R. Miller, PA '02, president of the Class of 2002, noted that because of the small class size—about 35 students—and the intensity of the concentrated 25-month curriculum, physician associates tend to form close friendships. "Everyone is an integral part of the group," he said in remarks at graduation in September. "You don't get to pick and choose who you talk to. You have to deal with everyone." The group included, according to Miller, "a devout Muslim from Virginia ... a former engineer ... a frat boy from Connecticut ... a French Canadian with a black belt in aikido ... a hyper, 30-something surfer dude ... and a nomadic 40-something from everywhere with a zest for life."

—John Curtis

### Surgery program sails forward

Last February, the Accreditation Council for Graduate Medical Education (ACGME) threatened to withdraw approval of Yale's general surgery residency program because of its 100-hour work weeks and every-other-night call schedule. After steps were taken to reduce hours [Summer 2002, "Surgical Residency Revamped" p. 7], the ACGME announced in October that the program would continue without interruption. "We are very pleased, and we are moving along," said Director John H. Seashore, M.D. '65, HS '70, professor of pediatric surgery. The program now limits residents' work weeks to 80 hours, cuts back the number of days they are on call and has added 12 physician associates and other staff to extend coverage.

Seashore said residents have traditionally worked long hours, often doing administrative work or patient transport, tasks that can be performed by others. The ACGME's action, he said, prodded the medical school and Yale-New Haven Hospital to address a longstanding imbalance between education and service. "In some ways they are the ammunition that forces the institution to say 'We've got to expend the resources to fix this,'" Seashore said. "In two years they will revisit us and there is no question in my mind that we will get full accreditation at that time." The surgery program had held provisional status since merging with several other residency programs in 1995 and, under ACGME rules, had to be considered a new entity.

—John Curtis

## Gut feeling

Gastroenterologist Juanita Merchant followed her intuition to a new view of how the stomach deals with acid.

By Nancy Ross-Flanigan

Photographs by George Waldman

Temperatures hit the 100-degree mark and just kept climbing on the summer day when Juanita Merchant tackled Lava, the most challenging rapid on her 8-day rafting trip through the Grand Canyon in 1993. Only the occasional splash of chilly river water offered relief as her oar dipped in and out of the churning froth. But the heat was hardly her main concern. Stroking in synchrony with her raftmates, Merchant could only hope that they would slide into Lava at precisely the proper point and paddle at just the right moment to avoid crashing into boulders or flipping over. There was no turning back, no second-guessing. It was a matter of trusting their instincts, believing that the river would eventually smooth out and take them where they wanted to go.

Trusting one's instincts is as important in research as in roiling rapids, says Merchant, a 1984 graduate of Yale's M.D./PH.D. program who is now an associate professor at the University of Michigan. Her recent work on stomach ulcers is a case in point. Ultimately, she and her co-workers showed last year that suppressing stomach acid with prescription drugs called proton pump inhibitors can allow bacteria to flourish, triggering inflammation and ulcers that may lead to cancer. But before they could reach that conclusion, the scientists had to rethink

almost everything they had been taught about stomach acid secretion, and to trust clinical observations and experimental results that seemed to fly in the face of conventional wisdom.

The standard textbook explanation of how acid secretion is regulated revolves around the hormone gastrin, which is produced by specialized cells in the stomach when acid levels are low. Gastrin acts on acid-secreting cells to induce and maintain the proper level of acidity; then a feedback mechanism turns off further gastrin production and acid secretion. But this time-honored view doesn't square with what Merchant and other gastroenterologists see in patients infected with *Helicobacter pylori*, the bacterium implicated in ulcers. Somehow, *Helicobacter* thwarts the feedback response, and the stomach just keeps pumping out acid, which eventually leads to ulcers. To better understand the process, Merchant's research team developed a strain of mice that couldn't produce gastrin. The plan was to infect these mice with *Helicobacter* and see if they would still develop inflammation and ulcers. The researchers ran into a snag that again challenged their assumptions: mysteriously, infecting the mice with *Helicobacter* was virtually impossible, and yet the uninfected animals were showing signs of inflammation, just as if they had bacteria in their guts.

"We could have just said, 'Well, this isn't working, so let's chuck this model and move on to something else,'" says Merchant. "But I knew we had technically executed this experiment correctly, so I reasoned that the data must be telling us something. I always tell my postdocs that it's almost like there's a secret door waiting to be uncov-





Juanita Merchant says the mentoring she received as a student in Yale's M.D./PH.D. program exerted an important influence on her career. She now fills the same role for students at the University of Michigan, where she is an asso-

ciate professor. "We have little training sessions: How do you write an abstract? How do you present a 10-minute talk? ... I could just hand them a stack of examples, but it's not the same as having me sit next to them explaining how to do it."

ered. If you sit down and really organize your data and look at it without tunnel vision, without being bound by assumptions, you'll find a way to move through that door."

By scrutinizing their data and carefully performing a series of experiments, the researchers figured out that low acid levels in the gastrin-deficient mice had allowed a variety of other bacteria to flourish in their stomachs, preventing *Helicobacter* from gaining a foothold. But far from protecting against the effects of *Helicobacter*, these other bacteria, such as *Staphylococcus* and *Pseudomonas*, were themselves triggering inflammation.

"It seems that the stomach is almost like a rheostat, with acid levels controlling which organisms end up growing there," says Merchant. *Helicobacter* thrives when acid levels are high; when levels drop, other bacteria take over. The finding that these other bacteria can stir up their share of trouble overthrows the notion that *Helicobacter* is the only bug behind the kind of chronic stomach inflammation that can lead to cancer.

But the implications of Merchant's research don't end there. If low acid levels allow bacteria to run rampant, what does that mean for the millions of Americans who seek relief from heartburn and ulcers by gulping down acid-controlling pills every day? Merchant can't say for sure, but another set of experiments in mice suggests that long-term use of such drugs may do more harm than good. In these experiments, Merchant and colleagues at the University of Michigan treated normal mice for two months with a proton pump inhibitor, a type of drug that blocks acid secretion (Prilosec and Prevacid are examples). Sure enough, the mice developed inflammation that subsided only when the bur-

geoning bacteria were controlled with antibiotics. Merchant isn't telling patients to dump their pills, but she cautions against taking high doses over years or decades.

She plans to follow up the findings with studies of patients. "Mice obviously can't tell you when something hurts or feels better," says Merchant, a former Howard Hughes Medical Institute investigator who sees patients on rotation as an attending physician in the U-M Health System. "So we really need to correlate the inflammatory changes due to these other bacteria to symptoms that patients have."

Though she never set out to overturn the view that *Helicobacter* is the sole culprit in ulcers or to question the use of popular acid-reducing drugs, once the results were published—in the January 2002 issues of *Gastroenterology* and the *American Journal of Physiology/Gastrointestinal and Liver Physiology*—Merchant felt prepared to stand behind her conclusions. She had braced herself for criticism, but says that so far it hasn't come. In fact, in an article in the April *American Society for Microbiology News*, Martin J. Blaser, M.D., whose earlier work uncovered the *Helicobacter*-ulcer connection, agreed that getting rid of *Helicobacter* can allow other bacteria to colonize, with potentially harmful results. And in a commentary in the November 2002 issue of *Gastroenterology*, the journal of the American Gastroenterological Association, Richard M. Peek Jr., M.D., concurred with Merchant's hypothesis that other bacteria can induce and perpetuate the inflammation.

Even if peers had been critical, Merchant probably wouldn't have wavered. Wavering just isn't in her makeup. That confidence comes in part from her scientific and medical training, she says, but also from earlier influences.



"My mother was a teacher, and she raised my brother and me by herself," she explains. "My father left when I was in fourth grade, and seeing my mother struggle at such a young age made a lasting impression. She also instilled in us the importance of getting an education and not letting anything deter us." That resolve, in turn, traces back to Merchant's mother's childhood on a small farm in Oklahoma, where *her* mother was determined to help the family get ahead. "It was a family of 13, and everyone was expected to work on the farm," says Merchant, 46, who now has a daughter of her own, 3-year-old Olivia. "I remember my mother telling me that her mother used to take her place in the field so that she could go to school."

Determination does run deep in Merchant's lineage, but she would be the first to acknowledge that sheer will and ability aren't always enough. Sometimes you need an expert guide to show you the way, she says, again drawing parallels between whitewater rafting and negotiating the career challenges of a physician-scientist.

"As a novice rafter, there were times when my well-being was completely dependent on the skill of the guide calling out orders from the rear of the raft," she recalls. Similarly, she would have been adrift without mentors who guided her, from her undergraduate days at Stanford through her time at Yale, where she studied with Russell Barnett, to her faculty position at Michigan. It was in Barnett's lab that she learned "how to think about science" while working on membrane biogenesis in the duck salt gland. Her very first mentor as a sophomore Stanford pre-med student was Renu A. Heller, PH.D. '69, who suggested she obtain both a doctorate and a medical degree at Yale. She's also grateful to her first clinical mentor, Rosemarie L. Fisher, M.D., FW '75, professor of medicine at Yale, who helped her stay focused on her goals and showed by example that a woman could succeed in a male-dominated subspecialty. Now in the mentor's role, Merchant is the one at the rear of the raft, offering guidance to her students and postdocs. It's not enough simply to expect them to follow her lead, she believes. To make sure they're adequately equipped for their future careers, she meets with each person in her lab individually. "We have little training sessions: How do you write an abstract? How do you present a 10-minute talk? How do you present an hour-long talk? How do you write a five-page grant? How do you write a 10-page grant? I could just hand them a stack of examples, but it's not the same as having me sit next to them explaining how to do it." But unlike the whitewater guide, you won't hear Merchant barking orders.

"I believe," she says, "in a gentler approach to bringing people along."

Nancy Ross-Flanigan is a freelance writer in Belleville, Mich., and a former science writer for the *Detroit Free Press*. George Waldman is a photographer based in Detroit.

## For Nobelist educated at Yale, "It's like winning the lottery"

Almost a century after mass spectrometry was first used to analyze small molecules, a Yale doctoral alumnus and former professor has shared in the 2002 Nobel Prize in Chemistry for his pioneering efforts to apply the technique to large molecules, such as proteins.

His discovery, electrospray ionization (ESI), allows scientists to gauge the weight of large molecules and determine quickly and accurately what proteins are in a sample. **John B. Fenn**, PH.D. '40, professor emeritus of chemical engineering at Yale, described his technique in a paper in *Science* in 1989. Evidence of his method's significance is clear: last year alone more than 1,700 scientific papers that relied on ESI were published.

"What really gave it a kick in the pants was the advent of proteomics," Fenn said when reached by phone three weeks after he heard the news. "It turns out that ESI is one of the most sensitive ways of getting accurate values of the mass of protein molecules. With the right instruments it has got such tremendous resolution that you can distinguish individual protein molecules even though they are in with a whole bunch of others in the sample."

In its citation, the Royal Swedish Academy of Sciences said Fenn's work has led to "increased understanding of the processes of life," quickened the pace of drug development and led to faster diagnoses of cancer.

Fenn received the news of the award at his home in Virginia, where he is a professor of analytical chemistry at Virginia Commonwealth University in Richmond. He shared the award with two other researchers, Koichi Tanaka, an engineer from

Japan, and Kurt Wüthrich, PH.D., of Switzerland. Tanaka worked on other applications of mass spectrometry and Wüthrich used nuclear magnetic resonance to determine protein structures.

"It's like winning the lottery," Fenn says. "I'm still in shock."

The technique he described in his 1989 paper solved a problem that had bedeviled scientists since 1912, when mass spectrometry was first used to analyze small molecules. Mass spectrometry worked only for molecules that weighed up to 1,000 times as much as a hydrogen atom. Using ESI, Fenn turned large molecules into smaller ions, without causing them to decompose. He created charged droplets by spraying molecules with water in an electrical field. As water evaporated from the droplets, only protein ions remained. Their mass could be determined by setting them in motion and measuring how long they took to travel a set distance.

Fenn, who received his doctorate in chemistry from Yale in 1940, returned to his alma mater in 1967 as a professor of chemical engineering, after stints in the chemical industry and on a U.S. Navy jet propulsion project. In 1978, with colleagues in chemistry and medicine, he began the work that led to the development of ESI.

Fenn left for Virginia in 1994, after his wife's death and disagreements with the university over lab space. (His daughter, Barbara Fenn Reif, retired in December as director of student and alumnae affairs at the School of Nursing.) He's still teaching and doing research, concentrating on the "conformation problem" of proteins. "How they fold and why they fold and what they fold to are extremely important problems because they determine what chemical reactions they do," he says. "We are trying to pursue that."

And, of course, his main tool is ESI.

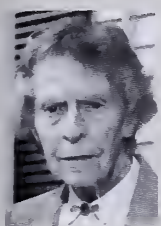
—John Curtis





## A long life, steeped in science and medicine

Elizabeth R. Harrison, M.D. '26,



one of the first women to graduate from the School of Medicine and pediatrician to three

generations of New Haven children, celebrated her 103rd birthday on November 2.

A medical career seemed a natural choice for a young woman growing up with a father who did research in embryology. "I was just immersed in all this," Harrison says of medicine, during an interview at the Whitney Center in Hamden, Conn., where she lives. She was the daughter of Yale zoologist Ross Granville Harrison, M.D., PH.D., known for developing an early method for growing animal cells *in vitro* in the early 1900s. Having been exposed to her father's work, Harrison had no qualms about performing her first human dissection in medical school. "All you did was take a scalpel and move the muscle and isolate it and report it on the chart. There wasn't anything to be squeamish about," she recalls. "My father had taken us tadpole hunting and we'd worked with live animals, so I didn't think anything of it."

Harrison was born in Baltimore in 1899. Her German-born mother spoke five languages, and Elizabeth Harrison grew up speaking German and English. According to her nephew, Ross Granville Harrison III, Harrison was visiting Germany on the eve of World War I and found herself trapped there by war for three years. She returned to New Haven to graduate from Hillhouse High School, began college at Smith, then transferred to the University of Chicago.

When asked if she faced prejudice as a woman in medicine, Harrison says that whatever problems she encountered, she kept to herself. "If I had shot my

mouth off, I never would have gotten anywhere. I was very reticent about my experiences."

Her nephew says Harrison has spoken obliquely of feeling ostracized or passed over during medical school and in her early years in practice, but "as she would say, she doesn't like to be a crab."

Harrison lived above her Bradley Street office. Never married, she maintained a very busy practice. "She was a spectacular diagnostician," her nephew says. "She would take one look at a kid and tell you what was wrong with him. She had instincts that were bigger than life."

He says Harrison still saw patients into her 90s. When he took her to celebrate her 102nd birthday with a dinner at Mory's, she was not just visiting a Yale landmark but also returning to her childhood home; what is now Mory's was faculty housing when her father was named chair of Yale's zoology department, her nephew said, and the family lived there from 1907 to 1911. Harrison still very much enjoys music (although she claims she "flunked" piano). She hummed along when a group of Whiffenpoof alumni sang at the Whitney Center last fall.

—Cathy Shufro

*We are sorry to report that Dr. Harrison died on January 5, as this issue of Yale Medicine was going to press. A memorial service at Battell Chapel is planned for February 15.*



Harrison's father, Ross Granville Harrison, chaired Yale's zoology department in the early 1900s.

## A Yale connection to Thailand—and the King of Siam

When Kanya Suphapeetiporn,



M.D., PH.D. '02, finishes her pediatrics residency in Brooklyn and heads home to her faculty position

in Thailand, she hopes to send some of her best students back to Yale for educational exchanges. If they do come, it will be nothing new: the link between Yale and Chulalongkorn University, where Suphapeetiporn is both alumna and junior professor, has a long history.

It began 20 miles from New Haven, more than 30 years ago. In the late 1960s, Nicholas P.R. Spinelli, M.D. '44, served as a mentor to a young doctor from Thailand doing an internship at Bridgeport Hospital, a Yale-affiliated hospital where Spinelli was director of medical education. That man, obstetrician Supawat Chutivongse, M.D., went on to become dean of Chulalongkorn's medical school in Bangkok. Since then, he and Spinelli have worked together to bring a dozen of the school's strongest graduates to Yale to hone their skills.

Spinelli helped Suphapeetiporn apply to Yale's doctoral program in the Department of Genetics, where she did research in cancer genetics. Suphapeetiporn plans to set up a basic research lab when she gets back to "Chula," the university named in 1917 after the beloved Thai King Chulalongkorn, King Rama V. (His father, King Rama IV, was portrayed by Yul Brynner in *The King and I*.) Spinelli met Suphapeetiporn at the airport when she arrived in 1996, invited her to his home, attended her thesis presentation and watched her graduate last May. Suphapeetiporn enjoyed listening to Spinelli's stories from a career in medicine that included private practice as an internist, overseeing the Bridgeport residency program

and directing alumni affairs for the School of Medicine.

Reached by telephone after a long night on call at the State University of New York Medical Center in Brooklyn, Suphapeetiporn says that Spinelli's dedication to former students is exemplified by the fact that he's kept in touch with her dean at Chula for more than 30 years. "I am so impressed that they still keep in touch," she says.

While at Yale, Suphapeetiporn spent most of her time in the lab and the library, but she also enjoyed New Haven's first-rate pizza and New England's hiking trails. Two years ago, Yale's community of Thai students, numbering about a dozen, gained a new member: a colleague of Suphapeetiporn's from Chula, Atapol Sughondhabirom, M.D. He is doing a postdoctoral fellowship in psychiatry, studying the genetics of drug addiction. Sughondhabirom and his advisors have a grant to train Thai students in the genetics of psychiatric disorders, further strengthening the connection between Yale and Chula.

Spinelli says he is impressed that every Thai student he has known has returned to Thailand. Planning to follow suit, Suphapeetiporn is eager to get home. "I think," she says, "that I can do something useful."

—Cathy Shufro

### 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](mailto:ymm@yale.edu) or write to Faces, Yale Medicine, P.O. Box 7612, New Haven, CT 06519-0612.

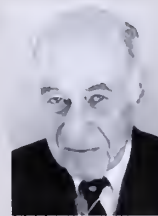
### Cell biologist wins Lasker prize

**James E. Rothman**, PH.D. '71, the Paul A. Marks Chair of the Cellular Biochemistry and Biophysics Program and vice chair of the Sloan-Kettering Institute, was one of two scientists honored with the 2002 Albert Lasker Award for Basic Medical Research. Rothman and colleague Randy W. Schekman discovered the universal molecular machinery that orchestrates the budding and fusion of membrane vesicles, a process essential to organelle formation, nutrient uptake and secretion of hormones and neurotransmitters. The mission of the Albert and Mary Lasker Foundation is to increase public awareness, appreciation and understanding of promising achievements in medical science in order to promote public support for research.



### 1940s

**William G. Anlyan**, M.D. '49, chancellor emeritus of Duke University Medical Center, was awarded the Distinguished



Meritorious Service Medal by Duke University at its Founder's Day celebration in October. The award, the university's highest honor, was presented for his 24 years of service and leadership as chancellor. Anlyan, an innovator in medical education and an exemplar in nurturing the careers of colleagues, is also a trustee of The Duke Endowment and a board member for Research!America, an alliance for discoveries in health.

The Yale Eye Center honored **Rocko M. Fasanella**, M.D. '43, HS '50, in June with a scientific program at the New Haven Lawn Club that highlighted new advances in his subspecialty, oculoplastic surgery. From 1951 to 1961 Fasanella was the chief of ophthalmology in the Department of Surgery.

His contributions to ocular surgery were the focus of a talk on Fasanella's career offered by his son-in-law, Richard Petrelli, M.D., assistant clinical professor of ophthalmology. Fasanella was again feted at the evening Reunion and Commencement Banquet of the Yale Alumni in Ophthalmology, which was attended by his five children and three of his grandchildren, as well as many colleagues. The Fasanella family presented a portrait of Fasanella to hang in the Department of Ophthalmology and Visual Science.

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[info.med.yale.edu/yymm](http://info.med.yale.edu/yymm)



1960s

**Augustus A. White III, M.D.,**



PH.D., HS '66, orthopaedic surgeon-in-chief emeritus at Beth Israel Deaconess

Medical Center, the Ellen and Melvin Gordon Professor of Medical Education at Harvard Medical School and master in the Oliver Wendell Holmes Society, was awarded the 2002 Elmer and Rosemary Nix Ethics Award at the October annual meeting of the Clinical Orthopaedic Society (COS) in Indianapolis. The COS is an invitational society established in 1912 that focuses on clinical practice. White was recognized for his life's work in teaching the ethical practice of orthopaedics. In June, he was also named to the National Advisory Council on Minority Health and Health Disparities of the National Institutes of Health.

1970s

After working on mixed radiological/chemical contamination issues for eight years at a Department of Energy facility, **Peter J. Gorton, M.P.H.** '79, writes that he has spent the last six years as president of Panamerican Environmental Inc., a consulting firm in Buffalo, N.Y. The firm specializes in real estate due diligence, petroleum contamination remediation and forensic investigation, and brownfields assessment and remedial alternatives.

**Michael S. Siclari, M.D., M.P.H.**

'78, left us a note on the alumni website to tell us that he is an assistant professor of clinical medicine at Brown and a staff physician in the emergency department at Roger Williams Medical Center in Providence, R.I. He is a member of the American Board of Internal Medicine and the Board of Certification in Emergency Medicine. Siclari is also an associate medical director of Care Advantage Inc. for Blue CHIP of Rhode Island. He and his wife, Lynn, and three children, Stephen, Peter and Katherine, live in Providence.

1980s

**Susan R. Carter, M.D.** '89, has married fellow ophthalmologist Marco A.E. Zarbin, M.D., PH.D. Carter was an associate professor and vice chair of ophthalmology at the University of California, San Francisco, Medical Center, and is relocating her practice to the New York metropolitan area. Zarbin is professor and chair of the Institute of Ophthalmology and Visual Science at the New Jersey Medical School at Newark. Carter and Zarbin were married on August 31 by a Presbyterian minister at the Yale Club of New York.

**Lynne Perry-Bottinger, M.D.** '86,



an interventional cardiologist in private practice in New Rochelle, N.Y., and clinical assis-

tant professor of medicine at Weill Medical College of Cornell University and at Columbia University, reports that she is "apparently one of only three African-American women who are interventional cardiologists in the United States, out of a pool of about 20,000 cardiologists overall."

**Valerie E. Stone, M.D.** '84, recent-



ly joined the faculty at Harvard Medical School as an associate professor of medicine.

She is also on the staff of the Massachusetts General Hospital, where her new roles include serving as associate chief of the General Medicine Unit, co-director of the Primary Care Internal Medicine Residency Program and senior scientist at the hospital's John D. Stoeckle Center for Primary Care.

1990s

Neuroscientist **Mark G. Barad, M.D.** '91, PH.D. '91, has been named the first Faculty Scholar by the Tennenbaum Family Interdisciplinary Center for Initiatives in Brain Research at the University of California, Los Angeles (UCLA). The center, established earlier this year with a four-year, \$1 million gift from Michael E. and Suzanne Tennenbaum, created the scholar position to help spur unique, collaborative research into the brain's plasticity, or adaptability, and to accelerate development of new treatments for brain damage and disease. Barad's focus for the first two years of the program will include developmental delay in children, age-related memory loss, brain repair and regeneration after trauma or stroke, and psychotherapy, especially for anxiety disorders. Barad is an assistant professor of psychiatry and biobehavioral sciences at UCLA's Neuropsychiatric Institute.



**Arani Bose, M.D., HS '95, left, and Steven V. Pacia, M.D., HS '91, FW '93,** are combining medical careers with the running of a fine arts gallery in Manhattan. Bose is assistant professor of radiology and neurology at New York University (NYU) and founder of Smart Therapeutics, a biotech company that produced the first intracranial stent. Pacia is director of the NYU Clinical Neurophysiology Fellowship, as well as director of research for the Comprehensive Epilepsy Center at NYU and principal investigator for a site of a National Institutes of Health multicenter study of epilepsy surgery. Together, Bose and Pacia run Bose Pacia Modern, a gallery of contemporary Indian art that they launched with their wives in 1994, while still in medical training. The gallery, the first in North America to focus on the modern art of India, is located in the Chelsea art district and has mounted shows reviewed in *The New York Times* and fine arts magazines. (For a look at the current exhibition and past shows, see [www.bosepaciamodern.com](http://www.bosepaciamodern.com).)

**Claude T. Anderson, M.D.** '53, HS '57, a scholar, writer, painter and self-taught musician, died June 26 of a heart attack at his home in Ramona, Calif. He was 80.

Born on a farm in Chapin, Ill., Anderson developed a lifelong love for learning as a pupil in a one-room schoolhouse. In 1941, while at Knox College in Galesburg, Ill., he was called to active duty in the Army Air Force as a navigator on B-17s. After the war he returned to Knox, graduating cum laude and Phi Beta Kappa in 1947, then continued on to medical school at Yale, where he won the Ferris Prize in Anatomy. After his second year, he traveled to Oxford as a Rhodes scholar and in two years earned bachelor's degrees in physiology and pharmacology. Oxford awarded him an honorary master's degree three years later. While in England, he proposed, via telegram, to his future wife, Evelyn Hamburger, R.N., Ph.D., M.N. '50.

Anderson returned to Yale, earning his medical degree in 1953 and serving on the house staff until 1957. He continued his Air Force career and earned a master's degree in radiation biology while in the military. In 1972, he retired from the service at the rank of colonel and went on to an immunology fellowship at the University of Texas Health Science Center. While there, he earned a degree in philosophy. In 1979, he opened the South Texas Immunology Lab and served as its director. He retired to Ramona in the mid-1990s.

Anderson wrote short stories, limericks and political satire for

enjoyment; he was a voracious reader with a personal library exceeding 30,000 volumes. He dabbled in painting and taught himself to play more than a half-dozen musical instruments.

**Joseph V. Baldwin, M.D.** '40, HS '47, of Manchester, Conn., died June 27 at Manchester Memorial Hospital. He was 88.

Baldwin attended Clark University and earned his medical degree from Yale. He started his residency training in pediatrics at Grace Hospital in New Haven in 1940 and was an assistant in the Clinic of Child Development until 1942.

Baldwin then served in the Navy as lieutenant commander and flight surgeon during World War II. He returned to the hospital in 1946 as an assistant resident in pediatrics until 1947.

While at Yale, Baldwin was a research assistant at the Clinic of Child Development from 1947 until 1948, working under Drs. Arnold L. Gesell and Catherine S. Armatruda, both pioneers in child development. In 1948 he became an instructor in pediatrics and at the Child Study Center. From 1949 until 1953, when he retired, Baldwin was a clinical instructor in pediatrics with an appointment in the Child Study Center.

**Frank D. Carroll, M.D.** '32, of Rye, N.Y., died July 24. He was 95.

Carroll received his undergraduate degree from Harvard in 1929 after three years of study; he then went on to Yale for his medical education. He interned at the Charles V. Chaplin and Rhode Island hospitals in Providence and completed his ophthalmology residency at the Massachusetts

Eye and Ear Infirmary in Boston. He served as a research fellow in the department of ophthalmology at the College of Physicians and Surgeons of Columbia University in New York. After his fellowship, Carroll was appointed to the faculty at Columbia. Upon his retirement, he held the title of clinical professor emeritus of ophthalmology.

Carroll had a private practice in Rye, N.Y., from which he retired in 1990. He was also in charge of the eye department of the United Hospital in Port Chester, N.Y., for 28 years and ran a free eye clinic there.

**Anne B. Collart, M.P.H.** '66, a social worker and businesswoman, died April 18 at her home in Harwich Port, Mass. She was 61.

Collart was raised in Plainfield, N.J., and graduated from Wheaton College in Illinois. She earned her master of public health degree from Yale and a master's degree in social work from Fordham University in 2000. She worked as an epidemiologist for the Metropolitan Life Insurance Co. and later as a computer trainer and consultant for various firms before founding her own company, ABC Computers.

Fulfilling a lifelong dream in 2000, she returned to her family home in Harwich Port on Cape Cod. Collart was a clinical social worker with Child and Family Service of Cape Cod and a member of the National Association of Social Workers and the Massachusetts Society for Clinical Social Work. She was an accomplished sailor and avid golfer.

**Richard B. Helgerson, M.D.** '71, died at his home in Madison, Wis., on April 19. He was 58.

Raised on a dairy farm near Elk Point, S.D., Helgerson completed grade school in a one-room schoolhouse, the only member of his class. He earned his bachelor's degree from the University of Cincinnati in 1967 and his medical degree from Yale. In 1979, after completing his internship and residency training in general surgery and a fellowship in surgical infectious diseases at the University of Minnesota Hospitals, he joined the faculty at the University of Wisconsin Medical School (UW) in the department of surgery.

Helgerson had a 22-year career at UW, where he was director of the burn unit at University Hospitals and director of the General Surgery Residency Program. He was best known for his treatment of severely burned children because of his skills in burn wound management and skin grafting. Helgerson was a member of the Madison and Wisconsin surgical societies, the American Association of Burn Surgeons and the International Burn Society. Progressive illness cut short his career and forced his retirement in 2001.

**Wilbur D. Johnston, D.D.S., M.D.** '37, of North Haven, Conn., died at his home on August 27. He was 92.

Johnston, a specialist in orthodontics, received his dental degree from the University of Pennsylvania and his medical degree from Yale. He served in the Army Medical Corps during World War II as a major and was awarded the Bronze Star. Johnston was appointed an assistant clinical professor of surgery at



Yale in 1946 and was clinical professor of surgery (dental) at the time of his death. During his career, he received a certificate of honor from the New Haven Dental Association and numerous awards of merit.

**Dunham Kirkham, M.D.** '37, of Union, Maine, died at his home on July 1 after a long illness. He was 92.

Kirkham graduated from Dartmouth College in 1933 and received his medical degree from Yale. He was a member of the active Army reserve and served in the Pacific theater during World War II as a specialist in tropical medicine. He was recalled to active duty during the Korean War and retired in 1969 after 27 years of service.

His 53-year medical career as a civilian spanned much of the globe and included private practice, public health service and years with both the U.S. Veterans Administration and New York State. Kirkham retired in 1972 as head of the medical-surgical clinic at Sunmount State School in Tupper Lake, N.Y. He and his wife moved in 1988 to Union, where he enjoyed gardening and fishing.

**Ruth Eiko Oda, M.D., HS** '54, of Hilo, Hawaii, died November 2, 2001, at the age of 73.

Oda was a retired pediatrician who had practiced in Hilo for 43 years. She was a member of Piihonua Kumiai, a neighborhood assistance association, and the American Medical Association and was a fellow of the American Academy of Pediatrics.

**Samuel D. Rowley, M.D., M.P.H.** '69, of Orange Park, Fla., died at the Baptist Medical Center in Jacksonville, Fla., on February 12, 2002, at the age of 82.

Born in Hartford, Conn., Rowley received a medical degree from Jefferson Medical College in Philadelphia and a master's in public health from Yale. He practiced pediatrics in Hartford from 1951 until 1967. Rowley served as director of the Rentschler Pediatric Clinic from 1968 until 1972, when he moved to Florida. He was director of the Duval County Health Department from 1973 until 1985 and was on the board of directors of the Mental Health Clinic in Jacksonville. Rowley co-founded the Bridge of Northeast Florida, an agency that provides services for inner-city youth, and served as president and a member of its board for almost 30 years.

**Morton A. Schiffer, M.D.**, of Norwalk, Conn., died July 26 at his home. He was 88.

A native of New York City, Schiffer graduated from Alfred University and earned his medical degree in 1938 from Long Island College of Medicine. He served as a physician in the Navy during World War II. During his early career, he was director of the obstetrics and gynecology department at the Jewish Hospital and Medical Center in Brooklyn. He was there for 41 years. He also was an obstetrician and gynecologist-in-chief at Stamford Hospital in Connecticut. For 10 years starting in 1972, Schiffer was chair of the obstetric advisory committee to the New York City health commissioner.

Schiffer joined the faculty at Yale in January 1994 and retired

in 2001 as a clinical professor of obstetrics and gynecology.

**Horace E. Thomas, M.D., HS** '36, a retired surgeon and active volunteer, died March 5, 2002, at his home in Columbia, Mo. He was 90.

Thomas received his medical degree from Harvard and completed his internship at Yale. He served in the Army from 1940 to 1946 as a surgeon in military hospitals in Georgia, California and Australia. In 1947, he moved to Columbia, where he married Helen E. Yeager in 1949.

During his career as a surgeon from 1947 until 1985, he practiced at Boone Hospital Center, Columbia Regional Hospital, Ellis Fischel Cancer Center and the Keller Memorial Hospital in Fayette, Mo. "I think he is the one surgeon in this community who really deserved the title of complete general surgeon," said Frank Dexheimer, M.D., a colleague who knew him since 1960. He was the recipient of the Missouri University Alumni Service Award and the Boone County Medical Society's Physician of the Year Award. Upon retiring, Thomas traded in his surgeon's mask for a hard hat as a volunteer for Habitat for Humanity. He gave both his time and his money to the organization.

**Thomas J. Trudell, M.P.H.** '75, CEO and president of Marymount Hospital in Garfield Heights, Ohio, died July 3 of a stroke. He was 61.

Born in New Britain, Conn., Trudell earned his bachelor's

degree from Providence College in Rhode Island. He served during the Vietnam War as an Army captain stationed in Thailand from 1966 until 1968. He continued with his education and received a master's degree in business administration from Northeastern University and a master of public health degree from Yale. Trudell joined Marymount in 1979 as vice president for planning and development. In 1981, he became its chief executive officer and later became president. In his more than two decades at Marymount, he was credited with the development of new services and expansion of the hospital complex, which included the diagnostic and treatment building and outpatient care center. He led the hospital's 1995 merger with the Cleveland Clinic Foundation. In December 2000, in recognition of his contributions, the hospital renamed its Behavioral Health Center the Trudell Center.

Trudell also served as chair of the Ohio Quality Cardiac Care Foundation and as a member of several committees and boards of the Cleveland Clinic system, including the Center for Health Affairs board.

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SEND OBITUARY NOTICES TO  
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P.O. Box 7612, New Haven, CT  
06519-0612, or via e-mail  
to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)

A *Culex quinquefasciatus* mosquito, one of the species associated with the transmission of West Nile virus.



JAMES GATHANY/CDC

### Insect propellant

Within hours of reading in *The New York Times* that the West Nile virus had been isolated from a flamingo at The Bronx Zoo in the summer of 1999, Yale professor Durland Fish, PH.D., was at the zoo, preparing to collect mosquitoes [Spring 2000, "To the Vector Go the Spoils"].

Since then, the disease has spread to 45 states, been diagnosed in 3,500 people and claimed 200 lives. As the virus has moved from anomaly to epidemic, Fish and his colleagues in the vector biology program have remained on the case.

Now a grant to Fish will allow Yale to strengthen the nation's response to vector-borne diseases like West Nile. With \$1.3 million from the Centers for Disease Control and Prevention, the School of Public Health will join two other Yale schools in training six doctoral candidates in a "whole-organism" approach to vector-borne diseases—which includes the field study of insects and other arthropods that carry disease. The grant will also fund summer fieldwork for 20 students in epidemiology and public health.

Fish said the grant would help redress an imbalance in research into vector-borne diseases. "In recent decades, it has been very much lopsided toward the laboratory," he said. Research has focused on developing vaccines, which have proven either unattainable (in the case of malaria, for example) or impractical ("Who are they going to vaccinate against West Nile?" Fish asks. "The whole country?"). The whole-organism approach complements lab research, allowing scientists to understand "the entire living organism in its environment. These things happen outdoors, in the fields, in the woods." Fish said vector-borne diseases are proliferating because of environmental change, such as the reforestation that has benefited the ticks that carry Lyme disease; and because of increased international trade and travel, which introduces exotic organisms like the mosquitoes carrying West Nile. Those mosquitoes, or that mosquito, Fish theorizes, arrived in New York City on a jet. The possibility of bioterrorism poses a new threat. "West Nile is a scary example of what would happen if somebody wanted to introduce something," Fish said.

—Cathy Shufro



### FALL/WINTER 1971

"The present first year medical class is the largest in the school's history—102 students. This is a ten percent increase in class size as compared with the previous year and is the second increase in the past five years.

"In 1951 the number of first year students was increased from 65 to 80. The size of entering classes then remained relatively constant until 1967 when in response to the nation's need for more physicians a further increase was authorized, and 92 students were admitted.

"In commenting on the recent increase to 102 students, Dean [Frederick C.] Redlich noted that changes in Yale's class size and curriculum are in concert with the national goals of increasing the enrollment of existing medical schools and fostering curriculum innovations. The additional teaching and administrative resources necessary to support the larger medical class will be provided through a Physician Augmentation Program grant from the Department of Health, Education and Welfare."



### FALL 1985

"In just the last decade, the field of medical diagnostic imaging has entered into a new era with a dazzling spectrum of computer-based technology that has vastly improved diagnostic capability, and at the same time, created new roles for diagnostic radiologists.

"Computed tomography (CT) scans, first used in the 1970s to detect brain tumors, now scan the entire body, using computers to organize thousands of X-rays taken by a machine which rotates around the patient's body. ...

"The newest diagnostic tool—and the one causing the most excitement—is magnetic resonance imaging (MRI). Without the use of ionizing radiation or intravenous contrast material, the new technology has opened a whole new area of diagnostic imaging. Its unsurpassed contrast resolution enables discrimination of the individual tissues comprising an organ. For example, gray and white matter can be distinguished in both the brain and the spinal cord. ... Within the uterus, the glandular and muscular layers can be delineated. ...

"For patients who are unstable, portable X-ray units, ultrasound scanners and nuclear medicine cameras can be brought to the bedside."





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# Yale Medicine

spring 2003

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## 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.

16 and 28

Cushing/Whitney Medical Library

Historical  
Periodical





# SPRING 2003

Vale medicine

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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.

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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 the Web

[info.med.yale.edu/yymm](http://info.med.yale.edu/yymm)

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.



#### HOW TO REACH US

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

#### VISIT US ON THE WEB

[info.med.yale.edu/ymm](http://info.med.yale.edu/ymm)

### 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.*

#### Yale Medicine

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## 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](http://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 Fitzsosa  
[michael.fitzsosa@yale.edu](mailto:michael.fitzsosa@yale.edu)

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## SECOND OPINION BY SIDNEY HARRIS



"FIND OUT WHO SET UP THIS EXPERIMENT. IT SEEMS THAT HALF OF THE PATIENTS WERE GIVEN A PLACEBO, AND THE OTHER HALF WERE GIVEN A DIFFERENT PLACEBO."



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.

*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.*

## 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



## 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 **ACCESSXPO**, 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, **ACCESSXPO** 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 Manufac-

turers 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.

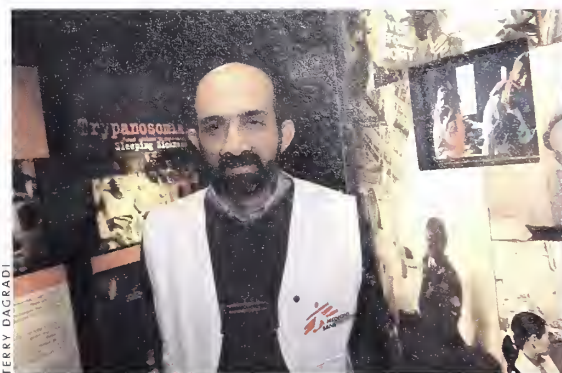
Mario Garcia, M.D., M.P.H. '02, who worked with Doctors Without Borders from 1990 to 1995, assisted with the exhibit at EPH in October. Garcia, who served as a medical coordinator and country manager for health programs in Brazil, Bosnia, Nicaragua and Belize, said the exhibit conveys the gap between 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.

**ACCESSXPO**'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



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."

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



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.



## 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 Fitzsosa

### 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 look-

ing 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 cam-

era 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



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



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.**

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

## 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

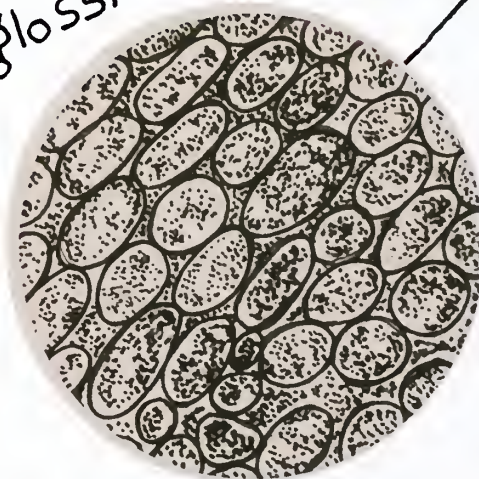
*Wigglesworthia* exposes chink in the armor of deadly tsetse fly, route for attacking sleeping sickness.

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

*Wigglesworthia  
glossinidia*



Tsetse  
Fly

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



## 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

*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



**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 Aging Face:  
A Systematic Approach**

by Ramsey Alsarraf, M.D. '94,  
M.P.H., and Calvin M. Johnson  
Jr., M.D.

W.B. Saunders Co.  
(New York) 2002

Alsarraf and Johnson present a systematic, comprehensive approach to the management of the aging-face patient. From the initial consultation through the operative procedure to postoperative care and maintenance, they detail how to achieve successful results. Full-color photographs depict the surgical techniques and provide step-by-step instruction. Two CD-ROMs feature full-color video clips of surgical procedures being performed by the authors.



**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.

**The Group Therapy of  
Substance Abuse**

edited by David W. Brook, M.D.  
'61, and Henry I. Spitz, M.D.

The Haworth Medical Press  
(New York) 2002

This book bridges the gap between substance abuse treatment and group psychotherapy by presenting expert analyses that address all major schools of thought. You'll find clinical exam-



ples and specific recommendations for treatment techniques, reflecting a variety of viewpoints from the leading clinicians, scholars and teachers in the field.

**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, M.D. '77, and James F. Leckman, M.D., Neison Harris Professor of Child Psychiatry in the Child Study Center and professor of pediatrics

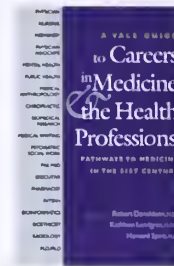
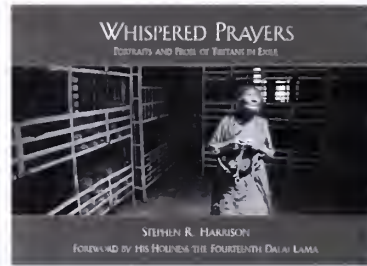
Oxford University Press  
(New York) 2002

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 Profes-  
sions: Pathways to Medi-  
cine in the 21st Century**

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

Yale University Press  
(New Haven) 2003

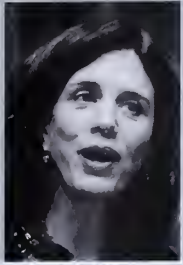
This book will interest anyone pondering a career in medicine or a related health profession and contains the firsthand advice of men and women working in the health field today. They describe how and why they made their career choices and what the journey has been like.

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](mailto: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 L. 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?"

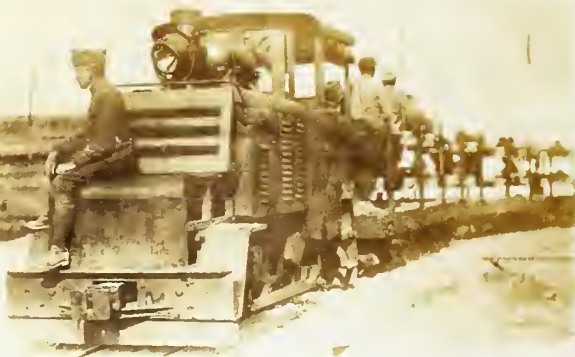
"I think there are areas where more regulation, rather than less, is called for."

—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 uncharac-

teristic 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.

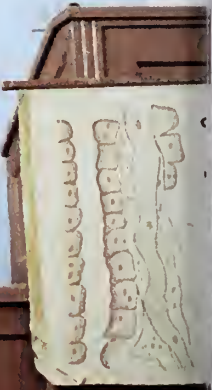


RIGHT Housed in a tent, the 39th's operating room was sparse, but Flint was known for surgical innovations that increased efficiency and decreased infection. After operations, wounds were left open and packed with sterile gauze. About 48 to 72 hours later, another culture was taken before the wound was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



ARRANGEMENT OF OPERATING ROOM.







# 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 dur-

ing 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 Il'yich 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 laparoscopic 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.



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



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



**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."

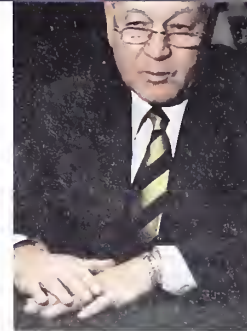
What can be taken, says Amirov, are strategies for better medical training. By seeing the American medical system firsthand, Kazan's faculty members fully grasp developments the Russian medical system missed during the Communist era. Further fueling the need to make up for lost time is the pace of social 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 sanatoria 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.



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,



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.



**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 borders. 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!"



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.

# On Russia's AIDS front





Story and photographs  
by John Curtis

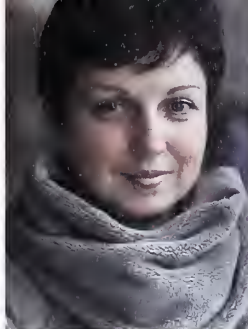
Students in college dormitories in Russia are at high risk for sexually transmitted diseases. An intervention designed at the Medical College of Wisconsin and implemented by Russian scientists who studied at Yale is attempting to change behavior and reduce the risks of unprotected sex.





**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, providing case management of tuberculosis in Russian prisons

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.

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.

Kozlov 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."





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.

While at Yale, Khaldeeva studied epidemiology and worked at the Yale AIDS Program, learning to apply anti-retroviral 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 four-fold, 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 it was not important." Stigma also played a role—AIDS was





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.

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.**

**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.

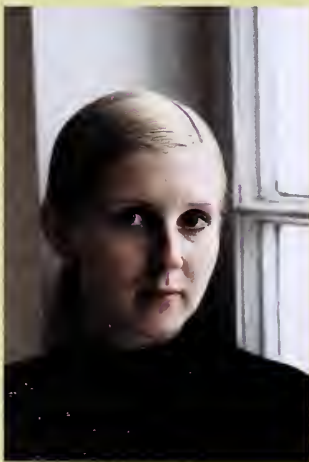
**Olga Bogoliubova, M.Sc.**, studies the role of community work in HIV prevention and HIV risks among homeless adolescents.

**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.

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### WE WELCOME SUBMISSIONS

Do you have an opinion to share on a vital topic in medicine, health or science? Send yours to Essay, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to [yymm@yale.edu](mailto:yymm@yale.edu)

## 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.”



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 north-eastern 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

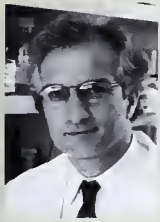
Joel Gelernter

**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 Medicine 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





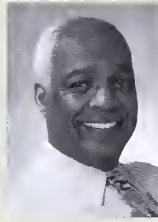
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Brian Leaderer



Theodore Holford



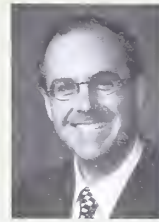
Curtis Patton



Nancy Ruddle



Tongzhang Zheng



Mark Schoenfeld



Jack Sinclair

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.

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 sys-

tem 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 pro-

liferation 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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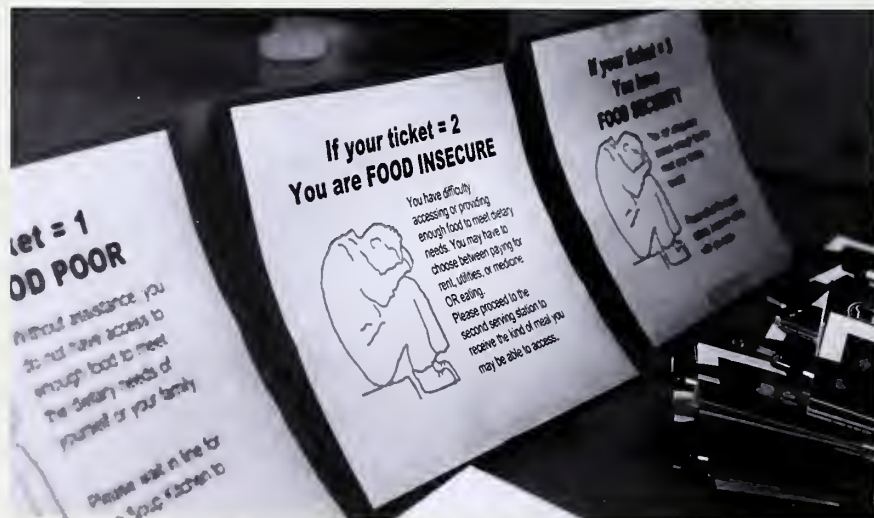
## Volunteers dish out a taste of hunger

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



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.



**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."

Giltane, 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, FISH, 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."



## 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, ento-

mologists 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

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

## 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 pre-occupations have not. For his first study in psychosomatic medicine as a medical student in the mid-60s, he wheeled a hulking Goddert haemotograph (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*.

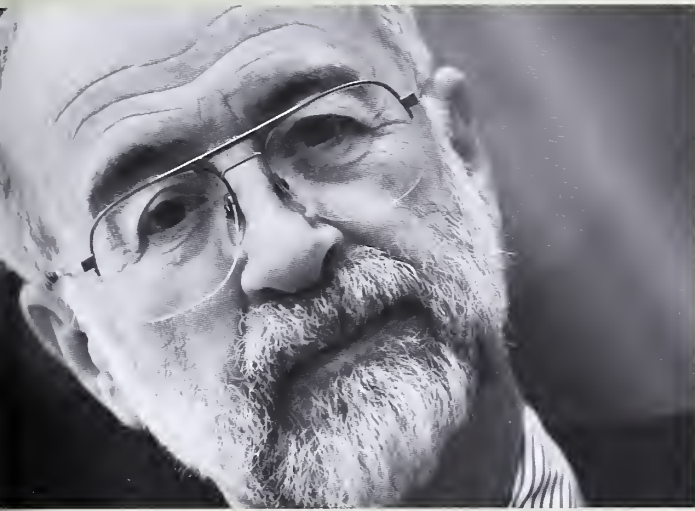
Williams sees behavioral medicine as “what real medicine ought to be, where you’re concerned not only with the biomedical aspect of the patient’s condition but also how the psychological aspects of the patient and his or her environment affect the biomedical aspects. It’s being a good doctor.”

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





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

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.

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.

### 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., H5 '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

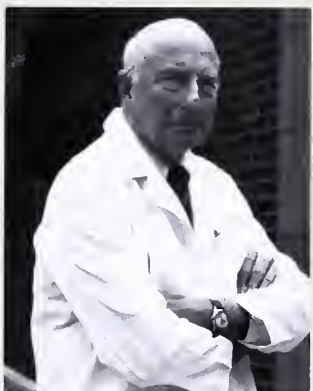
Minimally invasive surgery has been something of a mixed blessing for thoracic surgeon **Louis R.M. Del Guercio, M.D. '53**. "It's easier on the patient but less satisfying for the surgeon," says Del Guercio, who retired a year ago as chair of surgery at New York Medical College. He feels confident and 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-



Karen Casper and Pieter Pil



Louis Del Guercio



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 Chori, 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.

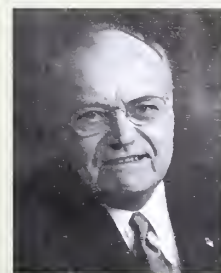
Coughlin spoke of another coincidence. Standing at the head of the table in an upstairs room at Mory’s, he produced a thick, bound volume that he said his father had assembled in the 1950s. It consisted of the medical school *Bulletin* from the four years Coughlin was a student in New Haven. “His own 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 through 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 gas-

troenterology 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 Fitzsosa



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 [yymm@yale.edu](mailto:yymm@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.

---

SEND OBITUARY NOTICES TO  
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P.O. Box 7612, New Haven, CT  
06519-0612, or via e-mail  
to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)



### “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

### YALE MEDICINE

ALUMNI BULLETIN OF THE SCHOOL OF MEDICINE • WINTER 1986



### WINTER 1966

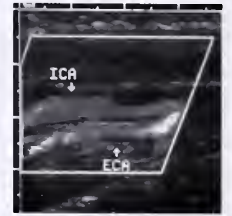
“The revolution in clinical pathology at Yale is two-fold. On the technical side, new methods of testing and data processing developed in the clinical laboratories are resulting in services of unmatched quality in numbers sufficient to meet the needs of patients. Last year the laboratories performed 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.”

### YALE MEDICINE

ALUMNI BULLETIN OF THE SCHOOL OF MEDICINE • SUMMER 1989



Direct Patient Care: Radiology's New Frontier

### 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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**Alumni Notes**

4/03

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Other ( _____ )	<input type="checkbox"/> _____



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# Yale Medicine

summer 2003

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John and Betty Jane Anlyan



**A new space for science**



With the opening of The Anlyan Center for Medical Research and Education, the school dedicates its largest building ever.

**On the Web**

[info.med.yale.edu/ymm](http://info.med.yale.edu/ymm)

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.

**ON THE COVER**

The Anlyan Center for Medical Research and Education devotes more than 450,000 square feet of new space to the study of science and the training of new generations of scientists and physicians. *Photographs by Frank Poole (6) and Martin Klimek (portrait).*

**THIS PAGE**

The new building at 300 Cedar Street is now the largest facility at the medical school, dominating the skyline at the corner of Cedar Street and Congress Avenue. *Photograph by Frank Poole*





# SUMMER 2003

yale medicine

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## Above and beyond the call at Commencement

On behalf of my family and myself, I want to express my gratitude to the entire staff who organized, reorganized and ran the Commencement ceremonies. Though I wasn't there beforehand to witness the Herculean effort, my father was—and he reported that everyone worked like Trojans to preserve the celebration of the day. I don't think I'm capable of expressing how important that was to my family, and how it left them with a sense that this school—the entire school—has an unusual and strong sense of community. I'm proud to have been a part of it, and overjoyed to remain one.

The most exciting, emotional and meaningful moment of the day occurred as I and my classmates took our short walk from the I-wing of Sterling Hall of Medicine into the graduation tent. We were a little depressed as we stood dripping onto the floor of Sterling. Someone near me mentioned that we looked like a funeral procession as we shuffled silently toward the exit. As we neared the door I saw staff members standing side by side, holding umbrellas for us. I was overwhelmed by the abrupt contrast between my momentary depression and the emotions that resulted from the cheers emanating from the tent and the stage. The applause didn't even threaten to lull, let alone pause or stop.

To the staff who made it all happen, I thank you for everything you did for our class to make the best of a difficult day. And I thank you, in particular, for helping my own family. We appreciate it deeply.

*Maxwell S. Laurans, M.D. '03  
New Haven*



### HOW TO REACH US

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

### VISIT US ON THE WEB

[info.med.yale.edu/yymm](http://info.med.yale.edu/yymm)

## As we went to press, the kudos were flying

Each spring the National Academy of Sciences elects new members, bestowing one of the highest honors a U.S. scientist or engineer can receive. As this issue of the magazine was in production, we learned that three Yale scientists had been tapped for membership: medical school faculty members Linda M. Bartoshuk, PH.D., and Arthur L. Horwich, M.D., HS '78, FW '84, and alumnus John D. Baxter, M.D. '66, HS '68, professor of medicine at the University of California, San Francisco (UCSF).

Bartoshuk, a professor of surgery (otolaryngology) and psychology, is an experimental psychologist and one of the world's leading experts on the science of taste. Horwich, professor of genetics and pediatrics and a Howard Hughes Medical Institute investigator, has solved key problems in the study of protein folding, work that has clear implications for Alzheimer's disease.

Baxter is director of UCSF's Metabolic Research Unit. In 1979, he and Howard M. Goodman, PH.D., were the first to clone the gene for human growth hormone, which became the second genetically engineered product to receive government approval. His current work focuses on how receptors in the nucleus of a cell affect human health and disease.

On another front, judges in the CASE Circle of Excellence competition have selected *Yale Medicine* to receive the silver medal in the Special Interest Magazines category at the CASE International Assembly in July in Washington. *Yale Medicine* was awarded a silver medal last year as well by CASE, the 23,500-member Council for Advancement and Support of Education, and received the highest honor in the 2001 magazine competition sponsored by the Association of American Medical Colleges.

—The Editors

## Yale Medicine

*Alumni Bulletin of the  
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Summer 2003, Volume 37, No. 4*

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### Abbreviations commonly used

in *Yale Medicine* include HS to denote the final year of residency for house staff, FW for the final year of a fellowship, EPH for the Department of Epidemiology and Public Health and School of Public Health and YHHH for Yale-New Haven Hospital.

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**This just in**

One of the dubious pleasures of editing a magazine is taking an issue that is ready to go to print and remaking it because news has broken. The pleasure is doubtful because once an article, a headline or a layout is complete in the eyes of the person who created it, there is an almost irresistible force that seems to say, "Don't change a thing."

But change was the modus operandi at the School of Medicine during May and June this year. The largest building ever constructed on the medical campus was dedicated in May, and news followed soon after that benefactors A. John Anlyan, B.S. '42, M.D. '45, and Betty Jane Anlyan had increased their gift to Yale so significantly that the entire 457,000-square-foot complex would be named in their honor. What had been a two-page follow-up to our Winter 2003 article, "The Big Move," became this issue's cover story ("A New Space for Science," p. 14). We added four pages to the issue to accommodate more photos and to show the progression of the building's construction over the past three years.

Then on June 23 came another news flash, that Dean David A. Kessler, M.D., had accepted an offer from the University of California, San Francisco, to become vice chancellor for medical affairs and dean of the UCSF School of Medicine. Appointed in 1997, Kessler presided over the medical school during a period of major change, an era capped by the opening of The Anlyan Center. Even bigger challenges await him in San Francisco, where UCSF has begun building a phased, 43-acre life sciences campus in the city's Mission Bay district. We wish him well.

Yale President Richard C. Levin has appointed Dennis D. Spencer, M.D., HS '76, as interim dean effective July 1 pending a search for a permanent successor. Spencer, who figures prominently in one of this issue's feature stories ("High Resolution," p. 20) and was profiled in the Fall 1998 issue of *Yale Medicine*, is the chair and Harvey and Kate Cushing Professor of Neurosurgery. We'll follow up on this story with an interview with the new interim dean in our Autumn issue. Meanwhile, rest assured that even during the hazy, lazy days of summer, there is never a dull moment on Cedar Street.

Michael Fitzsosa  
 michael.fitzsosa@yale.edu



Dennis Spencer has been named the interim dean of the School of Medicine.

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**SECOND OPINION BY SIDNEY HARRIS**



## A new site for sore eyes

After 10 years, doctors and patients welcome the return of an eye clinic to the Hill Health Center.

When Candace Ford went for her exam at the new eye clinic in the Hill Health Center, doctors said they couldn't test her while she was wearing her contact lenses; they wanted to see her glasses. So Ford ran home to get what she needed and was back in the examining chair within minutes.

This kind of convenience for Hill neighborhood residents, many of whom don't own cars, is one of the many reasons health center administrators and doctors in the Department of Ophthalmology and Visual Science wanted to open an eye center in the neighborhood.

The health center used to offer ophthalmology services, but about 10 years ago the program died, forcing many

Hill residents to travel to the medical school for their eye care. "We had a tremendous number of no-shows from the Hill, so we realized the distance patients had to travel was a barrier to access," said Susan H. Forster, M.D., HS '81, an assistant professor in the department. She and others decided the solution was to locate an eye clinic in the same place where patients go for the rest of their medical care.

Organizers applied for and received a \$50,000 grant from the Community Foundation for Greater New Haven, which enabled them to set up the clinic and outfit it with state-of-the-art equipment. Hill Health Center Chief Operating Officer Gary Spinner says the eye clinic is a much-needed addition to the center. "We serve a large population with diabetes who need ongoing eye care to detect and treat the complications that can affect their eyes," he said.

Four chief residents take turns staffing the clinic, which is open one

day a week. Patients are billed for their treatment, but there is a sliding-fee scale for those who don't have medical insurance. "We all felt it would benefit a medically underserved population as well as the medical residents who rotate through here," Spinner said. "They learn a lot about providing health care beyond the technical end of it."

Although the clinic has been open only since January, Forster said it already served about 20 patients a day and was booked through June. The clinic provides vision tests and screening for such conditions as glaucoma, amblyopia (lazy eye) and retinopathy, which is linked to diabetes. Patients who need surgery or a diagnostic procedure are referred to Yale. Forster said the clinic's close ties with the ophthalmology department allow patients to benefit from the expertise of Yale specialists, who have ongoing consultations about patient care with the on-site residents.

**Guy Jirawuthiworavong, a third-year ophthalmology resident, examined the eyes of Michael Stallings at the Hill Health Center on a Wednesday in April. A grant from the Community Foundation for Greater New Haven has allowed the center and the medical school to bring eye care to the neighborhood.**



TERRY DAGRADI



## Contract still unresolved, union strikers spend five days out in the cold

While convenience was a major selling point for Ford when she decided to go to the eye center, she also appreciated the quiet, relaxed atmosphere. “They had the radio playing R&B, it was clean and there was only one person ahead of me,” she said, “so I was in and out real quick.”

Guy Jirawuthiworavong, M.D., a third-year ophthalmology resident who works in the clinic, also enjoys the intimate atmosphere. “It’s been a really great experience,” he said. “Community clinics by nature are smaller and homier. I like the family setting.”

He said the majority of his patients have a family history of glaucoma and want to get their eyes checked, or they need an annual screening for diabetes. This is just the news Forster wanted to hear. She said many people overlook preventive eye care until it’s too late. “Our goal with this center is to catch things early.”

—Jennifer Kaylin

During a week of subfreezing temperatures, a heavy rain and a blizzard, thousands of Yale employees, including hundreds at the medical school, took to the streets in March to strike over contract negotiations that had stalled over wages, job security and pension benefits. The strike had clerical and technical workers from Local 34 and service and maintenance employees from Local 35 sharing picket lines with hundreds of graduate students from GESO, the Graduate Employees & Students Organization, which is seeking union recognition from the university. The unions also support the right of hospital workers to unionize.

Over the course of the weeklong strike, the unions held rallies at Woolsey Hall, Phelps Gate and the medical school, led by supporters including the Rev. Jesse Jackson, New Haven Mayor John DeStefano Jr., U.S. Rep. Rosa DeLauro, local clergy and local and national union leaders. Disruptions at the medical school appeared to be minimal—58 percent of Local 34 workers remained on the job.

Each side blamed the other for the impasse. Union leaders said the university had refused to budge on its offers. The university accused the unions of linking contract negotiations with GESO’s organizing efforts and with a drive by the Service Employees International Union to organize service and other nonprofessional employees at Yale-New Haven Hospital. The university opposes unionization of graduate students and says the hospital is a separate entity from the university and that workers there must decide whether to unionize.

In April Local 34 rejected the university’s 10-year contract proposal, and in early May graduate students rejected GESO as their bargaining agent.

—John Curtis



Graduate students at the medical school picketed outside the Sterling Hall of Medicine during a weeklong strike in March by workers from Locals 34 and 35. In a vote in April graduate students rejected a bid by GESO to represent them.



GARY CLEMENT

## Does industry funding equal conflict of interest? Often it does, Yale authors claim

As biomedical researchers increase their dependence on industry support for research, Yale investigators say this relationship has led to “pervasive and problematic” conflicts of interest. Between 1980 and 2000, while the federal government’s share of funding fell, industry support rose from 32 percent to 62 percent.

The Yale team found that business-sponsored studies are far likelier to yield results favorable to the industry than those funded by sources without a vested interest, such as the federal government. They also found that industry studies are designed to favor such results, that negative outcomes meet with delays in publication or aren’t published and that many researchers and institutions have financial ties to their sponsors.

“Industry sponsorship has the potential to distort the scientific process in a very disturbing way,” said Cary P. Gross, M.D., an assistant professor of medicine and the study’s lead author. “I am in no way against industry sponsorship,” he said, noting that he has taken part in such studies. “But our results show that we need very close oversight.”

The team’s review of 37 studies on the extent and impact of conflicts of interest appeared in January in *JAMA: The Journal of the American Medical Association*. They found that studies sponsored by industry were 3.6 times more likely to have conclusions favorable to industry than studies without that support.

Industry studies also tended to compare an industry’s drug to a placebo instead of a drug already on the market, said Justin E. Bekelman, a fourth-year medical student and a study co-author. “Placebo-controlled trials are likelier to end with positive results,” he explained. Another study found that when the industry’s drug was compared to a medicine already on the market, patients were given inappropriate doses of each drug in a way that supported the newcomer.

When results didn’t favor the industry-sponsored therapy, publication was delayed or reports were not published at all. Sometimes studies were stonewalled while the industry sought patents; at other times, some researchers were denied access to the data.

“It’s very important that all trial results, whether positive or negative, be published,” said Bekelman.

The study also found that a quarter of investigators have industry affiliations, and that two-thirds of academic institutions (including Yale) hold equity in startup firms founded upon research at those institutions. Gross said that universities must erect a “very firm fire wall” to avoid conflicts of interest.

Bekelman said a “balance of power” is needed. Academia and medical journals have begun to insist on more financial disclosure and access to data. But more needs to be done, Bekelman said, because without complete and unambiguous disclosure, the research “will not serve the needs of patients or our health system well over the long term.”

—John Dillon





## A WINNING SPIRIT

When 12-year-old Millie Suggs rode her wheelchair in a Family Fun race at Disney World in January, two second-year medical students offered moral and medical support. Deborah Kaplan, who met Millie six years ago through her sister, a teacher, ran in a marathon while Michele Flagge accompanied Suggs during the 5-kilometer race. Suggs, who suffered a spinal cord injury in a car accident when she was 2, won a prize as the only wheelchair racer. Thanks to her friendship with Suggs, Kaplan wants to be a pediatric physiatrist when she graduates. "Millie has taught me so much about the human spirit," she said.

—Jennifer Kaylin

## NIH awards Yale \$18 million to develop new technologies for proteomics research

The university has received an \$18.2 million award from the National Institutes of Health to establish one of 10 national centers to develop proteomic technologies for the diagnosis, understanding and improved treatment of heart, lung and blood disorders.

The National Heart, Lung and Blood Institute (NHLBI) Proteomics Center will bring together 21 Yale faculty from 12 departments and will build on the expertise of the Howard Hughes Medical Institute (HHMI) Biopolymer/Keck Laboratory at Yale University, one of the largest biotechnology laboratories of its kind in academia. The Proteomics Center is headed by Kenneth R. Williams, PH.D., director of the HHMI/Keck Laboratory and professor (adjunct) of research in molecular biophysics and biochemistry. The center will focus on two technologies: proteome profiling

and synthetic peptide-based reagents to block specific protein-protein interactions. The latter effort will be directed by the co-investigator on the NHLBI contract that established the center, William C. Sessa, PH.D., director of the Yale Vascular Cell Signaling and Therapeutics Program and professor of pharmacology.

"By developing two complementary technologies in parallel, we hope to use protein profiling to identify key proteins involved in diseases of the heart, lung and blood and then develop novel reagents capable of specifically blocking the activities of those proteins," Williams said. "The overall goal is to increase our understanding of the disease process, which should lead to more effective treatment." Additional information and continuing updates on progress of research carried out in the Yale/NHLBI Proteomics Center may be found at <http://info.med.yale.edu/nhlbi-proteomics/>.

—John Curtis

## THE THESIS GOES DIGITAL

With a vision of electrons prevailing over paper, Charles J. Greenberg, M.L.S., M.Ed., head of reference services at the Cushing/Whitney Medical Library, has launched the Yale Medicine Thesis Digital Library (YMTDL), an online collection of the theses required of all Yale medical students.

The YMTDL debuted in February at <http://ymtdl.med.yale.edu>. The Internet, Greenberg said, has become the "number-one way" of accessing medical research, as foot traffic falls at the library.

Greenberg's biggest challenge has been to convince students that publishing online won't harm their chances of publication later in a scholarly journal. Students may delay online publication for up to three years, but abstracts are automatically included on the website.

Last year 12 students agreed to provide their theses; this year Greenberg hopes to get 40. Eventually, he expects that all theses will be available online.

—John Dillon

## TWO YALE EXPERTS ON BIOETHICS PANEL

As medical and ethical concerns move from the laboratory to the front page, the Bush Administration has named 11 people, including two experts with ties to Yale, to serve on a new advisory committee on federal protections for human research subjects. The panel is charged with reviewing regulations aimed at safeguarding volunteers in medical and behavioral studies.

"There's more of a consumer interest and input into bioethics than in the past," said Celia B. Fisher, PH.D., director of the Center for Ethics Education at Fordham University and a visiting bioethicist in residence at Yale. Fisher is especially interested in examining protections for special populations, such as pregnant women, prisoners and children. How federal guidelines should be applied to embryos is expected to be one of the more controversial issues the panel considers.

Mary Lake Polan, PH.D. '70, M.D. '75, HS '77, chair of the Department of Gynecology and Obstetrics at Stanford University School of Medicine, was also named to serve on the panel.

—Jennifer Kaylin



EINAT PELED

## “Hidden” fat poses serious health risk

But exercise can take off invisible pounds and reduce risks of cancer, heart disease and diabetes.

Postmenopausal women who exercise regularly won't necessarily see dramatic changes on their bathroom scales or in their dress sizes, but according to a new study the workouts can have a significant beneficial impact.

They can “exorcise” invisible intra-abdominal body fat that wraps itself around internal organs and may pose a greater health risk than more obvious “love handles” or bulging bellies. It is dangerous, researchers say, partly because it's invisible.

“When you look in the mirror, you don't know how much you have,” said Melinda L. Irwin, M.P.H., PH.D., assistant professor of epidemiology at the School of Public Health and lead author of the study published in the January 15 issue of *JAMA: The Journal of the American Medical Association*.

Women, who gain an average of a pound per year, tend to accumulate it after menopause, and men are also susceptible to health risks as they gain weight around their middles. Although thin women can have intra-abdominal fat, those with waist circumferences of more than 35 inches are the most likely candidates. According to Irwin this hidden fat has been linked to insulin resistance, type 2 diabetes, hypertension, cardiovascular disease and high cholesterol levels, and increases the risk of breast and colon cancers. Intra-abdominal body

fat is a metabolically active fat tissue because of its shared circulation with the organs it surrounds.

The study, conducted by Irwin and colleagues at the Fred Hutchinson Cancer Research Center in Seattle, Wash., looked at 173 physically inactive postmenopausal women between the ages of 50 and 75. The women were assigned to one of two groups; one exercised at a moderate intensity five days a week and the other merely stretched one day a week. The researchers measured changes in weight and body fat at the start of the study and after one year.

“While overall weight loss was modest for the women who exercised, intra-abdominal body fat loss was statistically and clinically significant,” said Irwin. The study found that women who exercised moderately five times a week saw a 6 to 11 percent decrease in intra-abdominal body fat. “That would translate into a reduced risk of cardiovascular disease and cancer,” Irwin said. “The good news,” she said, “is that even if exercise doesn't seem to be making any visible difference—women only lost, on average, three pounds—moderate exercise such as brisk walking reduced hidden fat.”

According to Irwin, most studies that examine the correlation between weight and exercise just weigh the test subjects and measure their waist circumferences. This merely measures weight, not total body fat or fat distribution. “Usually they conclude that exercise has minimal or no effect on body weight,” Irwin said. “We agree with them, except they're not taking into consideration



body fat and how it is distributed on the body.”

Irwin said she and her colleagues used computed tomography—“which is a lot more sensitive than just getting on a scale and measuring weight”—to gauge the test subjects’ amount of intra-abdominal tissue. Using this method, the researchers were able to observe a statistically significant effect of exercise on the intra-abdominal tissue.

The message to take away from this study, Irwin said, is that if you are

getting frustrated because you are exercising but not losing any weight, keep at it. “Even if you think you aren’t getting any benefit, you really are.” She also noted that when weight is lost through exercise, rather than diet, you have a better chance of keeping it off. “Dieting hasn’t been shown to be good for weight maintenance; you gain it back, whereas if someone exercises to lose weight, they’re more likely to maintain the weight loss,” Irwin said.

—Jennifer Kaylin

## OVARIAN TUMORS NEED NOT CAUSE INFERTILITY

A conservative approach to the treatment of a rare form of ovarian cancer, called ovarian germ cell malignancies, allows young women to conceive afterwards, Yale scientists have found. In a study published in the February issue of *Obstetrics & Gynecology*, Peter E. Schwartz, M.D., HS '70, the John Slade Ely Professor of Obstetrics and Gynecology, followed the cases of 86 women, most of whom had undergone fertility-preserving treatment in which only the affected ovary was removed. Of 38 women who attempted to conceive, 29 became pregnant. To date, their children have shown no developmental abnormalities.

—John Curtis



## SEIZURES AND DRUG RESISTANCE

Researchers have shown for the first time how long it takes to establish resistance to drugs that control partial epilepsy. A multi-center study directed by Susan S. Spencer, M.D., FW '78, professor of neurology, and published in the journal *Neurology* in February examined 333 patients to analyze outcomes of surgical treatment of partial epilepsy and to identify factors that predict when seizures become intractable. About 80 percent of those with partial epilepsy cannot control seizures with medications.

Researchers found that an average of about nine years passed before at least two drugs failed to control recurrent seizures. During that interval, a quarter of those in the study had remissions lasting up to a year and slightly fewer than 9 percent had remissions of five years or more. A younger age at the onset of seizures predicted longer seizure-free intervals. “This kind of information,” Spencer said, “leads us to explore the mechanisms by which treatment resistance develops over so many years, and prompts consideration and investigation of preventive strategies for the future.”

—John Curtis

## A NEW CARDIAC RISK FACTOR

Women with a history of pre-eclampsia are at increased risk for cardiovascular disease, according to a study presented in February at the Society for Maternal-Fetal Medicine annual meeting in San Francisco.

“Pre-eclampsia should be added to the list of risk factors for cardiovascular disease, possibly equal to issues such as obesity, smoking and diabetes,” said Edmund F. Funai, M.D., assistant professor of obstetrics and gynecology and the study’s lead author.

Pre-eclampsia, a progressive disease that occurs late in pregnancy and affects about 5 percent of women, can cause slower-than-normal fetal growth and put women at risk of lung, kidney and liver problems. High blood pressure is an early warning sign of pre-eclampsia. The study by researchers at Yale and in Israel tracked the death rates of 34,000 women who gave birth between 1964 and 1976.

—John Curtis

## A link between sugar and heart defects

Examining role of glucose in cardiac malformation, researchers look for ways to protect the infant heart.

It's a heart-rending legacy: mothers who have uncontrolled diabetes during pregnancy are three times more likely to give birth to babies with malformed hearts than are mothers whose blood sugar levels are normal. Doctors have known that for some time, but recent work by researchers at Yale and the University of Arizona helps explain how high blood glucose levels in the mother lead to infant heart defects, and may suggest ways to prevent the problem.

"Lack of control of glucose in early pregnancy is a serious problem, because often the woman doesn't even know

she's pregnant at the time," said Joseph A. Madri, PH.D., M.D., HS '76, FW '80, professor of pathology and co-director of medical studies. "Yet this period of the first few weeks is critical, because this is when formation of all the organs occurs."

In earlier work, Madri and co-workers including Emese Pinter, M.D., an associate research scientist in pediatrics, studied the formation of blood vessels of the yolk sac in a mouse model of maternal diabetes. "We found that higher levels of glucose, comparable to what would be found in a diabetic mother, had profound effects on the development of yolk sac vasculature," said Madri. "The vasculature of the yolk sac, which is important for nutrient, gas and waste exchange in the developing embryo, was arrested when the glucose level was high." What's more, glucose levels didn't have to remain high for long to cause serious problems, the research showed. Even a brief spike could be enough to abort a pregnancy.

In the newer work, published in the February 17 issue of *The Journal of Cell Biology*, Madri, Pinter and co-workers focused on a slightly later stage of development, when the cardiovascular system begins to form. Normally, this is a multistep process involving the endocardial cushion, a small area in the embryonic heart with two tissue layers, the endocardium and the myocardium.

"For normal development, endocardial cells overlying the cushion area have to dissociate from one another and migrate into the tissue beneath the endocardium called the cardiac jelly," said Madri. To investigate how the

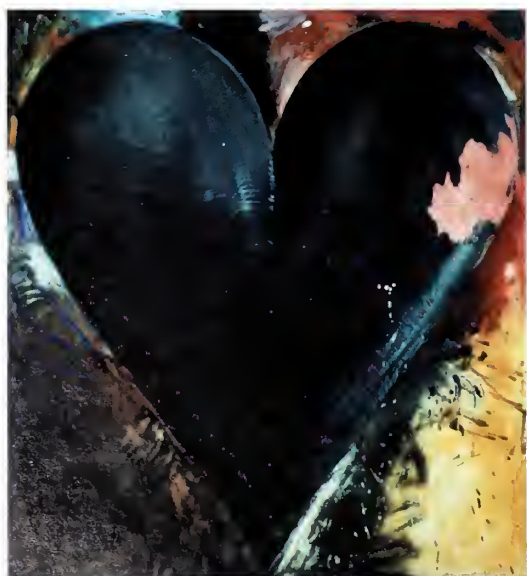
process is disrupted under high-glucose conditions, the researchers used an *in vitro* model of endocardial cushion formation. With this model, they showed that high glucose levels inhibit dissociation and migration of the endocardial cells and that this disruption occurs during a critical window at the developmental stage when the embryo consists of 20 to 25 somites (block-like segments of tissue). Next, they explored the role of a regulatory molecule that is involved in keeping the cells in a sheet-like layer. In normal development, levels of platelet endothelial cell adhesion molecule-1 (PECAM-1) drop in the endocardial cells overlying the cushion area, allowing the endocardial cells to move apart and migrate into the cardiac jelly to form such structures as the valves and part of the walls between the chambers of the heart. But when glucose levels are elevated, PECAM-1 persists, the researchers found.

"The endocardial cells can't dissociate from each other and migrate," said Madri. "The result is a heart with an opening between chambers or one in which there are problems with the structure of the valves."

Why does PECAM-1 persist when glucose levels are high? The research implicates vascular endothelial growth factor A (VEGF-A), known to be important in the development of new blood vessels and the regulation of associated processes. Typically in diabetic adults, VEGF-A levels rise along with glucose levels. But for reasons Madri, Pinter and co-workers don't yet understand, in fetuses VEGF-A shows the opposite effect—its levels drop when glucose is high. Because VEGF-A affects the regulation of PECAM-1, low VEGF-A levels mean that PECAM-1 isn't properly controlled, allowing it to overstay its welcome.

Now, said Madri, "we're trying to understand how VEGF is controlled in the fetus and how that's different than in the adult. Once we know this, perhaps we can devise modalities to blunt the effect of excess glucose in the fetus."

—Nancy Ross-Flanigan



THE SWEDISH SEA. CENTER PANEL BY JIM DINE ©ESM-ED MENEELY / ART RESOURCE, NY



## From the stomach to the brain: how a peptide hormone sparks appetite

In recent years neurobiologists have taken a keen interest in a peptide hormone called ghrelin. The molecule appears to be involved in activities such as growth hormone release, energy homeostasis and the functioning of the cardiovascular system. Big Pharma sees in it a potential target for diet drugs because of its role in sparking an appetite.

It is also of interest because, although it is produced by the stomach, it is found in the hypothalamus as well. Now researchers at Yale have tracked ghrelin to a group of previously uncharacterized neurons in the brain's appetite center.

"Ghrelin-producing cells are distributed in the hypothalamus in such a

manner that they are in a perfect position to coordinate the activity of the different hypothalamic subnuclei already known to regulate daily energy balance," said Tamas Horvath, PH.D., D.V.M. senior author of an article in the February 20 issue of *Neuron* and associate professor of obstetrics and gynecology and neurobiology.

Studies in rats and humans had already shown that ghrelin signals the brain's appetite center when energy levels are low. Levels of ghrelin rose before and declined after meals. The mapping of the ghrelin circuit to neurons in the brain offers a new target for regulating appetite and food intake, Horvath said.

"We believe that these neurons are conveying information regarding circadian rhythm and sensory clues as well," he said. "You could be watching a movie, see food and become hungry, or be in the kitchen and smell something and become hungry, even if your stomach is full. These brain ghrelin neurons may be those that enable these brain processes to dominate over the actual need for energy intake."

One hypothesis, Horvath said, is that the system that balances food consumption, energy expenditure, body weight and fat stores may be suppressed by events such as stress or pregnancy. The neuronal system that signals olfactory and visual clues would then dominate.

"We are now working to find out how ghrelin from the stomach and from the brain work together or independently to regulate appetite or food intake and other brain mechanisms," Horvath said.

—John Curtis

## A DNA "MIMIC" TO REPAIR GENES

A peptide nucleic acid (PNA) that mimics DNA holds the promise of repairing defective genes, according to Yale radiologists and geneticists.

PNA, which replaces DNA's phosphodiester backbone with a polyamide one, creates a strong bond with DNA, said Peter M. Glazer, M.D., PH.D., professor and chair of the Department of Therapeutic Radiology. "If you can bind something to the gene, maybe you can use that to change the gene," he said. "If you change the gene to a new sequence it is permanently fixed."

In a study published in December in the *Proceedings of the National Academy of Sciences*, Glazer, the senior author, described the use of PNA to introduce a specific DNA sequence into a target gene in extracts of human cervical cancer cells. The new DNA sequence corrected a mutation in the target, the authors reported.

PNA, they concluded, could serve as a tool both for research and for repairing genes implicated in hereditary diseases such as sickle cell anemia and cystic fibrosis.

—John Curtis

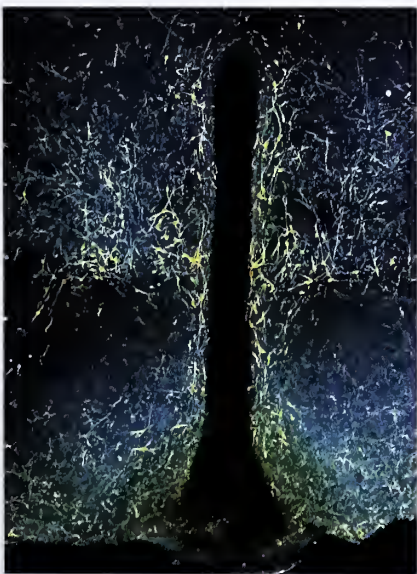
## BOOST FOR PROTEIN, GENE STUDIES

The Center for Genomics and Proteomics, founded last year with a \$200 million investment from the university, awarded \$300,000 in seed money this winter to seven groups of scientists on Science Hill and at the medical school.

"We were looking for projects which have prospects of developing into large programs," said Sherman M. Weissman, M.D., Sterling Professor of Genetics and professor of medicine, co-director of the center. Michael Snyder, PH.D., the chair and Lewis B. Cullman Professor of Molecular, Cellular and Developmental Biology, is the director of the center. The funded projects will include research in lipids, *Arabidopsis* proteome chips, genomic microarrays in *C. elegans* and *Drosophila*, a cryopreservation facility and profiling of the rice genome.

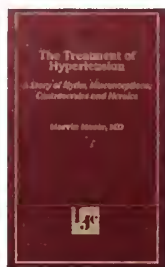
"The pilot grants are a great way to stimulate integrative and cutting-edge research projects for the center," said Snyder.

—John Curtis



TAMAS HORVATH

A cross section of the hypothalamus shows ghrelin neurons and axons, in yellow. These molecules coordinate processes including appetite.



**The Treatment of Hypertension: A Story of Myths, Misconceptions, Controversies and Heroics, 2nd ed.**

by Marvin Moser, M.D., clinical professor of medicine

*Le Jacq Communications*  
(Darien, Conn.) 2002

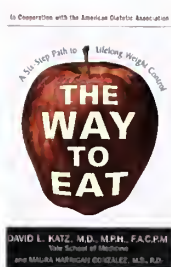
Moser focuses on the devastating consequences of untreated hypertension. Management of this public health problem has evolved over the past century; hypertension was once considered to have beneficial effects on health since the higher the pressure, the better the circulation. This rudimentary misdiagnosis along with other myths and misconceptions regarding the treatment of hypertension are discussed and debunked by the author.

**The Way to Eat: A Six-Step Path to Lifelong Weight Control**

by David L. Katz, M.D., M.P.H. '93, associate clinical professor of public health and medicine, and Maura Gonzalez, M.S., R.D.

*Sourcebooks Trade*  
(Naperville, Ill.) 2002

This book offers a comprehensive overview of food and diets, beginning with a guide to nutritional basics and what people need to eat vs. what they may want to eat. While not offering a specific diet plan, the book provides practical tips and persuasive reasons for changing eating habits.



**Captive of Libby Prison**

by Stewart J. Petrie, M.D., HS '55

*Pentland Press Inc.*  
(Raleigh, N.C.) 2002

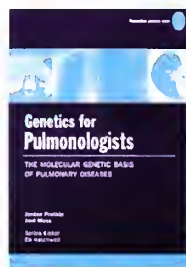
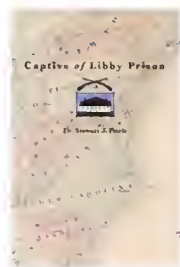
Petrie has captured a side of the Civil War that is not often portrayed: a personal perspective. Fighting for the Union Army during the Civil War, Charles Robinson—Petrie's great-great-uncle—wrote home frequently to friends and family describing the battle being fought around him. He and the other men in his regiment were captured by Confederate soldiers and held in the notorious Libby Prison. These personal accounts describe a far different war than the one often portrayed by military strategists.

**Genetics for Pulmonologists: The Molecular Genetic Basis of Pulmonary Diseases**

by Jordan Prutkin, M.D. '02, Joel Moss, M.D., and Eli Hatchwell, series editor

*Remedica Publishing*  
(Lincolnshire, Ill.) 2002

*Genetics for Pulmonologists* provides an overview of lung diseases whose genetic defect has been defined as of June 2001. It is an easy-to-use manual with concise reviews of genetic diseases that a pulmonologist might encounter.



**Overcoming Dyslexia: A New and Complete Science-Based Program for Overcoming Reading Problems at Any Level**

by Sally Shaywitz, M.D., professor of pediatrics and in the Child Study Center

*Alfred A. Knopf*  
(New York) 2003

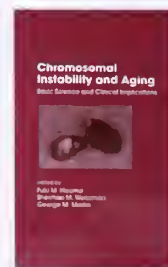
This comprehensive book helps us understand, identify and overcome the reading problems that plague American children. Shaywitz's book corrects such popular myths as the beliefs that dyslexia is primarily a male problem, that children with dyslexia see words backwards and that dyslexia is linked to intelligence. She shows that although dyslexia cannot be outgrown, its effects can be overcome with careful planning and hard work.

**Encyclopedia of Psychotherapy**

edited by William H. Sledge, M.D., FW '75, professor of psychiatry, and Michel Hersen, M.D.

*Academic Press*  
(San Diego, Calif.) 2002

This two-volume set covers the major psychotherapies currently in practice as well as the classical approaches that laid the foundation for the various contemporary treatment approaches. In addition, it identifies the scientific studies conducted on the efficacy of the therapies and reviews the theoretical basis of each therapy.



**Chromosomal Instability and Aging: Basic Science and Clinical Implications**

edited by Fuki M. Hisama, M.D., HS '92, assistant professor of neurology, Sherman M. Weissman, M.D., Sterling Professor of Genetics and professor of medicine, and George M. Martin, M.D.

*Marcel Dekker Inc.*  
(New York) 2003

Understanding the biological basis of aging is increasingly important as we anticipate the impact that a rapidly growing older population will have on the medical and social landscape. This book provides readers with background information on the biology of aging and the genetic alterations and epigenetic remodeling that occur with normative aging. It brings together expert reviews on the cellular and molecular bases of chromosomal instability and aging in human diseases and animal models, cellular senescence, telomeric regulations and oxidative stress.

*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](mailto:cheryl.violante@yale.edu)





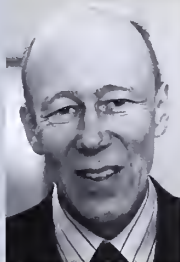
JULIA GREENSTEIN

**From pigs, the possibility of replacement tissue**

With donor organs unavailable for most of the 80,000 people awaiting transplants in the United States, scientists are working to overcome the two biggest hurdles to xenotransplantation—immune rejection and infection. A Massachusetts company, Immerge BioTherapeutics, in collaboration with researchers around the country, has eliminated a gene in a cloned “knockout” pig that produces a key enzyme in the rejection process. The company has also identified swine that do not produce porcine endogenous retrovirus, which has been found to infect human cells *in vitro*.

“The waiting list for transplants continues to grow,” Julia L. Greenstein, PH.D., president and CEO of Immerge, said in a January talk sponsored by the Interdepartmental Program in Vascular Biology and Transplantation. “For the most part the donor list has remained incredibly static. We need to be able to do something else to address the patients who are on the waiting list and are never going to get organ transplants.”

—John Curtis



TOMAS LAGERWALL

**An advocate for access, for all**

As a child Tomas Lagerwall paid a visit to a “cripple center” in his native Sweden. “I remember seeing all those people sitting in wheelchairs doing nothing,” said Lagerwall, secretary general of Rehabilitation International, a network of more than 230 organizations in 90 countries devoted to promoting the rights of the disabled.

But over the years attitudes toward people with disabilities have changed, Lagerwall said at a talk at the School of Public Health in January. The 19th-century notion of institutionalizing them fell by the wayside as people with disabilities became more independent and capable of negotiating the outside world. “Today we talk about disability rights and an inclusive society,” Lagerwall said.

To that end Rehabilitation International is promoting a UN Convention on the Rights of People with Disabilities as well as community-based rehabilitation (CBR), which provides cost-effective programs in developing countries where at least three-quarters of those with disabilities live. “The CBR concept is that two-thirds of the rehabilitation work can be done at the local level, with local staff. It does not have to be very costly.”

—John Curtis



DANIEL SULMASY

**In medicine, a spiritual crisis**

Medical science has, in the last century and a half, permitted miracles unimaginable in the day of Hippocrates, says Daniel P. Sulmasy, M.D., PH.D., a Franciscan friar and director of the Bioethics Institute of New York Medical College. Yet, he says, physicians are among the most dissatisfied of professionals. The science and economics of healing, he told an audience at the Program for Humanities in Medicine Lecture Series in January, have dehumanized medicine. “I believe people are reaching a point which is very close to crisis,” he said. “I believe the crisis is primarily a spiritual one.”

Illness, he said, is a disruption of relationships within the body. Healing is the art of restoring “right relationships.” That requires more than a seven-minute office visit, with referrals to unknown specialists or prescriptions for medications limited to those on an HMO’s approved list. It requires a strong relationship between physician and patient. “What is the meaning of medicine? What is its value? What are right and good healing relationships about?” he asked. “Those are spiritual questions.”

—John Curtis



JOHN CURTIS (4)

AMY ZELSON MUNDORFF

**Giving names to the dead in the wake of 9/11**

As the Office of the Chief Medical Examiner in New York City began processing the victims of 9/11, a fundamental decision about the massive operation was made. “No autopsies were going to be done,” said Amy Zelson Mundorff, M.A., a forensic anthropologist with the city. “The cause and manner of death were not at issue.”

Instead, Mundorff said at a pathology grand rounds in February, identification was the main concern. A “rule of thumb” quickly emerged: any human fragment bigger than a thumbnail would be DNA tested. DNA testing determined the identities of more than 5,000 of the 20,000 fragments found. The medical examiners also used dental records, clothing, personal effects, tattoos and prostheses to identify 1,480 of the 2,792 victims. They still have hopes of someday identifying all the victims.

“Our chief has promised the families it will never be over,” Mundorff said. “Even though we have done all the identification that we can from the information that we have, if new technologies come up in the future we can exhume and retest the unidentified pieces, if requested.”

—John Curtis

# A new space for science

With the opening of The Anlyan Center for Medical Research and Education, the school dedicates its largest building ever.



TERRY DAGRA DI

**ABOVE** Betty Jane and John Anlyan, accompanied by President Richard Levin, then-Dean David Kessler and New Haven Mayor John DeStefano Jr., cut the ribbon at the dedication of The Anlyan Center for Medical Research and Education in May.

**RIGHT** Detail from the entrance to the Anlyan Center.







TERRY DACKAIII

“The architecture of a building is a statement about the culture of the institution,” Elias Zerhouni, director of the National Institutes of Health, said in his keynote address at the dedication. “The culture of research has changed at Yale.”

When A. John Anlyan, B.S. '42, M.D. '45, arrived at the School of Medicine for first-year classes in the early 1940s, the corner of Congress Avenue and Cedar Street was home to the nursing dormitory and down the block from a few restaurants, a bar and not much else.

New Haven has changed since Anlyan's medical school days, perhaps no part of it more than this intersection and the city block that is bounded by Congress and Howard avenues and Cedar and Gilbert streets.

When Anlyan and his wife, Betty Jane Anlyan, visited New Haven in May for the dedication of the medical school's newest building, they saw the transformation firsthand. The new 457,000-square-foot complex occupying the block today, which combines facilities for research, education, magnetic resonance imaging and the care of laboratory mice, is the largest building ever constructed at the School of Medicine.

The Anlyans, who were early supporters of the project and had funded the building's education wing, decided during their visit to increase the amount of their donation significantly. In recognition of their generosity, the building has been named The Anlyan Center for Medical Research and Education. As President Richard C. Levin said in thanking them for their support, “No one has done more to assure the future of these endeavors at Yale than John and Betty Anlyan. Their gift has been integral to the realization of the vision for this building.”

**A gala celebration**

The building was dedicated on May 2 at a gathering of university and civic leaders, faculty members and alumni. Then-Dean David A. Kessler, M.D. [See “From the Editor,” p. 3], called the \$176 million structure, which will be home to some 700 investigators, “the manifestation of Yale's vision for scientific collaboration, the study of human biology and educational excellence.”

Joined by several hundred guests including the director of the National Institutes of Health (NIH), Kessler predicted that the building would foster interdisciplinary collaborations among basic and clinical investigators and contribute to a “re-engineering of the clinical research enterprise ... that brings bench discoveries to the bedside.” President Levin—joined on the podium by university officers, New Haven Mayor John DeStefano Jr., the Anlyans and other major donors to the project—noted that the building constitutes the largest single investment in a building in Yale's history. In addition to thanking the Anlyans, he acknowledged the significant contribution of The Starr Foundation, a leading funder of medicine and health care worldwide, which is recognized in the naming of the C.V. Starr Atrium. Levin also thanked the W.M. Keck Foundation for helping to fund the 4-tesla magnet in the W.M. Keck High Field Magnetic Resonance Laboratory and the Howard Hughes Medical Institute (HHMI) for its ongoing support







FROM LEFT Before construction there was demolition. In January 2000 a wrecking ball began tearing down a former administrative building on Congress Avenue that had once been a dormitory for nursing students. By March the site, a block bounded by Congress and Howard avenues and Cedar and Gilbert streets, had been leveled in preparation for excavation and the laying of the foundation. Crews next began pouring walls and footings. Summer brought more cranes, dump trucks and cement mixers as walls started to rise. In the fall the building's skeleton took shape as steel workers laid beams. Project manager Reyhan Larimer and colleagues watched in March 2001 as workers "topped off" the building with its last piece of structural steel.

*Photographs by John Curtis*





Denise Scott Brown and Robert Venturi, of Venturi, Scott Brown & Associates of Philadelphia, designed the building in collaboration with Payette Associates of Boston.

for scientists at Yale, including HHMI investigators housed in the new building.

### Big boost for science

In his keynote address, NIH Director Elias A. Zerhouni, M.D., underscored the importance of placing basic and clinical researchers in close proximity, as is the case in the new building. “We are in revolutionary times that require a change in the way we do research,” said Zerhouni, who encouraged scientists to “break the barriers between departments” by forming large teams that are truly interdisciplinary. In the teams Zerhouni envisions, scientists will not simply contribute expertise for a study directed by a colleague in another discipline, but rather will serve as equal partners, tackling “topics that cross diseases” and transcend departmental boundaries.

Zerhouni called the life sciences “the last frontier” and urged medical schools to “make it easy on the physicians to engage in clinical research. ... Young investigators need to be engaged early to enter biomedical research.”

The new building comprises six floors of laboratories, a three-story education wing for teaching anatomy and histology, a vivarium and greatly expanded facilities for magnetic resonance imaging research. The open spaces and large windows of the granite, brick and limestone building suggest a New England textile mill. The design and con-

struction process itself was a study in effective collaboration, said architect Denise Scott Brown of the firm Venturi, Scott Brown & Associates of Philadelphia, which designed the building with Payette Associates of Boston. When architects and builders collaborate with a client like Yale, they “embark on an adventure together,” Scott Brown said, “matching wits and building on each other’s ideas.”

Kessler noted that the completion of the building is “a step along the way,” part of a plan by Yale to invest \$500 million in the medical school campus over the next 10 years. “This building is a model we will use in the future to continue to transform the face of medicine at Yale.”

### A lasting influence

Benefactor John Anlyan first came to New Haven from his native Alexandria, Egypt, in 1939 to attend Yale College and, later, the School of Medicine.

He trained in surgery at the University of Chicago Clinics and at Ohio State University while earning a master’s degree in enzyme chemistry. After returning to Yale as an instructor for two years and serving at Sloan-Kettering Institute in New York as a Damon Runyon fellow, Anlyan and his wife set out for California in 1954. For the next half-century, the couple devoted themselves to life in San Francisco, to his career as a cancer surgeon—and to Yale.





In recent decades, Yale presidents and deans visited the Anlyans' San Francisco home, and the Anlyans retained a close interest in the university that educated John Anlyan and his two younger brothers—William, B.S. '45W, M.D. '49, who went on to become the chancellor of Duke University Medical Center; and Frederick, B.A. '51, M.D., a Long Island pathologist. "I love Yale," Anlyan said in June during a telephone interview from his new home in San Rafael, Calif. "It would never occur to me to do anything else but support it."

But John Anlyan is not finished giving.

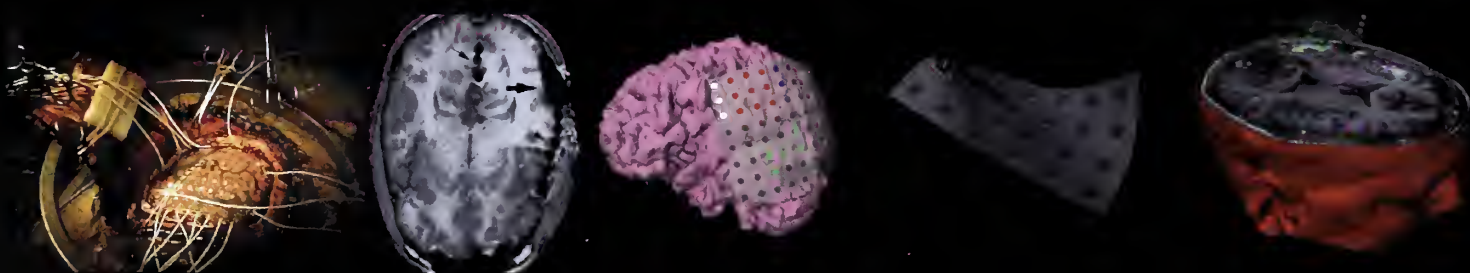
He has also willed his oil paintings of San Francisco scenes to the school, to be hung in the dissection room. It turns out that Anlyan, who speaks 10 languages and studied law in his spare time, isn't a bad artist, either. "I think they'll make it a happier place." YM

**FROM LEFT** In January 2001, a year after demolition began, workers were pouring concrete floors in the building's north wing. Meanwhile, on the ground below, numbered steel beams awaited placement. By summer the building was sheathed in scaffolding as workers finished the building's "skin" of granite, limestone and 560,000 bricks. Inside the building's two wings, finishing work—installation

of cabinetry, electrical wiring, plumbing, duct work and heating and air conditioning—continued. July 2001 marked a milestone with the completion of "mechanicals," and two weeks later interior walls were rising. By summer 2002 the building was ready for testing of electrical, heating, air conditioning and air filtration systems. The final step was customizing the building to accommodate laboratory needs.



# High resolution



The opening of a new Magnetic Resonance Research Center gives Yale expanded capabilities for advancing imaging science and disease understanding. Improving epilepsy treatment is just one focus.

By Marc Wortman

## A quarter-century of progress

1979

### Robert Shulman joins faculty

Robert G. Shulman, PH.D., who had pioneered usage of nuclear magnetic resonance spectroscopy (MRS) in combination with carbon isotopes to follow cellular metabolic pathways, joins Yale's Department of Molecular Biology and Biophysics from Bell Labs.

1983

### MRS brain studies

The first proton and carbon MRS studies of the brain are performed at Yale, demonstrating the technology's potential to explore brain metabolism.

1986

### MRC opens

With its first magnet for human subjects, the School of Medicine opens the Magnetic Resonance Center (MRC) in Fitkin Memorial Pavilion basement. Shulman directs the research portion and Richard H. Greenspan, M.D., chair of diagnostic radiology, directs the clinical portion. The MRC's two original magnets are still in use.





my Taylor (not her real name), a 30-something mother of two with a palm-size opening in her skull, tries to muster a smile as she sits up in a bed in the epilepsy monitoring unit at Yale-New Haven Hospital. A grid of depth electrodes penetrates the lumpy wet crown of her exposed neocortex. More than a dozen wires lead to a computer waiting to register the electrical firing patterns of the next in what has become a regular but unpredictable series of epileptic seizures.

The medications she has been taking for more than a decade no longer control those seizures, which are the result of temporal lobe epilepsy. She cannot work or drive, and rarely leaves home anymore. She will remain in the unit for up to 10 days, until enough data have been collected to localize the source of the malfunction in her brain. Electrical stimulation will also be fed into the electrodes while she undergoes a battery of tests to determine the precise location of critical language, movement and sensory areas.

Despite her present misery, she is fortunate. Hers is the only type of chronic brain disease that can be cured with surgery. But only the results of the tests will reveal whether she is a candidate for treatment.

Two to three patients each month undergo intracranial surgery for the type of testing Taylor underwent at Yale as a first step toward surgery to cure her epilepsy. The Epilepsy Education Association estimates that 20,000 Americans with intractable seizures could be cured with surgery, yet each year only 500 undergo the procedure. Fear and expense keep many patients away. Altogether, the procedure can cost more than \$120,000. Using new imaging technologies, Yale scientists hope to make the choice of surgery far less frightening and more economical. A mul-

**OPPOSITE** Using depth electrodes to record brain activity, neurosurgeons are able to locate and remove the tissue responsible for epilepsy while leaving critical brain regions unharmed. Yale scientists are now refining the procedure, using magnetic resonance imaging to reach the same outcome faster and less invasively. The sequence of images at left shows the process by which the electrode data are compared to three-dimensional MR data during development of the new system.

tifaceted team of engineers, linguists, physicists, neurologists, neuroscientists, applied mathematicians, computer scientists and neurosurgeons is refining methods for applying emerging magnetic resonance imaging (MRI) and spectroscopy (MRS) technologies to epilepsy. If they succeed, sometime within the next five years they will be able to locate the seizure focal point in a patient's brain and map out areas of brain function in less than three hours—a tiny fraction of the 10 days Taylor spent under observation—and without opening the skull. Just eliminating that part of the surgical process will reduce both the total cost of epilepsy surgery by up to 40 percent and a source of enormous fear for patients.

The Yale investigators' ambitions run well beyond that. They hope that sometime within the coming decade temporal lobe epilepsy will be curable without any surgery at all. According to Taylor's neurosurgeon, Dennis D. Spencer, M.D., HS '76, "It all hinges on our being able to use magnetic resonance imaging machinery to measure what's happening in the human brain."

### **New windows, new insights**

Spencer, director of the Epilepsy Surgery Program at Yale and chair of the Department of Neurosurgery, already relies on MR studies to help guide him when he operates. The possibilities for developing treatment methods that, according to Spencer, "will put me out of business" depend on studies under way at Yale's Magnetic Resonance Research Center (MRRC). Already one of the world's leading scientific research programs of its kind, the MRRC received a major boost last winter with the opening of its new home in the 457,000-square-foot Anlyan Center for Medical Research and Education.

### **1987**

#### **MRI group formed**

Diagnostic radiology faculty launch research program aimed at the development of new approaches to magnetic resonance imaging (MRI) and improving the understanding of contrast mechanisms in MRI.

### **1988**

#### **Crossing to humans**

The first MRS spectra of glutamate in the human brain demonstrate that information similar to that gleaned from previous animal studies could be obtained from the human brain.

### **1990**

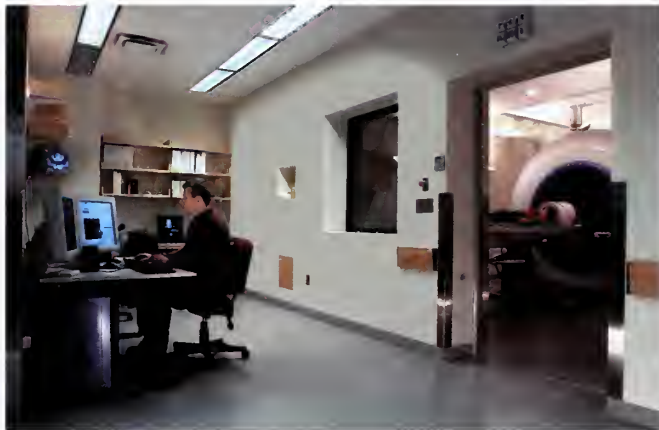
#### **Glycogen synthesis in diabetes**

MRS studies show that metabolic impairment of muscle glycogen synthesis leads to elevated post-meal blood glucose in non-insulin-dependent type 2 diabetes. This is first use of MRS (and of noninvasive imaging in general) to establish a fundamental mechanism in the etiology of a disease, and it paves the way to many pioneering studies of mechanisms of diabetes.

### **1991**

#### **MR for brain function**

Lactate, a substance sensitive to increased activity in the human brain, is shown to increase during visual stimulation. This first use of MR (imaging or spectroscopy) to study brain function leads to a major application of MRS and MRI in use today.



TERRY DAGRADI (2)

The MRRC's 50-member staff, along with six multiton magnets supported by banks of computers, relocated from the Fitkin Memorial Pavilion basement to more than double the space in a two-story facility in the Anlyan Center (See "The Big Move," Winter 2003). On the upper floor of the new facility, faculty and administrative offices surround a large, light-filled open work space with computer workstations at its center. The facility has 40 networked computers dedicated to analyzing data produced by its magnets. At the computers, students and other investigators manipulate images of organs and graphic displays of data and develop algorithms to model the behavior of parts of atoms within cells.

For the faculty and staff, the new quarters represent the increasing importance of imaging technology to biomedical science and health care—and a big boost for morale. Director Douglas L. Rothman, PH.D., professor of diagnostic radiology, notes that this is the first time he has had a window in his office since he came to Yale as a graduate student in 1985. More important than what he can see out the window is what the new facility will enable imaging scientists to see at the molecular level. "This," he says, "is one of the best facilities in the world now."

On the floor below, the MRRC houses eight magnets, including two newly purchased systems. The MRRC maintains three animal and tissue research systems, including a soon-to-be-installed 11.75-tesla animal magnet, able to measure changes in animal metabolism at the molecular level. (A tesla, named for radio-engineering pioneer Nikola Tesla, is a measurement of the strength of a magnet's field.) The center also houses three human systems, including a new 4-tesla functional MRI (fMRI) system in the W.M. Keck High Field Magnetic Resonance Laboratory that can pinpoint functional activity in an area as small as 500 micrometers across. That is half a millimeter, about the size of the fundamental information processing units in the human brain (often referred to as cortical columns).

The state-of-the-art, \$3.7 million human magnet was paid for in part through a \$1 million grant from the W.M. Keck Foundation. There are also empty bays waiting for eventual installation of two additional magnets. All of the MRRC bays are encased within 11 inches—nearly 2 million



**TOP** The new Magnetic Resonance Research Center includes a 4-tesla magnet for human studies that can pinpoint functional activities in areas as narrow as 500 micrometers.

**ABOVE** Center directors Rothman, left, and Constable, right, and collaborator Duncan.

### 1992-1993

#### Cognitive fMRI

For the first time, functional MRI (fMRI) is proven able to measure single, brief, mental events without averaging across many seconds. The paradigm is now considered standard in many fMRI applications.

### 1993-1995

#### Measurement of GABA

Spectral editing in humans is developed and then used to demonstrate that MRS can measure the neurotransmitter gamma amino butyric acid (GABA). This opens the way to study alterations in GABA metabolism in neurological and psychiatric disease, starting with the observation that the mechanism of action of several anti-epileptic drugs is through elevation of cellular GABA.

### 1995

#### Sex differences in brain

fMRI reveals that women and men use different brain regions to process language. Results demonstrate more bilateral activation in women during word processing compared to generally left-brain activity in men. Research provides direct evidence that helps to explain why women are less likely to lose language capabilities after strokes.

#### Functional localization verified

Studies validate the emerging method of fMRI by demonstrating that areas found to activate in fMRI are representative of true functional areas. Results also demonstrate many additional systems involved in complex cognitive processing.



pounds—of steel and copper to shield out even the most minute radio signals, which could wash out reception by the ultrasensitive magnets, and to contain their magnetic fields.

The new magnets have already dramatically improved what investigators will be able to visualize. Studies of the central nervous system will benefit particularly from the magnets' higher sensitivity. "They allow us to look at fundamental neuronal processing units, which we could not do with our previous equipment," says Rothman. For instance, tissue that causes epileptic seizures can now be studied to determine precisely how metabolic processes critical to normal neuronal activity have malfunctioned, information crucial to the development of new treatment methods.

### Seeing deeper

MRI and MRS studies in many fields at Yale, including reading and dyslexia, substance abuse, diabetes, mental illness and cardiovascular medicine, are providing methods for tracking down disease mechanisms and leading to novel forms of treatment. Basic science research at the MRRC is contributing to a new understanding of fundamental physiological mechanisms such as how energy is metabolized in the brain, heart and muscles. MR physicists at the center have also expanded the understanding of the underlying physical principles of MRI and MRS.

The MRRC is both a core center serving the research needs of the entire university and the primary research space for seven Yale faculty. These faculty have primary or secondary appointments in the Section of Biomedical Imaging in the Department of Diagnostic Radiology, which was formed to synergize the expertise of the imaging research groups at the School of Medicine. About 50 separate grants, totaling nearly \$35 million and representing 50 faculty members in 13 different departments, rely upon the MRRC. The center itself is supported by fees from those grants and \$7 million in direct research grants to faculty in the Section of Biomedical Imaging. The section is linked to the Department of Biomedical Engineering, which is part of both the medical school and the Faculty of Engineering on the main campus. In 2002, the new National Institute of Biomedical Imaging and Bioengineering of the National Institutes of Health

awarded its first-ever grant to the section, \$1.3 million to develop technology to map neocortical epilepsy.

Faculty and staff at the MRRC work on their own research advancing imaging science and also devise new ways to apply imaging technologies to biomedical problems. "We're developing state-of-the-art magnetic resonance techniques," says R. Todd Constable, PH.D., associate professor of diagnostic radiology and neurosurgery and director of the fMRI group at the MRRC, "and as a function of that we're able to provide a state-of-the-art resource for the whole university."

MRI is a complex technological feat, combining physics, mathematics, computer sciences and biomedical science. The hauntingly clear MRI pictures result from the differing radio signals given off by protons in the atoms of tissues exposed to the intense magnetic fields. Those signals must then be interpreted by computers and translated into graphic imagery. The MR data require extensive manipulation, particularly in complex experiments, to be translated into readable images. Rothman says, "Studies rarely work straight out of the can."

Constable and his 20-member team provide imaging support for more than 30 faculty members directing major grant-supported investigations utilizing fMRI within and outside the university. These include efforts to improve the understanding of autism with Robert Schultz, PH.D., in the Child Study Center; studies of the role of the frontal lobe in working memory and executive processing with neurobiologist Patricia S. Goldman-Rakic, PH.D.; mapping of memory processing with psychologist Marcia K. Johnson, PH.D.; and experiments aimed at finding better treatments for gambling disorders with Marc N. Potenza, PH.D. '93, M.D. '94, and for schizophrenia with Bruce Wexler, M.D., FW '77, both in the Department of Psychiatry.

One of the most active programs utilizing MRRC resources is the Yale Center for the Study of Learning and Attention, which has pioneered the study of pathways the brain uses for reading. Co-director Sally E. Shaywitz, M.D., also directs the Connecticut Longitudinal Study, which is investigating the development of reading skills in children from ages 7 to 18, and in adults, and is the largest MRI study ever undertaken in children. With the resources of

### 1996

#### Etiology of epilepsy

MRS is used to show that cellular GABA levels are low in epileptic patients with poor seizure control. This and subsequent studies have established low cellular GABA levels as a significant mechanism leading to cortical hyperexcitability in epilepsy.

### 1997

#### Reading and brain activity

Phonological effects are linked to printed-word identification and reading performance. Many studies in fMRI now equate brain activity with subject performance.

### 1999

#### Glutamate/glutamine cycle

First measurements of the glutamate/glutamine cycle, a direct measure of excitatory neurotransmission, are made in awake human subjects and show high rates. Results overturn the existing paradigm that the awake brain has minimal neuronal activity while resting. Findings suggest that, rather than waiting to be 'turned on,' the brain is constantly functioning in anticipation of stimuli.

#### GABA and psychiatric disorders

MRS data show that GABA metabolism is altered in depression. Subsequent studies show alterations in panic disorder, premenstrual dysphoric syndrome and alcoholism. Findings lead to a new appreciation of the importance of inhibitory neurotransmission and amino acid metabolism in psychiatric disease.

the MRRC, Shaywitz and her husband and research partner, Bennett A. Shaywitz, M.D., have mapped the neural systems responsible for reading. They have also begun to explore the impact on those neuronal pathways when educational techniques are used as interventions to help children with dyslexia overcome their reading challenges. "We can see how the brain is responding," Bennett Shaywitz says of those education interventions. "If we see effects on the brain, we'll know we're on the right track."

The Shaywitzes have begun to explore the use of MRS, a technique for measuring metabolic rates within tissue. The technique can measure the increased presence of a harmless biochemical tracer linked to glucose to show where increased or decreased metabolic activity, associated with tissue function, is occurring. The Shaywitzes will use MRS to search along the neural pathway for reading to find where disruptions underlying learning disorders may be taking place. "We are addressing questions at a finer and finer level," says Bennett Shaywitz. By using the brain imaging technology they hope eventually to diagnose learning disorders early enough to prevent life-long difficulties.

### Diabetes and brain energetics

Robert G. Shulman, PH.D., founder and for many years director of research in the MRRC and now Sterling Professor Emeritus of Molecular Biophysics and Biochemistry, oversaw installation of the first human-sized research magnet in Fitkin in 1986. He pioneered many of the MR techniques now used in biomedical research around the world. His work demonstrated the validity of MRS studies for tracing metabolism in tissue and then showed that the technology could be used to explore the role of metabolic pathways in humans. Many clinical advances followed those early studies.

In collaboration with professor of medicine and Howard Hughes Medical Institute investigator Gerald I. Shulman, M.D., PH.D. (no relation), Shulman showed that a defect in muscle storage of glycogen was responsible for the impairment exhibited by type 2 diabetes. That was in 1990. The following year, Robert Shulman, Rothman and James W. Prichard, M.D., a former professor of neurology

who is now retired, were the first to demonstrate the effectiveness of MR to follow brain functional activity, now a major application of the technology. Shulman also directed studies that proved the feasibility of using MR to study regional metabolic functioning in the brain.

Much about the brain remains a mystery, including how it utilizes energy to carry out its most complex functions. Robert Shulman, Rothman, and Fahmeed Hyder, PH.D., an associate professor of diagnostic radiology in the MRRC, have made a number of recent findings using MRS that have sparked an emerging re-evaluation of the nature of brain function. These findings were made possible by the development of MRS methods to simultaneously image brain energy consumption and the release of glutamate and GABA, the primary excitatory and inhibitory brain neurotransmitters, respectively. Their studies have shown that even at rest the brain uses 80 percent of its energy to support neuronal firing and neurotransmission, which are the bases of brain function. Previously it was felt that there was little neuronal activity in the resting brain.

Understanding the role of this enormous underlying activity has implications for brain function studies of all sorts. "The baseline is not negligible," says Robert Shulman. Rothman adds, "Our brains are always 'on,' despite the high energy cost." Understanding why this resting neuronal activity is necessary could help explain the complexity of higher-order brain functions, such as learning and memory, and potentially open up new pathways for understanding disruptions in those functions. "These results show that the popular analogy that the brain acts like a computer, which only accesses its processing power when it is called on to perform a task, is not correct," says Rothman. "A new view of the cognition will need to account for the data."

### Back to the OR

Novel understanding of brain metabolism made possible by Rothman, Robert Shulman and others has radically altered neurosurgeon Spencer's outlook on epilepsy and its potential treatment. Epileptic seizures are a state of electrical hyperexcitation that starts from a single site in the

### 2000

#### Higher-order processing

Higher-order executive-processing regions in the brain are revealed for the first time, using fMRI, when subjects are asked to perform a dual task which requires focusing on some stimuli while ignoring others.

### 2001

#### Functional reorganization in brain

Studies demonstrate cases of true functional plasticity in the adult brain and characterize the reorganization observed as a function of a specific type of brain lesion (epilepsy, tumor, arterial venous malformation).

### 2002

#### Neurophysiological basis of fMRI

Quantitative fMRI methods are developed to map regional brain energetics directly. Further study shows that regional brain energy metabolism increases proportionately with neuronal firing during sensory stimulation in animal models, providing the first direct link between the imaging signal and electrical activity and opening up the possibility of using MRI to image brain function directly.

#### Bioengineering research partnership

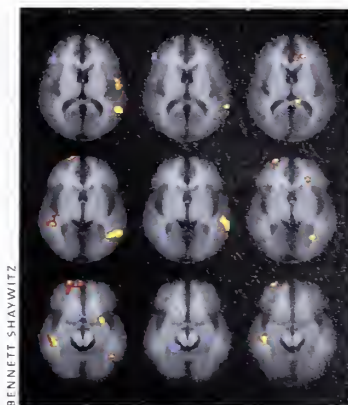
A large NIH-funded project combines state-of-the-art imaging resources, research development and computer vision to improve treatment planning and understanding of epilepsy.



brain and then spreads swiftly. Studies done at the MRC demonstrate what Spencer terms a paradox. The focal point triggering the seizure is metabolically depressed relative to its surroundings. Spencer, Rothman and Ognen A.C. Petroff, M.D., HS '82, associate professor of neurology, have been carrying out MRS studies to explain that paradox. MR analysis of tissue removed from patients with epilepsy showed that it was not processing glutamate appropriately. Instead, due to impairments in the cellular energy supply needed to keep extracellular glutamate at a safe, low level, the glutamate outside the cells was "backing up," eventually setting off an electrical fluctuation that spreads quickly into a seizure. This and related findings may provide a key to treatment advances.

"This opened an important little door where we've not had many thoughts about new therapies," says Spencer. "If it is an energy problem, then this is perhaps reversible." Delivering medication to the site of the brain malfunction could reregulate the brain's metabolism, much like pace-makers now do for patients with heart disease, to prevent seizures. Utilizing new technology in the MRC, he says, "we can now create animal models to think about therapies. The underlying cause of epilepsy may be reversible, but the only way to know is by imaging before and after surgery."

His work with the MRC has already paved the way for better and potentially less-invasive treatments for epilepsy patients. In association with Spencer, the MRC has developed new ways of bringing imaging techniques directly into the operating room. This summer, Spencer will begin operating on patients, utilizing computer-guided equipment developed by the Yale team in conjunction with the firm BrainLAB. He will operate while wearing goggles with a built-in monitor that gives him access to a virtual three-dimensional display of MR imagery from inside patients' brains. The images, linked to the placement of the scalpel, will show him precisely where the cutting blade is located beneath the surface of the brain and what functional areas it is near. That should help reduce damage to surrounding tissue. Already he utilizes a portable version of the BrainLAB to give him visual information about the



BENNETT SHAWWITZ

Sally and Bennett Shaywitz have used functional MRI to measure differences in brain activity between groups of children with and without dyslexia. Colored areas in the images highlight locations in the brain where there is a marked difference in function in the two groups.

patient's brain as he operates. "It looks just like a tricorder," he says, referring to the medical device used in the futuristic television and movie series *Star Trek*.

James S. Duncan, PH.D., vice chair of diagnostic radiology and director of the Image Processing and Analysis Group, is helping to develop even more futuristic treatment methods. His group developed the software used to integrate spatial, functional and metabolic images recorded in MR studies into the real-time spatial coordinates of the patient's brain as Spencer operates. He is also attempting to develop a model that simulates the natural deformation of the brain that takes place during open-skull surgery. "If you are off by even less than a centimeter, you can hit critical areas," Duncan says. In the coming years, Spencer will use Duncan's models of brain deformation while he operates. The two expect that, within the next five years, MRI and MRS testing to identify the source of seizures and map the functional areas of the brain in combination with Duncan's graphic models will eliminate the need for the costly, arduous and potentially hazardous intracranial surgery that Taylor underwent.

Spencer credits the scientists at MRC with changing his view of epilepsy. "Instead of thinking of epilepsy as an electrical problem," he says, "I now think of it as a metabolic disease. They are much more than MR physicists. They make you think about disease-related problems in a different way."

Marc Wortman is a contributing editor of *Yale Medicine*.

#### Differential processing of faces

Research demonstrates that autistic patients' brains show similar activation patterns when processing pictures of objects and pictures of faces. Nonautistic control subjects activate a face-specific cortical region distinct from the object region when shown the same pictures.

#### Low birth weight and language

First study demonstrating not only structural but also functional differences between very-low-birth-weight infants and full-term infants.

#### A new home

The MRC moves to a two-story, state-of-the-art facility in the new Anlyan Center for Medical Research and Education, uniting the MRS and MRI groups into one comprehensive center for magnetic resonance research.

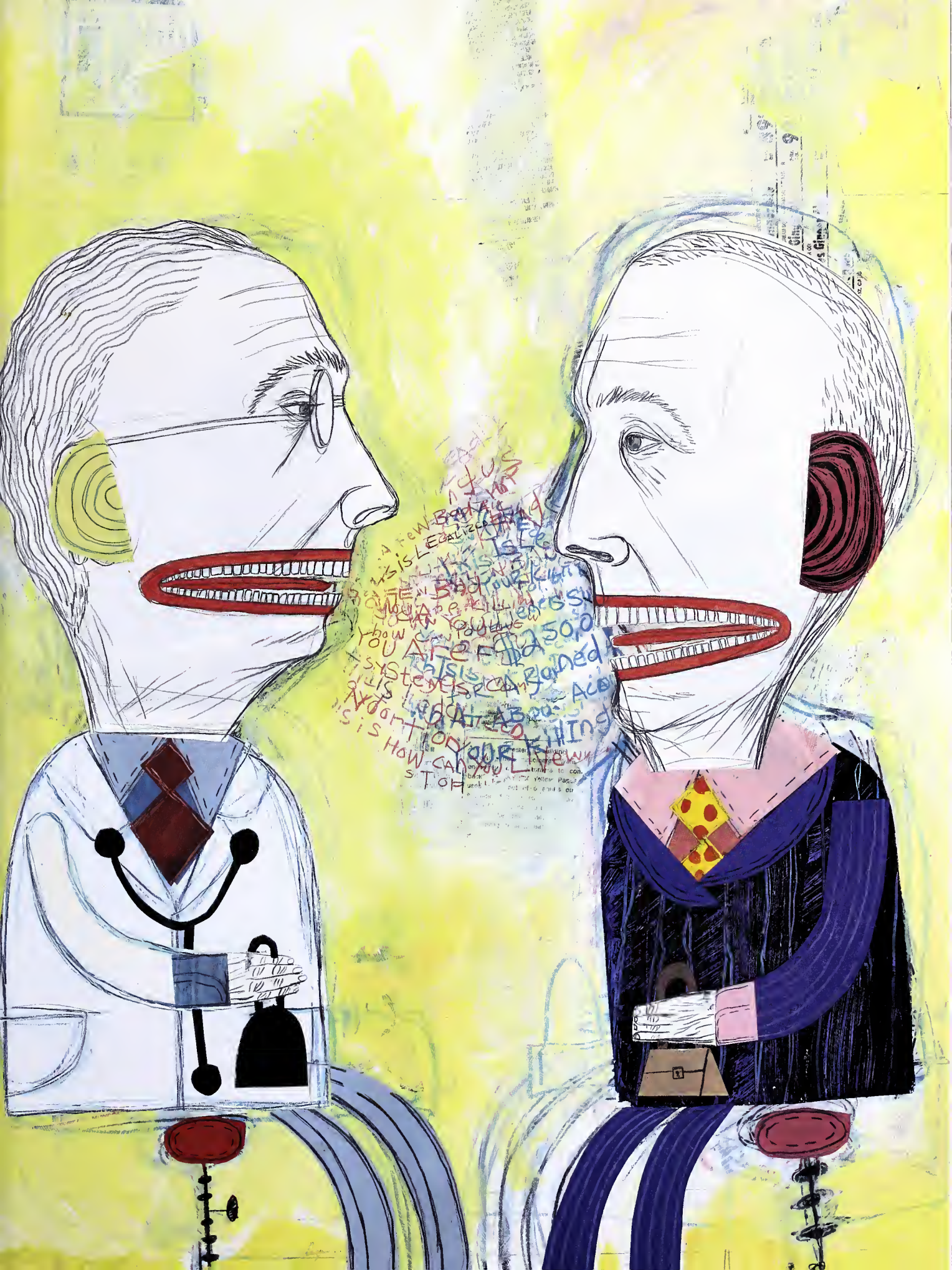
— Marc Wortman

Sources: Douglas Rothman,  
R. Todd Constable

# SLOWDOWN

With WASHINGTON HACKLING  
MEDICAL MALPRACTICE,  
IT'S DOCTOR VS. LAWYER  
IN THE COURT OF PUBLIC  
OPINION. BY ELI KINTISCH







When Ross M. Tonkens, M.D. '74, arrived in Las Vegas in 1990, the gold rush was on. Casinos were expanding, the work force swelled and doctors streamed into Nevada to serve a burgeoning local community. For five years Tonkens thrived in an independent internal medicine and cardiology

practice. "All a physician needed to succeed there was to be competent, caring and available," says Tonkens. Then, as he tells it, the lawyers arrived.

What followed was a nightmare. By last summer 58 orthopaedic specialists and vascular surgeons had walked off their jobs to protest soaring malpractice insurance rates—temporarily closing the trauma center at the University Medical Center in Las Vegas in the process. But even before that job action, Tonkens had faced a half-dozen lawsuits in the same number of years. One woman, with diabetes, sued him after her kidney failed. The suit charged Tonkens, at the time serving on his monthly rotation as admitting doctor in the emergency room, with "allowing" the patient to leave the hospital—even though Tonkens had advised against it, warning her that she could very likely lose a kidney if she did so. Indeed, the patient had even signed documents acknowledging her understanding of this warning.

The other lawsuits were similarly flimsy, and Tonkens had himself dismissed as a party or saw the cases thrown out. "Nevertheless, each suit cost me dearly in time lost from patient care," says Tonkens. "Every one of these was a 'pay me and I'll go away' extortion suit, with the plaintiff's attorney assuming I would rather settle than spend the time and money to defend myself." The pinnacle of Tonkens' legal skirmishes came when he found himself sued over his refusal to prescribe oral feeding and exercise to a comatose woman. The woman's son, who had filed the suit and had no heirs, later died, but the man's attorney refused to drop the case, claiming a "fiduciary duty" in the interest of his client's estate.

Among the first of the doctors who had come to Las Vegas at the beginning of the 1990s, Tonkens blames lawyers for his eventual retreat from Nevada. "In 2001, I was also in the vanguard, this time as one of the first physicians

to flee the state because of legalized extortion by the onslaught of personal injury attorneys flooding into the malpractice arena," says Tonkens, who is now director of medical and scientific services at Quintiles Transnational Corp., a North Carolina-based pharmaceutical consulting firm.

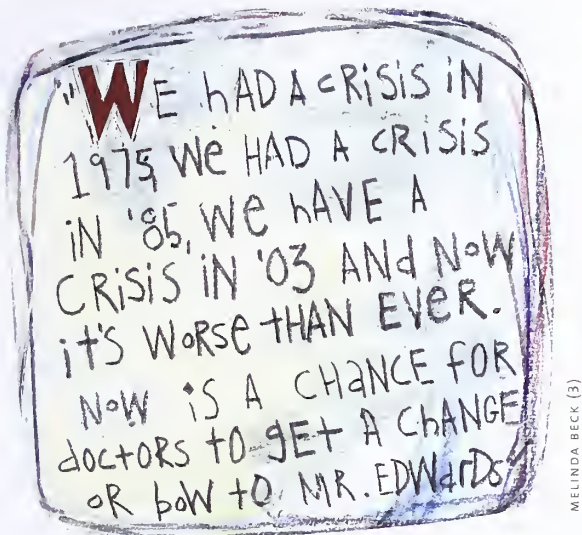
### Two views of the world

Tonkens' antipathy for attorneys reflects a growing tension in medicine, and one that has put doctors and lawyers at odds like never before. Already hurt by falling reimbursements from managed care and stung by the accompanying challenges to their professional autonomy, physicians now find themselves under assault on another front. Skyrocketing malpractice premiums are forcing doctors across the country to leave their practices; drop higher-risk specialties like neurology, obstetrics and orthopaedics; or move to states with more forgiving tort laws. Backed by President Bush and Senate Majority Leader Bill Frist, M.D., a Republican from Tennessee who is the first physician to lead the Senate, they blame lawyers for their woes and have pushed for reform in Washington and dozens of state capitals. At the top of the list when Bush made his State of the Union address last winter was a proposal for a \$250,000 cap on noneconomic damages in malpractice cases. That proposal passed the House of Representatives in March, but in July a Democratic filibuster squelched the bill in the Senate. Although national legislation is unlikely before the next election, Frist vowed that the issue "will be back." Several state legislatures may follow the lead of Texas, which passed a malpractice cap in June.



**Has the malpractice issue hit home with doctors? Nearly 2,000 white-coated physicians rallied outside Connecticut's Capitol building in late March, the largest such gathering ever.**





Trial lawyers insist that a cap would take away a malpractice victim's chance for recompense and that the soaring premiums are the fault of the insurance companies. The lawyers see themselves as protectors of patients—as well as scapegoats in the current debate—and show no signs of accepting a cap on damages. Mary E. Alexander, president of the Association of Trial Lawyers of America, sees a long struggle ahead. “We are at war,” she told the group at its convention in February, referring not to the conflict with Iraq then looming but rather the political struggle ahead over tort reform. “President Bush has laid the gauntlet down.”

The debate also promises to be an issue in the 2004 presidential race. Vermont governor and physician Howard Dean, M.D., a 1971 Yale College graduate, has said the matter should be left to the states, and Senator John Edwards, J.D., a former trial lawyer who has represented patients, is opposed to the reforms. How seriously does the White House take the threat of the clean-cut young senator? Bush delivered a major speech on malpractice last summer in Edwards' home state of North Carolina. Months later a White House official described a Washington speech by Bush on the issue as part of a “whack John Edwards day.”

Sparring over malpractice is emblematic of a natural friction between the two professions that manifests itself in competitiveness, disagreement and, at times, even humor (apparently in proportion to the social status enjoyed by both professions; there is a reason *The New Yorker* magazine publishes books of lawyer and doctor cartoons, but none about civil engineers).

“There is a built-in adversarial relationship here,” says Yale law professor Robert A. Burt, J.D. '64. “Lawyers in the malpractice area are always sniffing around for mistakes. Doctors are adverse to any outsider pointing out errors. Just being sued can be devastating for their sense of themselves as professionals.”

The president of the Association of Yale Alumni in Medicine, Francis R. Coughlin Jr., M.D. '52, J.D., agrees. “For doctors it's not simply a business matter—it's an attack on their integrity,” says Coughlin. As one who can view this debate from both sides, Coughlin sees the main problem as what legal economists call transaction costs. Litigation costs money—hourly fees for the defense lawyer, contingency fees for the plaintiff's lawyer, settlements, expert-witness fees, court costs, the costs of acquiring records from hospitals and physicians—that is drained from the health care system. Supporting that system, he says, are three related pillars; cost, access and quality of care.

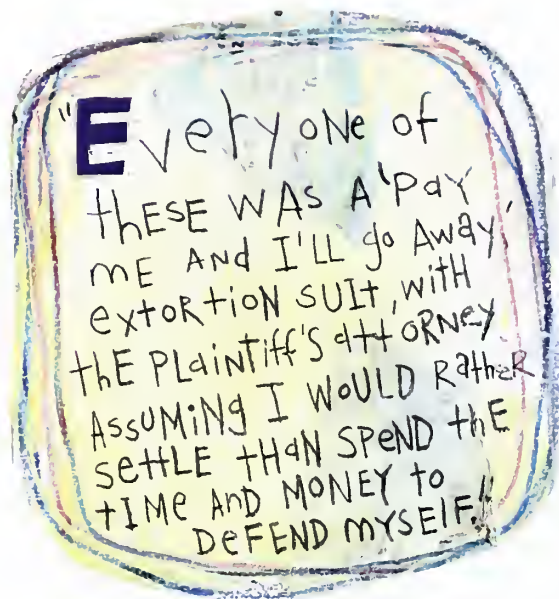
“The doctors want to provide access and they want to provide high-quality care, but money is going out of the system to fund transaction costs,” Coughlin says, noting that, unfortunately, this is nothing new. “We had a crisis in 1975, we had a crisis in '85, we have a crisis in '03 and now it's worse than ever. Now is a chance for doctors to get a change or bow to Mr. Edwards, to whom trial lawyers are giving large sums of money to protect their own incomes. It's important that we get some input before the next presidential election.”

At the core of the cultural divide between law and medicine are two often-conflicting world views—in particular, differing concepts of what certainty means in the context of medicine, says hematologist and ethicist Thomas P. Duffy, M.D. To Duffy, the expert-witness process, in which plaintiffs and defendants each call medical experts to testify on the medical procedure at issue, shows that attorneys see “truth” as that which can convince an uninformed jury. “That offends the whole authenticity of being a physician, which is predicated on telling the truth to your patients,” says Duffy, a professor of medicine and director of the Program for Humanities in Medicine. “Without truth there is no science.”

### The last straw

Against this backdrop, the reaction of physicians to sharply rising insurance premiums has been almost visceral. In Ohio, West Virginia, New Jersey, Connecticut and elsewhere, physicians have protested on the steps of state capitals. The issue has stirred passions among Yale graduates in medicine and public health as well; more than two dozen alumni responded to an invitation from *Yale Medicine* to voice their opinions (See “On the Topic of Lawyers, No Shortage of Opinions,” p. 32). Many took the time to explain at length how the crisis has affected their ability to care for patients, and where they think a solution may lie.

Tonkens, the former Las Vegas internist, was one of them; another was Edwina E. Simmons, M.D. '84, who started her own obstetrics and gynecology practice in Ohio in 2001. At that time, her malpractice insurance company quoted a rate of \$21,500 per year, going up to \$60,000 after



five years. But the rate reached \$60,000 after just two years. With a massive increase expected for this year, she left her practice to join a corporate multispecialty group, which pays for her insurance. “The entrepreneurial spirit of doctors has been shattered,” she says. “No longer can someone finish residency and hang out their shingle.”

When Harold R. Mancusi-Ungaro Jr., M.D. '73, HS '76, moved from Texas to California last year, he left behind a medical community that was fully preoccupied with the law. “The daily conversation in the doctors’ lounge and the weekly column in the local paper concerned who was being sued and by whom,” he says. Mancusi-Ungaro now works for Kaiser Permanente in Santa Rosa, Calif., where he says he can focus on patients and practice “the best medicine I’ve been able to pursue since leaving medical school.” He attributes the climate to the malpractice reform California enacted in 1975, which capped pain-and-suffering damages at \$250,000.

#### At times a truce

To portray doctors and lawyers as constant enemies would of course be misleading. While their lobbying proxies do battle in Washington and state capitals, most doctors and lawyers share a degree of empathy and admiration. And although Connecticut internist Sally R. Bergwerk, M.D., M.P.H. '98, says she does not admire lawyers who reap unseemly profit from injured patients, she does respect those who will take on only cases with credible and substantial allegations of negligence. For example, she says, the Bridgeport, Conn., law firm of Koskoff, Koskoff and Bieder is a name to take seriously.

“If you get a call from Koskoff, you should start to sweat, because you know it’s not frivolous,” she says. Koskoff senior partner Michael P. Koskoff, whose staff includes several Yale law alumni, says that the firm only takes 3 per-

cent of the patients who call looking to sue. California trial lawyer and malpractice specialist Joel W.H. Kleinberg, J.D. '67, performs a similar screening process. “Many times the half hour I spend explaining what has happened and why an unfortunate outcome doesn’t mean ‘malpractice’ is all that’s needed to dissuade an unhappy patient from suing.”

But building on trusted relationships to tackle malpractice reform won’t be easy. The current debate simply divides the two groups too bitterly, as the sides can’t even agree on how to refer to the problem: attorneys call the ongoing efforts a push toward “medical malpractice reform,” and spokespeople for doctors call the issue “liability reform” as a way, it seems, to avoid the M-word.

“I think liability limits on noneconomic damages are part of the solution. They seem to have worked in states like California,” says Robert M. Segaul, M.D., HS '72, who trained in urology at Yale. “There are severely damaged patients for whom this is not fair, but if the system is bankrupted and doesn’t operate for the majority of patients, then it needs to be implemented.” Lawyers, conversely, contend that some kind of limit on fees would only handcuff wronged patients. Led by Democrats on Capitol Hill, they accuse insurance companies of price gouging—and of using malpractice business to shore up revenues in the face of other losses in a down stock market.

“It’s the insurance business cycle that drives all this,” says Kleinberg. Holders of all types of insurance policies, say analysts, are affected when companies raise rates to cover deep investment losses. Trial lawyers want to pressure insurance firms by ending their long-standing exemption from antitrust laws. That, the lawyers say, would lead to more competition and lower rates.

The two sides also clash over the contingency system. Usually, malpractice attorneys aren’t paid unless they deliver a successful verdict or settlement. “The most-injured patients need the least work by lawyers, get the highest awards and reward lawyers with huge profits,” says Joe Bauer Jr., M.D., HS '57, who was a surgical intern at Yale. “These unjustified profits are unrelated to the legal work required and to the validity of the ‘malpractice’ and rob patients of the bulk of their deserved compensation. Lesser injuries require the most work, with less profit, and these patients are not helped and are ignored by lawyers.” He would also welcome a change in the process of designating expert witnesses. “Expert-witness designation, for plaintiff and defendant, must be made the function of a medical specialty board, and not be decided by a trial judge, who is usually not capable of assessing the appropriate medical qualifications of an expert medical witness,” he says.

But attorneys defend the contingency fee system as a mechanism that prevents frivolous suits. In addition, contend lawyers, only the possible reward of a large settlement motivates attorneys to take a risk on a case they



might lose. This doesn't appease physicians like Bergwerk, who says that, "in Connecticut, of every dollar given as rewards in malpractice suits, only 42 cents goes to the patient." That's why on March 26, Bergwerk appeared with close to 2,000 other Connecticut doctors—the largest gathering of physicians in the state's history—at Hartford's statehouse to lobby for reform. Tim Norbeck, executive director of the Connecticut State Medical Society, says one of every three practicing physicians in the state attended the rally.

### Fixing the system

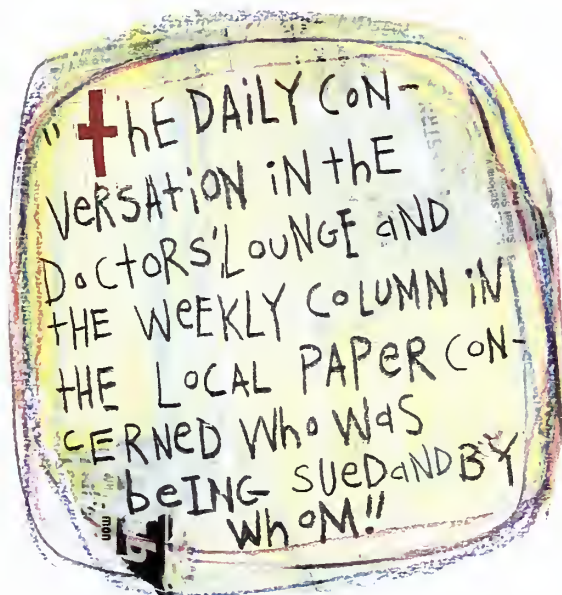
To some, framing the fight between doctors and lawyers as a crisis of lawsuits misses the supposed goal of the medical tort system: preventing the medical mistakes that plague American hospitals. "There is a lot of bad medicine out there in the real world," says Mary Jane Minkin, M.D. '75, HS '79, a clinical professor of obstetrics and gynecology who has testified for years in malpractice cases on behalf of both doctors and plaintiffs. An oft-cited 2000 Institute of Medicine study estimated that as many as 98,000 patients die each year in American hospitals due to preventable medical errors. But deciding whom to blame is not the overriding issue. "Many suits do not involve malpractice—just maloccurrence," says Minkin, "and many acts of malpractice do not end up in litigation. Our goal is the best medicine for all, with no malpractice, and no doctor sued for a bad outcome which was not his or her fault."

Chris Cassirer, SC.D., M.P.H. '91, an associate professor of health care management at the University of Minnesota, has studied the problem for over a decade and agrees that



Among the Hartford marchers was Yale alumna Sally Bergwerk, a Fairfield County internist who laments the contingency fee system that governs the distribu-

tion of malpractice awards. "In Connecticut," she says, "of every dollar given as rewards in malpractice suits, only 42 cents goes to the patient."



improved prevention of injury should be the highest goal of any reform effort. Strong managers and open discussion of mistakes and ways to prevent them, he has found, are effective tools for minimizing errors. But, he adds, "there's a great deal of concern that talking about a medical error after it occurs will lead to lawsuits instead of looking at the processes that led to the mistake and fixing what's wrong." Yet honesty may be the best policy for keeping patients from visiting an attorney in the first place. "People will tolerate a variety of mistakes and medical mishaps if you're up front with them," says Howard V. Zonana, M.D., HS '63, professor of psychiatry and adjunct clinical professor of law at Yale.

Doctors and lawyers both say the seeds of the misunderstanding are deeply planted. That's the conclusion Robert J. Levine, M.D., HS '63, drew years ago while teaching an ethics class to first-year law and medical students at Yale. "We began with a discussion of justice. Everything went well for about 10 minutes until we got to the question of whether the system should be based on good procedures or good outcomes," says Levine, professor of medicine and co-chair of the executive committee of the Yale Interdisciplinary Bioethics Project.

"A medical student said, 'Of course the outcomes must be good or the system isn't worthwhile.' One of the law students disagreed immediately," Levine recalls. "He said, 'The procedures must be fair or the system is invalid. That's why we let murderers go when the evidence is obtained illegally.' For the lawyer, procedure is everything, but for a physician, if the patient doesn't get better, what's the point? Here they were in only their first year, and already they were that far apart." YM

Eli Kintisch is a writer in Washington, D.C.

## On the topic of lawyers, no shortage of opinions

Are attorneys to blame for doctors' woes? Well, yes, but there are more fundamental issues in the malpractice debate.

As the public dialogue about malpractice insurance reached a crescendo in February and physicians across the United States staged demonstrations for limits on lawsuits, we invited alumni in medicine and public health to share their opinions about the roots of the problem and its possible solutions. Readers of *Yale Medicine* were generous with their ideas; echoed in many of the messages is a sense among alumni that the business of medicine has chipped away at the doctor-patient relationship. Many also feel that, as a society, we look to assign individual blame for poor outcomes instead of attending to systemic flaws that could be repaired to improve medicine and prevent errors from happening in the first place. Here is a sampling of the responses we received.

### Malpractice mess reflects a need to regroup

There are numerous factors that contribute to the current problems in malpractice suits and insurance.

There is no unified, cogent voice for physicians. The American Medical Association, once the most powerful lobby in Congress, was not supportive of Medicare and lost the prior uniform support of doctors. Today, the AMA has little impact on legislation or thinking about medical issues. The organizations of the various medical disciplines are too splintered to have an effective voice, although the American College of Surgeons has made an effort.

The image of the physician has sunk to unimaginable depths, partly because of unfulfilled expectations, partly due to actual malpractice and partly due to the depersonalization of medical care in the HMO/prepaid/group environment.

The tort lawyers are clever, successful and energetic. Their financial successes help to empower their voice in judicial appointments and in legislative action.

The advances in medicine and surgery have increased not only the horizon of treatable and preventable disease but also the risks, potential bad outcomes and severity of disease that is attacked.

Since the federal government encouraged the expansion of medical schools a few decades back, increased competition among physicians may be distracting some of them from seeking ideal patient outcomes.

Censure, reprimand and punishment of physicians for malpractice are accomplished by the competitive and antagonistic tort system, without a parallel goal of preventing further error and without any real effort to improve medical care.

It may be too late for the physicians to regain control; the hospitals have largely separated themselves from allegiance to the physicians. The HMOs are likewise unhelpful and the medical schools have been passive. Perhaps an independent commission should investigate the problem and make suggestions for its solution, either through meaningful legislation or some new national system aimed at both appraising suspected instances of malpractice and correcting the flaws and circumstances that lead to poor medical outcomes.

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



### The big question: where to impose limits?

The hottest issue in this tempest is probably the perception of “open season on physicians” and on medical care in general. While many doctors may have been influenced in their ordering of diagnostic tests by the idea of defensive medicine, I believe the greatest damage that this produces is to the physician-patient relationship. An element of trust is gone. Is this a consequence or side effect of malpractice, or both? Why should it be socially permissible for lawyers to advertise “you may be entitled to a large cash award,” reinforcing the perception that the absence of perfection in medical care entitles them to lottery-type winnings? While I am delighted that lawmakers, who of course are generally lawyers, are making some strides in malpractice reform, the controversy continues over just where limits should be ethically imposed. We need expertise and responsible leadership on this issue.

Marie Tsivitis, M.P.H. '86  
Stony Brook, N.Y.

### Michigan's specialty solution

The malpractice crisis here in Michigan simmered down a few years ago. Our then-governor, John Engler (a very conservative Republican) and the state legislature passed a fairly rigorous tort reform bill that greatly limited the ability of plaintiffs' attorneys to file suits. Among the other provisions were, first, that a prospective plaintiff had to submit a notice of “intent to sue” 18 months before the actual suit could be filed. The intent to sue had to have a signed statement from an “appropriate” physician stating that he/she agreed that the standard of care had been breached. An “appropriate” (that's my word, not in the law) physician was one *in the same specialty* as the prospective defendant, and the plaintiff's expert physicians had to be in the same specialty. A family practitioner, for example, can't testify against a neurosurgeon (although before this law, this sort of thing frequently occurred). Malpractice suits still take place in Michigan, but their numbers are greatly reduced.

Robert N. Frank, M.D. '66  
Bloomfield Hills, Mich.

### Access to appropriate care will be impeded

I work for a self-insured corporation, so the malpractice issue doesn't directly affect me. Our corporation does have a secondary insurer, and rates have gone up, but this hasn't yet translated into a change in my salary. The real change has come in the specialists to whom I refer patients. The vascular surgeon we use for complicated cases had trouble getting insurance this year because he does high-risk procedures. If he can't afford his insurance next year, my patients will get amputations instead of limb salvage. Some of my patients have lost their ob/gyns.

Richard Ihnat, M.D. '91  
St. Louis, Mo.

### Defensive medicine, the worst offense

The high cost of liability insurance is now in the limelight, but I believe there are two additional concerns which are actually of much greater importance. One is the enormous volume of “defensive medicine” and its detrimental effects on health care affordability. The other is the terrible loss of idealism among physicians and other health professionals, even if they themselves are never or seldom sued.

Hyman J. Milstein, M.D. '75  
Studio City, Calif.

### “We were all losers”

I am a local health director in West Haven, Conn., and our small malpractice insurance story is the following. We have had a semiretired urologist running our STD clinic for years. A few years back his insurance rates got doubled, and even if we certified that he was only doing this small amount of clinical public service work, they would not cut him a break. He ended up retiring rather than getting paid enough to cover his insurance premium. We lost a wonderful, gentle and experienced doctor, and he lost a major connection to feeling useful and vital in his life, albeit for only a few clinical hours per week. We were all losers in this, even the insurance company, which now no longer gets his premiums and never had to pay out for him for the 15 years he worked with us!

Eric Triffin, M.P.H. '86  
Bethany, Conn.

David Gaba and colleagues in Palo Alto, Calif., created the programmable patient simulator to help prepare anesthesiologists to react in crisis situations and to avoid errors that can kill patients. "Our aim," he says, "is to apply organizational safety theory and practice to health care."

# A safer OR

Avoiding medical errors is one piece of the malpractice puzzle. David Gaba has been preventing them his entire career.

By Paul Chutkan  
Photographs by Martin Elinck









David M. Gaba, M.D. '80, was bent over the operating table, working intently on a car crash victim. The woman had suffered a broken leg, and Gaba and his surgical team were busy repairing the damage. For a time, everything went according to plan. Then, the team noticed climbing blood pressure and a dropping heart rate—an unusual combination that suggested a problem in the brain. One of the victim's pupils began to dilate.

"It's the left eye," said the attending anesthesiologist. "Looks like potential trauma to the head."

The anesthesiologist immediately called for back-up from a neurosurgeon, then moved into a set of carefully scripted emergency procedures. Hyperventilation, to reduce pressure inside the victim's brain. A steroid, to reduce inflammation and pressure. Then a diuretic to draw water from the brain. Despite these temporizing measures, a hole would probably have to be drilled in the victim's head to release the pressure.

As Gaba and his team worked, three video cameras monitored their every move and computers monitored the patient's electrocardiogram, blood pressure, blood oxygen saturation, carbon dioxide output and more. After

the surgery, Gaba and his team could go back through every stage of the crisis to see how they had performed—and where they could improve. In a few minutes, the crisis was over, but the patient did not exactly come through alive.

Why? This "patient" was actually a programmable polymer mannequin laced with wires and sensors—the centerpiece of an innovative crisis management training program that Gaba has developed with colleagues at the Veterans Affairs Palo Alto Health Care System and Stanford University School of Medicine. The aim of the program is to teach anesthesiology residents and more experienced practitioners how to respond in sudden and often unpredictable crises.

#### Training like an astronaut

"Most medical schools are very good at teaching normal medical procedures," Gaba explained. "The point of simulation training is to expose people to events and challenging situations they have not seen before, but could see, and then use them as generic springboards to teach all the behavioral issues of crisis management, dynamic decision-making, leadership and teamwork, and the processing of information. Those things have not been traditionally taught in health care."

Though he pretended to be a surgeon during today's simulation, Gaba is a veteran anesthesiologist with a passion



Gaba, then a young faculty member at Stanford, built the first patient simulator in 1986 with two medical students. Today's version mimics irregular heartbeats, airway swelling, bleeding, thumb twitching and eye dilation and can detect a wide variety of gases and medications and their concentrations in the "patient's" system.





for research and advanced simulation techniques. He serves as the director of the Patient Safety Center of Inquiry, which he created at the VA facility in Palo Alto, and as a tenured professor of anesthesiology at Stanford medical school. One day a week Gaba works clinically in the real OR, and the remainder of the week he conducts research or these kinds of training sessions. He and his colleagues have refined their simulation-based training course into an effective teaching tool that is now being adopted by other hospitals and universities here and abroad, including Harvard, Penn State, UCSF and Yale. The key is creating lifelike situations in dynamic clinical settings like the ER, the ICU and the OR, as with today's car-crash victim.

"We believe that part of a doctor's training should be comparable to that of a pilot or an astronaut. Doctors should know how to respond to medical crises—and to external crises such as equipment failures, power failures and even earthquakes." To support their training program, Gaba and his team have published a textbook on crisis management to improve human performance—and reduce mistakes—in the operating room. "Our aim," Gaba said, "is to apply organizational safety theory and practice to health care."

Thanks to this innovative work, Gaba is now widely regarded as an important pioneer in the field of medical

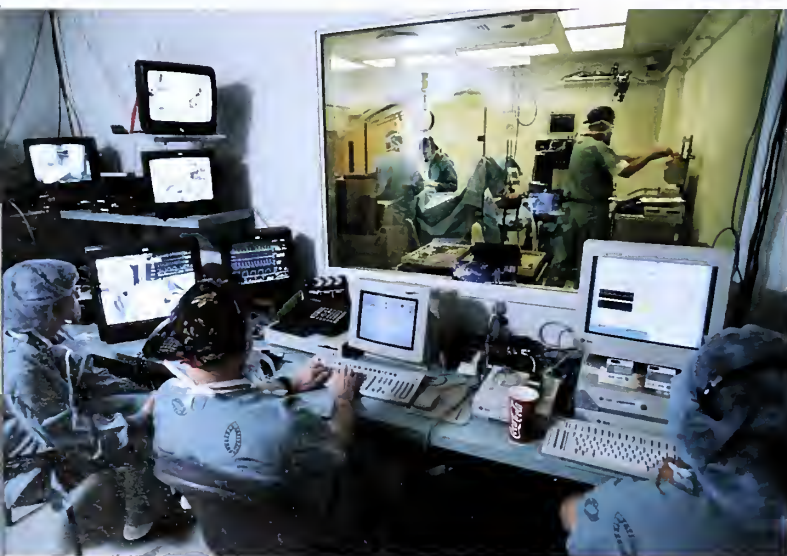
simulation and patient safety. In his book *Complications*, author Atul Gawande, M.D., M.P.H., credits Gaba among several figures in anesthesiology responsible for drastically cutting the rate of accidental deaths. Before reformers like Ellison C. Pierce Jr., M.D., and Jeffrey B. Cooper, Ph.D., pushed for systematic analysis of why anesthesia deaths occurred and instituted new practice standards, one or two patients died per 10,000 operations. Thanks in part to Gaba's anesthesia simulator, the number is now one in 200,000.

Gaba's contributions to medicine come as no surprise to his former mentors at Yale. "David was a superb medical student," recalled Roberta L. Hines, M.D., HS '77, professor and chair of anesthesiology at Yale. "He was always looking to do things in new and innovative ways." Hines said that Gaba's work has had a profound impact on Yale medicine and on the medical profession as a whole.

"Simulation has been a feature of NASA and the airline industry for many years, but David was certainly the first person to apply it to medicine in a rigorous way, using simulation for emergency procedures and the many repetitive things we do. At Yale, Hines said, "simulation has become an important part of the training process across the profession, not just for resident anesthesiologists but also for nurses, paramedics and emergency room personnel."

**BELOW** During the drill, a resident holds defibrillating paddles while another applies chest compression.

**BOTTOM** The action is observed from a control console and videotaped so that the participants can later analyze what they did right and wrong. Says Gaba: "We believe that part of a doctor's training should be comparable to that of a pilot or astronaut."



Despite his stature in the field, Gaba comes across not as an *éminence grise*, but as a spirited, overgrown technokid with some of the coolest toys on the block. In fact, much of the inspiration for his pioneering work traces right back to his childhood in Kansas City, Mo., and his early fascination with the NASA space program, which uses simulation for training and accident prevention. "I was one of those kids who audiotaped the TV broadcasts of all the Apollo missions," Gaba said. "And Alan Shepard's historic flight was launched on my seventh birthday."

Gaba attended Northwestern University, where he studied biomedical engineering and artificial intelligence, and he created for himself a specialized field of study called "high-level information processing." He entered Yale School of Medicine in 1976 and soon was doing research on defibrillators in the lab of Norman S. Talner, M.D., who at the time was chief of pediatric cardiology. "The hallmark of Yale for me, and I think for most people, was the freedom to learn the way we wanted to learn and investigate the things we wanted to investigate. I like the Yale System a lot and I benefited a lot from it."

After graduating in 1980, and after interning at the Yale-affiliated Waterbury Hospital nearby, Gaba moved to Stanford for a residency in anesthesiology. Soon after joining the faculty at Stanford, Gaba read a book that would set him on his path: *Normal Accidents*, by Charles B. Perrow, Ph.D., a professor emeritus of sociology at Yale. Perrow examined a series of accidents, including the nuclear disaster at Three Mile Island, and then analyzed the human, social and organizational errors that can lead to such accidents. Inspired, Gaba immediately decided to develop an accident-prevention program for the practice of anesthesia.

By 1986, Gaba and Abe DeAnda Jr., a medical student with a background in electrical engineering, were building their first "patient simulator." With John Williams, another medical student with an engineering background, they later created a more advanced simulator, whose successors Gaba and others continue to fine-tune today. Today's wondrous models, implemented on a single computer, can simulate an array of body movements and symptoms, including heart dysrhythmias, airway swelling, bleeding, thumb twitching, eye dilation and even the presence of a fetus. They can also detect a wide variety of gases and medications and their concentrations in the "patient's" system.

"We don't just do drills," Gaba said. "We try to replicate, as closely as we can and in a very high-level way, a real clinical environment. We focus on issues that we always expect people to be good at, but that nobody ever teaches us."

His childhood heroes at NASA would surely be impressed. **YM**

Paul Chutkow is a writer in Corte Madera, Calif.





## Knowing when it's time to quit

Still able at age 70, a physician contemplates his profession and his approaching irrelevance.

*"My second fixed idea is the uselessness of men over the age of sixty."*

—William Osler, 1905

Osler spoke those words in his last address at Johns Hopkins before he left to become Regius Professor at Oxford. He then went on to cite Trollope's novel *The Fixed Period*, in which an idea is advanced that men should retire at 60, spend a year in contemplation and then be chloroformed. Newspapers of the time missed Osler's jesting tone and took him seriously. A great brouhaha ensued, which caused Osler both considerable distress and some amusement.

To read Osler today is to experience some of the best aspects of humane and medical thought of the Victorian era. Much of that thought is not outmoded.

I retired in 2000. When I told people what I planned, they asked why. I was 67, apparently fit, enjoyed an interesting practice and my mind seemed not to be failing. Of course, there were and are lots of good reasons to leave practice: HMO intrusiveness, decreasing reimbursement, loss of collegiality in medical communities

and suchlike. But these matters were not really at the root of my decision.

When they get to a certain age, doctors should retire. As they age, they become increasingly irrelevant to their medical communities. The generational difference that slowly develops makes communication less cordial. True, we all belong to the same fraternity, but the handshake changes. Doctors are usually happiest when they confer and refer within an age radius of 10 or 15 years. The tone of a medical community is usually set by doctors in their 40s and early 50s. I practiced in one community for over 30 years. Doctors who stood at the pinnacle of the profession when I arrived slowly became "Dr. Who?"

Usually they did not know that their knowledge was slipping. They probably did not know it because their loyal patients continued to love them. It was sad to see. I did not want it to happen to me. I could see it would have happened. There were many doctors in our area and some in my group who were younger than my children. Many of them could not bring themselves to call me by my first name. I gradually lost the intense desire to know everything in my field, and even if I had kept the desire, it would have been impossible to do so.

In order to use new knowledge one must have a schema, a sort of intellectual hat rack, on which to hang new concepts. I did not have an up-to-date intellectual schema to incorporate what I understand of genetics and molecular biology. Even many of the titles, much less the contents, of articles in my specialty journals were incomprehensible to me. It is in these new fields

that basic knowledge is growing, and clinicians should have a grasp of their specialty's basic science. And, as far as clinical information goes, in my field of gastroenterology, much of it seemed to me to be recycled knowledge arrived at by newer methods. It may have come with better statistics or larger patient populations or with MRIs and endosonography instead of barium and fiber optics, but it did not help an experienced physician take better care of his patients. At major meetings I increasingly found myself choosing between papers I had no background to understand and symposia that told me little, as I watched hordes of young men and women bustle past.

Medicine is a unique activity. It offers the opportunity to engage simultaneously in intellectual problem solving, humane ministering and, in some areas, technical expertise. I retired after 34 years of practice, 45 years after entering medical school—really, more than a generation ago. It has been a time of tremendous, awesome, unforeseen developments in medicine and I had a wonderfully satisfying career. I think what Osler had in mind when he gave *The Fixed Period* address was the relationship of physicians to their colleagues and to new knowledge. Doctors should not be chloroformed but they should retire.

Herbert J. Kaufmann, M.D. '59, is a retired gastroenterologist in Bedford, N.Y. Since leaving medicine three years ago, he has devoted himself to family activities, stained-glass making, genealogy and, he says, "being on vacation."

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### WE WELCOME SUBMISSIONS

Do you have an opinion to share on a vital topic in medicine, health or science? Send yours to Essay, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to [yymm@yale.edu](mailto:yymm@yale.edu).

## Psychologist to lead Graduate School

As dean, Peter Salovey hopes to bridge a gap that is cultural as well as geographic.

"There's probably no farther walk on this campus than from the Sterling Hall of Medicine to the Kline Biology Tower," says psychologist **Peter Salovey**, PH.D. '86, the new dean of the Graduate School of Arts and Sciences. For graduate students on the medical campus, isolated from fellow students in other fields, says Salovey, "this is more than just a geographical problem: it is a cultural problem."

In his new role as dean of the 760 faculty members and 2,300 students in the arts and sciences—that is, all students at Yale working toward M.A., M.S. and PH.D. degrees—Salovey hopes to bridge that divide and bring together graduate students separated by discipline as well as geography. He will rely to a large degree on the McDougal Graduate Student Center, located at the Hall of Graduate Studies on York Street about halfway between Sterling and Kline, which offers career counseling, seminars in teaching, social events and a place simply to hang out. Salovey hopes that graduate students will be increasingly likely to trek over from the medical campus to take part in the McDougal Center's activities, and also will encourage the center to offer programs on Cedar Street.

Salovey foresees an expanded role for the McDougal Center as a sponsor of public service programs, which already offer opportunities for graduate students to meet one another and to



Peter Salovey

get involved in the larger New Haven community. "We're very interested in encouraging community volunteerism and participation in social policy and social concerns," Salovey said. "I will be working closely with the McDougal Center fellows who already are organizing such community service experiences."

Salovey succeeds neuroanatomist Susan Hockfield, PH.D., who in January became the first scientist appointed provost of the university. As did Hockfield, Salovey plans to keep his laboratory running, spending Fridays there. Salovey does basic research into how human emotions influence thought and action. With colleague John D. Mayer, PH.D., he developed the notion of "emotional intelligence," the view that just as people have a wide range of intellectual abilities, they also have a repertoire of measurable emotional skills and competencies that profoundly affect their functioning. As deputy director of the Center for Interdisciplinary Research on AIDS, he investigates the effectiveness of health promotion messages in persuading people to change risky behaviors, and he has conducted similar work on health communications targeting cancer prevention behaviors. In a quasi-academic role, Salovey also plays stand-up bass for the Professors of Bluegrass.

—Cathy Shufro

**Robert L. Bell**, M.D., an assistant professor of surgery (gastroenterology) who specializes in minimally invasive and bariatric surgery, performed the first laparoscopic gastric bypass at Yale in August 2002, a month after joining the faculty. Interest in gastric bypass surgery, a technique he learned as a fellow at the University of Maryland, is on the increase after last year's Dateline NBC broadcast on weatherman Al Roker's successful procedure.

The Yale Medical Group recently announced the following appointments: **James A. Brink**, M.D., professor of diagnostic radiology, has been named interim chair of diagnostic radiology. Brink, who also holds a degree in electrical engineering, was elected to membership in the Society of Computed Body Tomography and Magnetic Resonance and has twice been a recipient of the Godfrey Hounsfield Award for Research Excellence in Computed Tomography. **Anne McB. Curtis**, M.D. '70, HS '75, professor of diagnostic radiology, will serve as vice chair of clinical affairs and oversee the clinical quality improvement initiative. **Vladimir Neklesa**, M.D., associate research scientist in diagnostic radiology, will continue as director of information technology and partner with Yale-New Haven Hospital to further implement the Picture Archive and Communication System, which enables e-delivery of images to referring physicians for rapid interpretation. **Howard P. Forman**, M.D., associate professor of diagnostic radiology, who continues as vice chair for finance and administration, will assist in evaluation of all outpatient opportunities.

**José Costa**, M.D., deputy director of the Yale Cancer Center and professor and vice chair of pathology, was awarded the Josep Trueta Medal by the Catalan government in Barcelona in February. The medal recognizes



scientists who have had a profound impact on the scientific community in Catalonia. Costa, who is the principal investigator of the Marcia Israel Laboratory for the Earlier Detection of Breast Cancer at Yale, focuses his research on carcinogenesis and tumor progression.

**Michael H. Ebert, M.D.**, former chair of psychiatry at Vanderbilt University School of Medicine, was appointed professor of psychiatry at Yale, chief of staff of the VA Connecticut Healthcare System and associate dean for veterans affairs at the School of Medicine last fall. Ebert's focus has been in clinical pharmacology. He directed a clinical research program in the section of experimental therapeutics, part of the intramural program of the National Institute of Mental Health. Ebert serves as director of the American Board of Psychiatry and Neurology (ABPN) and is director of the Psychiatry Council and vice president of the ABPN. He also serves on the residency review committee for psychiatry of the Accreditation Council on Graduate Medical Education and occupies a seat on the American Board of Medical Specialties. Ebert was recently elected to the executive council of the Association of American Medical Colleges and is a representative to the Council of Academic Societies.

**Jack A. Elias, M.D.**, the Waldemar Von Zedtwitz Professor of Medicine, received the Recognition Award for Scientific Accomplishment from the American Thoracic Society in May. The award is given to individuals for distinguished scientific contributions to the understanding, prevention and treatment of lung disease.

**Charles A. Greer, PH.D.**, professor of neurosurgery and neurobiology and co-director of the Interdepartmental Neuroscience Program, has received the 2002 Frank Allison Linville's R.H.

Wright Award in Olfactory Research. Greer visited Simon Fraser University in Vancouver and the University of British Columbia in the spring to receive the \$30,000 annual award and deliver lectures and research seminars. He was honored for his studies of the fine structure and function of the developing olfactory system, especially local synaptic circuit organization in the olfactory bulb. These studies use the olfactory system as a model for identifying mechanisms and general principles that underlie the specificity of axon targeting and synapse formation in the nervous system.

**Sharon K. Inouye, M.D., M.P.H.** '89, professor of medicine (geriatrics) and associate clinical professor of nursing, received the 2003 Ewald W. Busse Research Award in the Biomedical Sciences during the 3rd Pan-American Congress of Gerontology in April in Buenos Aires. The award recognizes achievements of promising junior or midcareer scientists and is intended to encourage their continued contributions to aging research.

**David L. Katz, M.D., M.P.H.** '93, associate clinical professor of health policy and administration in epidemiology and public health and director of the Yale-Griffin Prevention Research Center, began writing a column on preventive medicine for Oprah Winfrey's magazine, *O*, in March after the magazine's editor heard him speak at an American College of Preventive Medicine meeting. Katz also writes a weekly column for the *New Haven Register*.

**Donald R. Lannin, M.D.**, former director of the Leo W. Jenkins Cancer Center at North Carolina's East Carolina University (ECU), has joined the Yale faculty as professor of surgery (oncology) and executive director and co-medical director of the Yale Comprehensive Breast Center.

While at ECU, Lannin developed a comprehensive breast center program. He arrived at Yale last summer.

**Sherwin B. Nuland, M.D.** '55, HS '61, clinical professor of surgery (gastroenterology), received the John P. McGovern Medal from the American Medical Writers Association for pre-eminence in medical writing. The award was presented at the group's annual conference in San Diego in October. Nuland also received the McGovern Medal in 2001 from the University of Texas in Galveston and in 1995 from the American Osler Society.

**M. Bruce Shields, M.D.**, Marvin Sears Professor of Ophthalmology and Visual Science and chair of ophthalmology and visual science, was named chair of the American Board of Ophthalmology (ABO) in January for a one-year term. Shields, certified by the ABO in 1975, served as an associate examiner from 1987 through 1995 and also on the board. In the capacity of an associate examiner he interviewed prospective diplomates in the oral examination process.

*An item in the Faculty Notes section of our spring issue incorrectly referred to Nancy H. Ruddle, PH.D. '68, as an associate professor before her appointment as the John Rodman Paul Professor of Epidemiology and Public Health. Her previous appointment was professor. We regret the error.*

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Robert Bell



James Brink



Anne Curtis



Vladimir Neklesa



Howard Forman



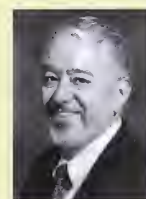
José Costa



Michael Ebert



Jack Elias



Charles Greer



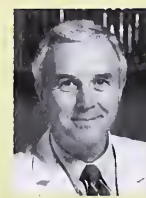
Sharon Inouye



David Katz



Donald Lannin



Bruce Shields

## The crescendo of four years

On Match Day, the mood reflects a stellar list of residency placements, "by far the best we've ever had."

In a scene that combined the envelope-opening excitement of the Academy Awards with the destination-determining drama of the NFL draft, more than 90 fourth-year medical students gathered at Marigolds on March 20 for Match Day, the annual ritual that decides where students will start their careers.

"I'm not too stressed, but I'm very, very interested to find out where I'll be spending the next three or four years of my life," said Gabe Simon. (His equanimity paid off as he got into his first choice, the emergency medicine program at the University Health Center of Pittsburgh.)

Marta Rivera said Match Day was even more stressful than the day she was accepted to medical school because "it affects more than just you. Other people are involved as well." In Rivera's case, her parents, her fiancé and his parents all hoped she'd match to an internal medicine residency at New York Presbyterian Hospital-Cornell because it is near the home of her future in-laws. (She, too, had her wish granted.)

Surveying the cafeteria, which was rapidly filling with students clutching cameras, bouquets and cell phones, Rivera said, "It's nice to be able to share this with so many people going through the exact same thing at the exact same time."

The scene at Yale was replicated around the country as more than

14,000 U.S. medical school seniors learned which residency programs they will be entering. The National Resident Matching Program was established in 1952 to create a mechanism for filling residency slots and promote fairness in the selection process. Applicants list their program preferences, program directors indicate their choice of applicants and a computer makes the matches. This year marked a record high in the number of applicants (23,965, including international medical graduates) and an all-time high in the number of residency positions offered—23,365, up 450 from last year. A record 575 couples participated in the Match as partners.

At the stroke of noon students shouted and clapped as they pushed toward the door of the dining hall like fans at a rock concert. Nimi Tuamokumo tore open her envelope with shaking hands. Then she let out a loud scream and fell to her knees in tears—she'd been accepted into her first choice, Brigham and Women's Hospital's radiation oncology program.

"It's weird. This is all I've been talking about for the last four months," said Andrew Cooper, who was pleased to learn he'll be specializing in orthopaedic surgery at Jackson Memorial Hospital

in Miami. "I don't know what I'm going to talk about now."

Richard Breck, M.D. '45, who was among several alumni on hand for a Match Day luncheon, said the emotional intensity of the scene in Marigolds was far different from when he was a medical student in the days before the match. "This is far more alive," he said, gesturing toward several students in a group hug. "Of course the war was still on, so that was a factor, but my memory is that one by one we went to our mailboxes and opened our envelopes alone."

When the 2003 Match concluded, 94 Yale medical students knew what the next big step in their career paths would be. Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs, said dermatology (always a draw at Yale because of the strength of the program) and radiation oncology were popular fields among students this year, with five and four placements, respectively.

"Students think of them as lifestyle fields," she said. "They don't have a lot of emergencies, so their lives are a little more predictable." A regular schedule also makes these fields more amenable to dual careers in clinical medicine and research, Angoff said.



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The salaries also tend to be higher, which is important to students, who leave Yale carrying an average debt of \$100,000.

Based on the “overall sense of happiness” in Harkness Lounge and the quality of the programs the students got into, Angoff called the 2003 Match “by far the best we’ve ever had.” She credits the current class of graduates as well as Yale alumni. “If they weren’t doing well in their residencies, the hospitals wouldn’t want our current students,” she said.

—Jennifer Kaylin



**ABOVE** With a cell phone and a bouquet, Nimi Tuamokumo, left, and Roselia Guillen-Santana celebrated their matches.

**LEFT** Pamina Kim gets a hug from Katherine Gergen as they share the news of Kim’s match.

## 2003 residency placements for Yale medical students

*The Office of Student Affairs has provided the following list, which outlines the results of the National Resident Matching Program for Yale’s medical graduates. Some names appear twice because the graduate is entering a one-year program before beginning a specialty residency. The transitional designation is a one-year program with three-month rotations in different specialties.*

### California

#### Loma Linda University

Michael Bolton, plastic surgery

#### Santa Clara Valley Medical Center, San Jose

Warren Kim, transitional

#### Stanford University Programs

Jennifer Chao, medicine-preliminary

Dita Gratzinger, pathology

Richard Hsu, general surgery

Daniel Pham, diagnostic radiology

#### UCLA Medical Center

Ryan Barton, anesthesiology

#### UCLA–VA Greater Los Angeles Healthcare System

Charlton Kim, internal medicine

#### University of California, San Francisco

Adrian Hinman, orthopaedic surgery

Pamina Kim, internal medicine

Warren Kim, diagnostic radiology

David Lao, internal medicine

Saeher Muzaffar, internal medicine

#### University of Southern California, Los Angeles

Jennifer Chao, ophthalmology

### Canada

#### McGill University, Montreal

Matthew Stiebel, orthopaedic surgery

### Connecticut

#### Greenwich Hospital

Kevin Johnson, medicine-preliminary

#### Hospital of Saint Raphael, New Haven

Jennie Bailey, transitional

#### Yale-New Haven Hospital

Leah Ahoya, obstetrics and gynecology

Justin Cohen, surgery-

preliminary, urology

Charles Dela Cruz, internal medicine

Michael DiLuna, surgery-

preliminary, neurosurgery

Daniel Kanada, medicine-

preliminary, diagnostic radiology

Maxwell Laurans, surgery-

preliminary, neurosurgery

Ryan Lieberman, psychiatry

J. Ryan Martin, obstetrics and

gynecology

Jennifer Nam, dermatology

Melissa Pradhan, internal medicine/primary

Jeffrey Seiden, pediatrics

Christopher Severson, medicine-preliminary

Elaine Shay, ophthalmology

Abhishek Sinha, internal medicine

Joahd Toure, internal medicine

Juan Vasquez, surgery

### Delaware

#### Christiana Care, Wilmington

Elaine Shay, medicine-preliminary

### District of Columbia

#### Georgetown University Hospital

Ryan Barton, transitional

### Florida

#### Jackson Memorial Hospital, Miami

Andrew Cooper, orthopaedic surgery

### Indiana

#### Indiana University School of

#### Medicine, Indianapolis

Caron Farrell, pediatrics/psychiatry/

child psychiatry

### Iowa

#### University of Iowa Hospitals and

#### Clinics Program, Iowa City

Todd Fairchild, orthopaedic surgery

### Maryland

#### Johns Hopkins Hospital, Baltimore

Mathew Augustine, general surgery

Justin Bekelman, medicine-preliminary

Scott Berkowitz, internal medicine

John Koo, ophthalmology

Amar Krishnaswamy, internal medicine

Maya Lodish, pediatrics

Jennifer Teitelbaum, psychiatry

#### University of Maryland Medical

#### Center, Baltimore

Jennifer Teitelbaum, medicine-preliminary

### Massachusetts

#### Beth Israel Deaconess Medical Center, Boston

David Geist, medicine-preliminary

John Koo, medicine-preliminary

#### Boston University Medical Center

David Geist, dermatology

Anil Shivaram, ophthalmology

#### Brigham and Women’s Hospital, Boston

Adam Cuker, internal medicine

Namita Kumar, internal medicine/primary

Vivek Murthy, internal medicine/primary

Abhijit Patel, radiation oncology

Jennifer Schutzman, internal medicine

Nimi Tuamokumo, radiation oncology

**Brigham/Faulkner Hospital, Boston**  
Jennifer Nam, medicine-preliminary

**Children's Hospital of Boston**  
Patricia Diaz, pediatrics  
Roselia Guillen-Santana,  
pediatrics/primary  
Lisa Roy, pediatrics

**Harvard Combined Program, Boston**  
Margaret Bourdeaux, medicine/  
pediatrics  
Gregory DeBlasi, orthopaedic surgery

**Lahey Clinic Program, Burlington**  
Micah Jacobs, surgery-  
preliminary, urology

**Massachusetts General Hospital, Boston**  
Essmaeel Abdel-Dayem, diagnostic  
radiology  
Wael Asaad, surgery-preliminary,  
neurosurgery  
Tracey Cho, medicine-preliminary  
Christopher Cutie, surgery-  
preliminary, urology  
Abigail Donovan, pediatrics-  
preliminary, psychiatry-  
adult and child  
Karin Finberg, clinical pathology

**Massachusetts General Hospital/Brigham and Women's Hospital, Boston**  
Tracey Cho, neurology  
Christopher Severson, neurology

**Mount Auburn Hospital, Cambridge**  
Anil Shivaram, medicine-preliminary  
Nimi Tuamokumo, medicine-  
preliminary

**Tufts University, Malden**  
Rebecca Seekamp, family practice

**Michigan**  
**University of Michigan Hospitals, Ann Arbor**  
Colin Greineder, emergency medicine  
Daniel Mayman, psychiatry

**Minnesota**  
**Hennepin County Medical Center, Minneapolis**  
Jianling Yuan, transitional

**University of Minnesota Medical School, Minneapolis**  
Jianling Yuan, radiation oncology

**Missouri**  
**Barnes-Jewish Hospital, St. Louis**  
Kevin Johnson, diagnostic radiology  
Rahel Nardos, obstetrics and  
gynecology

**New Hampshire**  
**Dartmouth-Hitchcock Medical Center, Lebanon**  
Clare Drebitko, pediatrics  
Khashayar Farsad, surgery-  
preliminary, neurosurgery

**New York**  
**Long Island Jewish Medical Center, New Hyde Park**  
Michael Tang, emergency medicine

**Memorial Sloan-Kettering Cancer Center**  
Justin Bekelman, radiation oncology  
Abhijit Patel, transitional

**Mount Sinai Hospital**  
Jason Baynes, orthopaedic surgery  
Lysiane Ribeiro, psychiatry  
Arien Smith, surgery-  
preliminary, neurosurgery

**Mount Sinai School of Medicine-Cabrini**  
Daniel Pham, medicine-preliminary  
Daniel Saketkhoo,  
medicine-preliminary

**New York Presbyterian Hospital-Columbia**  
Saeed Ahmed, pediatrics  
Kathryn Teel, pediatrics

**New York Presbyterian Hospital-Cornell**  
Jennie Bailey, dermatology  
Mary-Ann Etiebet, internal  
medicine/primary  
Marta Rivera, internal medicine/  
primary

**New York University School of Medicine**  
Essmaeel Abdel-Dayem, medicine-  
preliminary  
Boris Veysman, emergency medicine

**Queens Hospital/Mount Sinai**  
Michael Tang, medicine-preliminary

**North Carolina**  
**University of North Carolina Hospital, Chapel Hill**  
Matthew Goldenberg, general  
psychiatry

**Ohio**  
**Cleveland Clinic Foundation**  
Louie Enriquez, medicine-preliminary,  
diagnostic radiology  
Anya Mari Szeplin, medicine-  
preliminary, dermatology

**Pennsylvania**  
**Hospital of the University of Pennsylvania, Philadelphia**  
Steven Farmer, internal medicine  
Satish Nagula, internal medicine  
Daniel Saketkhoo, diagnostic radiology  
Grace Suh, internal medicine

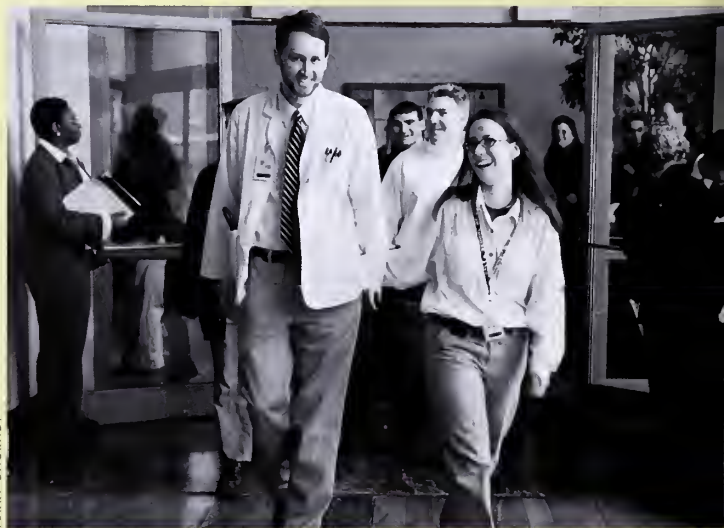
**University Health Center of Pittsburgh**  
Gabriel Simon, emergency medicine

**Rhode Island**  
**Rhode Island Hospital/Brown University, Providence**  
Mari Rebane, general surgery

**Utah**  
**University of Utah Affiliated Hospitals, Salt Lake City**  
Daniel Kline, medicine-preliminary,  
ophthalmology

**Washington**  
**Madigan Army Medical Center, Tacoma**  
Garth S. Herbert, general surgery  
**University of Washington Affiliated Hospitals, Seattle**  
John Cowden, pediatrics  
Matthew Kronman, pediatrics  
Michael Gregory Thompson, pediatrics  
Bertrand Wicholas, psychiatry

**Wisconsin**  
**Medical College of Wisconsin Affiliated Hospitals, Milwaukee**  
Melissa Chiang, medicine-  
preliminary, dermatology  
Younghoon Cho, plastic surgery



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**Christopher Severson and Patricia Diaz were among the first to enter the lounge to get their match letters.**



1) Where would James Bond be without a scene in a casino? The second act of "The Spy Who Smoked Me" opened with a tap dance routine set during Casino Night.

2) When an urgent assignment pulled Gold Bond, played by Doug Walled, away from a tryst with Carrie Sokol, she consoled herself by singing "The Beeper Is Forever."

3) Bond Girl Mihae Yun, in dark glasses, played the lethal Agent XX, who danced through "I'm Your Worst Nightmare/Voulez-Vous Kung Fu Avec Moi."

4) The show closed with the gathering of the Class of 2005 on stage to sing "We've Got Yale Med/Who Could Ask for Anything More?"

## Still smokin', still addictive

A sizzling second-year show spins the tale of a "healthy" cigarette and a fiendish plot to steal its formula.

Ever since his arrival at Yale in 1997 fresh from his battles with the tobacco industry as head of the Food and Drug Administration, Dean David A. Kessler, M.D., has provided fodder for the second-year show. In 1998 students teased him with a song called "FDA Dropout." Another recent show featured a video of Kessler sneaking out of a bathroom to the tune of "Smokin' in the Boys' Room."

Kessler has encouraged this tradition by "buying" his way into the show each year with a donation to local charities. Included in his annual largesse are roles for Nancy R. Angoff, M.P.H. '81, M.D. '90, HS '93, associate dean for student affairs, and Ruth J. Katz, J.D., M.P.H., associate dean for administration.

This year Kessler portrayed himself and paid lip service to the virtues of a vegetarian, low-sodium, lactose-free "healthy cigarette" developed at Yale. Then Kessler, the author of a "well-written but soporific" book on the tobacco industry, helped steal the sole copy of the cigarette's formula. Had Big Tobacco finally bought him off?

So it seemed until two secret agents traced the theft to Dr. Evil, transplanted from the set of an Austin Powers movie to join the Class of '05—make that '005—in "The Spy Who Smoked Me." The healthy cigarettes, tested at Yale in a randomized, quadruple-blind, double-deaf, one-third-mute study,

were still addictive, as revealed in a disco dance-off as Kessler and Angoff struggled for the last butt. With the two deans in the grip of Saturday Night fever, Katz ("I bought my way into the show") filched the last cigarette in the administrators' stash.

To the rescue came Gold Bond (Douglas Walled) and Agent XX (Mihae Yun), the lithe and chromosomally correct brains behind the investigation, who recovered the formula.

The show netted almost \$6,000 for the Boys and Girls Club of New Haven.

—Cathy Shufro



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2



3



4

## Back to school with Colombia's top doctor

José Patiño, an old hand in Latin American medicine and education, has a new use for the Yale System.

*By John Curtis*

Although he believes that Colombia already has too many medical schools, José Félix Patiño, M.D. '52, HS '58, is leading a drive to create one more. He hopes the new school—a joint venture of the prestigious Universidad de Los Andes and the Fundación Santa Fe de Bogotá (FSFB), a medical center Patiño and others founded 20 years ago thanks to the philanthropic gift and dedication of Alfonso Esguerra, M.D. '64, and his wife, Gloria—will raise the level of medical education in Colombia. Patiño's model for the new school is the Yale System of medical education.

"The main thing that we are taking from the Yale System is the flexibility of the curriculum and the responsibility the student has in learning, and not only what the teacher provides the student. The students have to learn how to learn and be students for the rest of their lives," Patiño said in January during a telephone interview from his home in Bogotá, Colombia's capital. "When I was a medical student at Yale, my fourth year was practically ad-libbed. I could do whatever I wanted because I had completed all my subjects, and that gave me the opportunity to attend lectures and classes in other subjects all over the university."

This new medical school, scheduled to open next year, will be the latest in a string of achievements in medicine, education and social welfare that Patiño has brought to his nation during a 45-year career. Since returning home after his education and training in surgery at Yale, Patiño has served Colombia as director of the Association of Medical Colleges, minister of health, rector of the National University and president of the National Academy of Medicine. He worked with John D. Rockefeller III and Robert S. McNamara to bring Rockefeller Foundation and World Bank grants to Colombia. In recent years he also found time to write a biography of the opera diva Maria Callas.

As minister of health in the mid-1960s, Patiño introduced generic drugs to Colombia, dramatically lower-

ing the cost of medications. While rector of the National University, one of the country's largest public colleges, Patiño restructured 34 distinct faculties, brought in full-time faculty and obtained funding for teachers and researchers.

Patiño has continued to indulge his passion for opera, acquired from his father, also a physician, who took his family to listen to operas at Bogotá's Teatro Colón. While at Yale, Patiño traveled to New York to hear a new singer with a marvelous voice who, although well-known in Europe and Latin America, had yet to make her debut in the United States. That singer was Maria Callas. "I became interested in her life, always in search of perfection," says Patiño. "I own every opera she recorded but three. She sang operas that had been in obscurity and brought them to light." Two years ago Patiño's biography of Callas, now in its second edition, was published by Editorial Kimpres of Bogotá. He is the author of 18 monographs, over 300 papers and eight books, including a major surgery textbook dedicated to his professor at Yale, the late Gustaf E. Lindskog, M.D. This fall he will deliver the Distinguished Lecture of the International Society of Surgery (of which he was president) at the annual Clinical Congress of the American College of Surgeons in Chicago.

Looking back on the heady days of the 1960s, when he hobnobbed with McNamara and Rockefeller and served on a delegation that welcomed President John F. Kennedy on a state visit to Colombia, Patiño laments a change in international lending practices. "At that time the World Bank had a different philosophy than it has today. Their philosophy was that of John F. Kennedy, to help the poor," he says. "To see how the World Bank functions today, pushing globalization without considering the local situation, is traumatic."

The Fundación's vision of helping the poor has become reality in six low-income neighborhoods bordering its teaching hospital. The 180-bed hospital and medical center was the first in Latin America to have its own full-time staff of physicians. (Typically, Patiño says, hospitals in Latin America rely on the services of physicians who work part time while maintaining private practices.) Its mission includes the education and training of physicians, as well as providing medical care. Proceeds from the center's clinical fees subsidize services for the poor that go



Since graduating from medical school, José Patiño has served as Colombia's minister of health, led a reform of the National University there and written a biography of Maria Callas. Now he is leading an effort to create a new medical school modeled on the Yale System.



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beyond health and medicine. "The community health program is not only a health program," Patiño says. "It not only relates to outpatient centers, but also to community development in terms of the environment and starting people on their own small industries. It has been a tremendously effective community program."

Several members of the Yale medical faculty have traveled to Colombia to see the foundation and its programs firsthand. Among them are former Dean Gerard N. Burrow, M.D. '58, HS '66; former Deputy Dean Robert H. Gifford, M.D., HS '67; Yale-New Haven Hospital President Joseph A. Zaccagnino, M.P.H. '70; and former Chief of Staff John E. Fenn, M.D. '61, HS '66 (to whom Patiño refers as his brother).

The center also brought medical students from the United States to Colombia for training periods of two months to a year. During the 1990s, several came from Yale to a hospital in a small town outside Bogotá. Concerns over security put an end to that program, however.

Patiño's desire to attack poverty comes from a long-held belief that it lies at the root of Colombia's troubles. Two left-wing guerrilla groups who claim to speak for the downtrodden are at war with both the government and right-wing paramilitary groups. Both the paramilitaries and

the guerrillas fund their activities through alliances with drug traffickers.

"The political system here is really complicated," says Patiño. "The principal reason is the poverty, the extreme difference between the people of the higher socioeconomic class and the people in the lower level. There is a tremendous disparity and it is increasing instead of decreasing."

Despite the prevailing image of Colombia as a country torn by warfare and strife, with large swaths of land under the control of guerrillas or paramilitaries, Patiño says Bogotá is a safe place. "If you come to Bogotá today you will find a normal city; entertainment, movies, restaurants," he says. Also, he adds, Colombia is a marvelous country that has produced figures of the stature of Nobel laureate Gabriel García Márquez, painter Fernando Botero, rock artist Shakira and Formula One racer Juan Pablo Montoya.

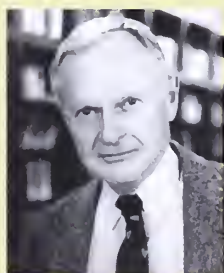
He is optimistic that the country's recently elected president, Alvaro Uribe, who campaigned on a slogan of a "firm hand" with insurgents, can improve the political situation. In the meantime, life goes on and he continues with his plans for the new medical school.

The new school, Patiño says, should be up and running by January 2004. Why would someone who believes there are too many medical schools want to add one more? In the 1970s, there were only eight in this country of 41 million people. Now there are 45, most of which were established in the past decade since the national government began to promote higher education by encouraging the opening of new universities. "Many of them are really of very poor quality," Patiño says of these schools. "The great contribution we think we will make is to set higher standards in medical education and serve as a model for other medical schools in Colombia and Latin America."

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

### In *Lost in America*, a Yale surgeon opens up memories of his father

The latest and most personal book by **Sherwin B. Nuland, M.D.**, '55, HS '61, *Lost in America: A Journey With My Father*, grew first and foremost out of his need to dissect his tangled feelings of love and resentment toward his immigrant father. But Nuland's memoir about his impoverished childhood in the Bronx also arose from his discomfort about how others view him today: those who have known Nuland as the urbane surgeon, scholar and internationally known writer have seen a public face whose polish reveals nothing of "the long road to get there."



Sherwin Nuland

Nuland opens his book with an epigraph: "Be kind, for everyone you meet is fighting a great battle." The book tells not only the story of his father's tragedies but also the story of Nuland's own "great battle"—his struggles with death, depression, anti-Semitism and shame.

"For many people who haven't spent a lot of time with me," says Nuland, a clinical professor of surgery at Yale, "I was some kind of a cool WASPY guy who comes from a very American background and has things all figured out. ... But I'm also this other complex, confused person. The whole idea is that each of us is a bundle of inconsistencies."

Some of Nuland's confusion stems from growing up with a father who devoted himself to his wife and children but who raged against them, frustrated by his own failures and misfortunes. Nuland's nagging awareness that he needed to examine his feelings about his father remained in "the back pocket" of his mind for several years after the 1994 publication of *How We Die: Reflections on Life's Final Chapter*. The book was tremendously successful, winning the National Book Award and selling a half-million copies in the United States alone. But readers pointed out something that shocked Nuland: he had inti-

mately described the illnesses of several family members without once mentioning his father.

"I didn't understand why I'd left him out of the book," says the 72-year-old Nuland in a late-winter interview in the office of his colonial house in Hamden, Conn. He realized, "I'm never going to really understand him until I write about him."

Nuland begins his story not with an account of his father but with a scene from his own nightmarish year in a mental hospital when, at age 42, he was suffering from severe depression. The dispirited Nuland adopted the stooped posture and helplessness of his father, 15 years dead.

That father was an immigrant from Bessarabia, then claimed by Russia, who had come to America at 19, a garment worker who embarrassed his son by speaking mangled English and shuffling when he walked (a sign of a spinal cord disease that Nuland abruptly recognized one evening while reading his physiology text at Yale). Nuland's father and adored mother had lost their first-born son before Sherwin, or "Shep," was born. And then Nuland's mother died, too, of rectal cancer, when he was 11.

Nuland was drawn to medicine both by his need to vanquish the disgust he felt about disease and because he revered doctors. "To me, as a child of 8, 9, 10, there was a nobility in a physician." In his chaotic world, physicians "had about them an equanimity that I genuinely admired, that was based on the reality that they really could do things, really could lift people up from the depths of despair and give them hope."

Indeed, a young physician effectively saved Nuland's life during his midlife depression. Nuland narrowly escaped a lobotomy because resident Vittorio Ferrero, M.D., protested the orders of his superiors at The Institute of Living in Hartford,

Conn. Nuland recovered after a string of electroshock treatments.

These days Nuland devotes all his time to writing and speaking. He's planning a trip to Shanghai this summer for the wedding of his son from his first marriage, and he has two young grandchildren by his older daughter, a NATO diplomat in Brussels. His two younger children, with actress and director Sarah Peterson, are of college age.

Nuland says his books have allowed him to become a kind of family physician in print. In that sense, he calls *Lost in America* "my ultimate book." "This is a kind of therapy for everybody who reads the book, to recognize that it's OK to be complex and confused. ... Because essentially what I'm saying is 'Look, look where I was, and look how I gradually came out of that to have made such a rewarding life.'"

—Cathy Shufro

### A dinner guest inspires a mission to help former slaves

The night her husband brought a Sudanese guest home for dinner, **Cynthia Hymes Bell, M.P.H.**, '84, heard a story that inspired her to risk her life. The visitor that night in October 1999 was Francis Bok, a 19-year-old who told of being abducted during a militia raid on a Sudanese village marketplace when he was 7 and spending the rest of his childhood as a slave.

Bell's husband, the Rev. Gerald E. Bell, had met Bok through his work as senior pastor at the Southern Baptist Church in Roxbury, Mass. "He was determined for me to hear Francis' story," recalls Bell. When Bok told of being captured, the Bells' 6-year-old son, Noah, began to cry. "That's not right," he said. "How can people take people?"

People do take people in Sudan: 10,000 to 17,000 people are currently enslaved there, according to estimates by UNICEF UK, most of them caught in the animist south and taken to the Muslim north.



Cynthia Bell



Because he survived a decade of captivity (as an abused farm-hand) and eventually escaped, Bok might even be counted as fortunate in the Sudanese context. Civil war lasting nearly 20 years has killed two million people and displaced twice that number in the nation of 37 million that lies south of Egypt.

The story that so upset Bell's son had a profound resonance for Bell as an African-American whose ancestors were themselves enslaved. Her sense of connection led her to join a trip to Sudan co-sponsored by the Zurich-based human rights group Christian Solidarity International, and My Sister's Keeper, a faith-based initiative based in Boston. In July 2002, Bell reports that she witnessed the "redemption" of about 1,200 people. For \$33 per person, the group bought back slaves from Arab northerners who make their living as "retrievers."

Bell's task was to talk to the tribal chiefs to find out what would happen to returnees without homes. "Many of them had no place to go. Their villages have been bombed, husbands have been killed, their children are missing. Where is home?" Some of the people may have lost their homes in raids by militias protecting Sudan's oil industry. Those militias have burned villages and killed and enslaved residents to clear the area along the pipeline into southern Sudan that brings in oil worth more than \$1 million daily. Complicating the situation is that southern rebels are fighting the junta in power.

Bell was relieved to hear that the chiefs would accept the strangers into their communities. She then interviewed the women to help them develop ideas for supporting themselves. They asked for a gasoline-powered grinding mill for grain.

A few weeks before her arrival, the spot where Bell camped had been bombed, and she lay stark

awake in her tent for three nights. "I questioned whether I would see my family again. ... Prayer kept me from totally freaking out." She believed she was in God's hands.

Bell and three other Boston-area women who have visited Sudan are researching prices for a grinding mill and consulting with contacts in Sudan about the safest place to locate it. "We're building relationships so we can go in and help, beyond the slavery issue," says Bell. Bell and the others in Boston, members of "My Sister's Keeper," speak about Sudan at churches and receive donations there. The next step, says Bell, is to use her public health training to develop a plan to respond to the threat and the effects of HIV.

—Cathy Shufro

### Ten lines a day, for 78 years

**Albert Doty Spicer, M.D.** '37, D.M.D., was 13 when he wrote the first entry in his diary—and every day since, for 78 years, he's written 10 lines a day that record changes in 20th-century life. Spicer's diary served as the basis for a recently published history of his hometown of Westerly, R.I., that describes the mundane and the memorable, from playing mumble-the-peg to dancing in the streets on V-J Day in 1945.

*Momentous Events in Westerly, Rhode Island* includes historic photographs of the seaside town and Spicer's recollections: he watched the total eclipse of the sun—and saw a German dirigible on the same day—in 1925, the year he began writing. (He's never missed a day since, though he had to dictate his entries a few times following two strokes.) In 1927, when he was 15, he saw the *Spirit of Saint Louis* circle over Providence, R.I., and then glimpsed pilot Charles Lindbergh drive by in an open car. Spicer describes the hurricane of 1938, which washed away a swath of the resort towns of Weekapaug, Misquamicut and Watch Hill.

"Where there had been hundreds of houses, the beach was wiped clean. ..." Spicer also recalls after-school escapades, including *skijoring*, in which a trotting horse pulled people on skis behind it. Spicer writes about the night the Westerly Fire Station burned down in 1927. He describes his mother's cumbersome bathing costume, including stockings and shoes worn while swimming. When two-piece bathing suits first appeared in the 1930s, he recalls seeing a man on the beach "reading" an upside-down newspaper.

Although Spicer planned to study dentistry from the outset, he attended medical school because his father advised that a foundation in medicine would help him. An internship at Pawtucket Memorial Hospital allows Spicer to boast, "I'm the only dentist who's delivered 60 babies." After earning his dental degree at Harvard, Spicer set up an office in the town where his father and grandfather had served as dentists before him. His son, Albert D. Spicer Jr., was in his final year of dental school when he was killed in a car accident in 1965. Spicer's daughter, Judith Spicer Knutson, helped assemble the book.

Spicer said the biggest change he saw during his career was the evolution from corrective to preventive dental care. He experimented with using music as an alternative to anesthesia. Spicer said the technique worked for most patients but never caught on. Anesthesia with a needle seems simpler and quicker to most dentists, he says.

Spicer lives by the Atlantic on Weekapaug Point in Westerly. He gave up skiing six years ago, at age 85, and has sold his sailboat, but he and his wife, Marion, welcome invitations to crew. Spicer has simple advice about what we should all be doing for our teeth: "Hang onto them!"

—Cathy Shufro



Albert Spicer

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### Familiar Faces

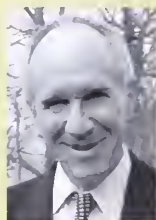
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Carl Andrews



Martin Robson



Frederick Sherman



Audrey Weiner



Robert Higgins

## 1940s

**Carl E. Andrews, M.D.** '44, retired and living in Port St. Lucie, Fla., is now a "gentleman farmer" with 103 orange and grapefruit trees. He handles the farm completely by himself, including the cultivation, pruning and picking in early spring. After harvesting his crop, he travels through the neighborhood on his bicycle distributing bags of complimentary fruit. Andrews' residence is in a neighborhood built around a small airstrip. The development was designed for individuals who own small planes, and each backyard has an aircraft taxi road leading to the airstrip. Although robust for his years, Andrews gave up his plane and license several years ago because of his age.

## 1970s

**Martin C. Robson, M.D., HS** '73, professor emeritus of surgery at the University of South Florida in Tampa, was awarded an honorary fellowship in the Royal College of Surgeons of England in July 2002. Robson, one of three recipients and the only honoree from outside the United Kingdom, was on the faculty at Yale until August 1974. Previous awards include an honorary fellowship in the Royal Australasian College of Surgeons, the Lifetime Scientific Achievement Award of the Wound Healing Society and the Distinguished Service Award from the American Burn Association.

**Frederick S. Sherman, M.D.** '75, professor of pediatrics and obstetrics and gynecology at the University of Pittsburgh School of Medicine and the director of Perinatal Cardiology at Magee-

Womens Hospital, a department that he founded in 1988, writes to say: "Like many I was exasperated by inefficiencies in academic medicine and communication issues between medical staff and administration. So ... I went to business school and I am happy to report I received my M.B.A. from the Katz Graduate School of Business at Pitt in December 2002." His department is devoted to diagnosing and managing cardiac problems in fetuses, newborns and pregnant women.

**Audrey S. Weiner, D.S.W., M.P.H.** '75, was appointed president and CEO of The Jewish Home & Hospital LifeCare System in November. Her responsibilities include leading the System's three campuses, in Manhattan, the Bronx and Westchester, N.Y. She also assumes supervision of the Lester Eisner Jr. Center for Geriatric Education, the Kathy and Alan C. Greenberg Center on Ethics in Geriatrics and Long-Term Care and the Center on Pharmacology/Pharmacy for the Elderly.

## 1980s

**Robert S.D. Higgins, M.D.** '85, former chair of cardiothoracic surgery and professor of surgery at the Medical College of Virginia, Virginia Commonwealth University, in Richmond, was appointed chair of the department of cardiovascular-thoracic surgery at Rush-Presbyterian-St. Luke's Medical Center in Chicago in January. His focus at Rush will be to enhance and advance the care of patients with diseases of the heart and lungs.

The Ohio Rural Developmental and Behavioral Clinic Initiative, directed by **Ronald L. Lindsay, M.D., HS** '86, received the 2003 Ambulatory Pediatric Association Health Care Delivery Award in May. The award recognizes innovative and effective programs that provide health care in a teaching setting, and outstanding programs or systems of health care. The program provides referrals, training in the health professions and coordination of care by public health nurses in conjunction with local pediatricians.

**Antoinette L. Lloyd, M.D.** '86, is a family physician and director of Healthy Jacksonville, part of the national Healthy People 2010 preventive medicine project for Jacksonville, Fla. She has been married for 18 years to **John M. Montgomery, M.D., M.P.H.** '84. Montgomery is director of health services and chief medical epidemiologist for Jacksonville, and a program director and assistant professor of community health and family medicine at the University of Florida.

## 2000s

**Joanna B. Sheinfeld, M.D.** '00, a resident in internal medicine at Mount Sinai Hospital in New York City, was married on February 16 to Mark D. Paltowitz, a director of portfolio analysis with BlackRock Inc., an asset management company in New York.

SEND ALUMNI NEWS TO  
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**Franklin C. Behrle, M.D.** '46, of Grantham, N.H., died October 6 of renal failure due to diabetes. He was 80. Behrle, professor emeritus and chair of pediatrics at the University of Medicine and Dentistry of New Jersey, was co-founder and executive chair of the Statewide Perinatal Services and Research Center.

**Ronald C. Brown, M.D.** '74, of South Orange, N.J., died August 14. Brown, whose practice was in internal medicine, was a former vice president of medical affairs at Oxford Health Plans in Edison, N.J.

**Joseph Budnitz, M.D.** '34, former chief of cardiology at the Berkshire Medical Center in Pittsfield, Mass., died on October 7 of cardiac arrest at the age of 93. In 1941, he was among the first physicians certified by the newly formed American Board of Cardiovascular Disease.

**Harrison Dunn, M.D., HS** '63, of Visalia, Calif., died on October 15 in Pixley, Calif., at the age of 73. For most of his career Dunn was an emergency room physician at the Veterans Memorial Medical Center in Meriden, Conn. He retired in 1993 and moved to California, where he was employed by the state as a physician at the Corcoran Prison.

**Stephen Fleck, M.D.**, professor emeritus of psychiatry and public health at Yale, died on December 19 at the age of 90. Fleck served as psychiatrist-in-chief of both the Yale Psychiatric Institute and the Connecticut Mental Health Center and was known for his influential research work on schizophrenia and the family.

During World War II he helped to evacuate and treat concentration camp prisoners and to interrogate German prisoners.

**William W. Glenn, M.D.**, former chief of cardiothoracic surgery at the medical school, died on March 10 at Monadnock Community Hospital in Peterborough, N.H. He was 88.

In 1950, using a pump made from parts of a child's Erector set, Glenn and colleague William H. Sewell, M.D., created a mechanical heart pump, the forerunner of heart-lung bypass machines. Four years later Glenn became the first to use a vena cava-pulmonary artery shunt to bypass malformed hearts in the treatment of blue babies. And in 1959, Glenn and colleagues introduced the concept of electrical stimulation by radio frequency induction into medical practice, first used to pace the heart and later the diaphragm. Glenn's textbook, *Glenn's Thoracic and Cardiovascular Surgery*, now in its sixth edition, has become the international standard text for vascular surgeons.

**Elizabeth R. Harrison, M.D.** '26, one of the first women to graduate from the School of Medicine and pediatrician to three generations of New Haven children, died in her sleep on January 5 at the age of 103.

**Charles A. Janeway Jr., M.D.**, professor of immunobiology at the School of Medicine and a Howard Hughes Medical Institute investigator, died on April 12 at age 60 in New Haven after a long illness. One of the leading immunologists of his generation, he developed many of the concepts that are

the basis of immunology today. He is renowned for his recent work on innate immunity, the body's first line of defense against infection.

Janeway predicted in 1989 that pattern recognition receptors would mediate the body's ability to recognize invasion by microorganisms. This prediction was made first on theoretical grounds, and subsequent experimental work established the underlying mechanisms.

Janeway published more than 300 scientific papers and was the principal author of the acclaimed textbook *Immunobiology: The Immune System in Health and Disease*, now in its fifth edition.

**Ernest R. Kimball, M.D.** '36, of Jacksonville, Fla., died December 27 at the age of 93. A pediatrician dedicated to the benefits of breastfeeding, Kimball helped found the Evanston (Ill.) Hospital Breast Milk Bank. Kimball and his wife, Alicia, co-founded a not-for-profit ranch in Zion, Ariz., providing physical and recreational therapy for children with mental and physical disabilities.

**Samuel Reback, M.D.** '25, a retired neurologist and psychiatrist, died November 22 in New Smyrna Beach, Fla., He was 101. Reback, a former resident of Staten Island, N.Y., was an expert in mental illness and neurological disorders and testified at trials. He wrote many papers on neuropsychiatry and was the first to describe the disorder known as Familial Paroxysmal Choreoathetosis.

**Priscilla Taft, M.D.** '44, of Lenox, Mass., died November 23 at the age of 85. Taft was a pathologist

at Massachusetts General Hospital. She graduated from Radcliffe College but was turned down for admission by the Harvard Medical School because they would not accept women. While at Yale she contracted tuberculosis, an occupational hazard for medical students, and met her husband, Edgar B. Taft, M.D. '42, while both were in treatment.

**Arnold D. Welch, PH.D., M.D.**, former chair of pharmacology at Yale, died at home in San Diego on October 11 at the age of 94. Welch also served as department chair at Western Reserve University and was president of the Squibb Institute for Medical Research. At age 75, Welch joined the National Cancer Institute to coordinate the National Cooperative Drug Discovery Groups and served as acting deputy director of the division of cancer treatment.

**C. Bruce Wenger, M.D.** '70, PH.D. '73, of Natick, Mass., died November 22 after a long illness. He was 60. A pharmacologist, Wenger had been a medical researcher for the Army, specializing in heat-related illnesses. He loved to sing and belonged to the Stambandet Swedish Singing Group and the Norumbega Harmony Singers. Wenger was a long-standing member of Gideons International, the oldest Christian business and professional men's association in the United States, and the Park Street Church Missions Committee.

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SEND OBITUARY NOTICES TO Claire Bessinger, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612, or via e-mail to [claire.bessinger@yale.edu](mailto:claire.bessinger@yale.edu)



## Rolling on outa here

When warm weather beckoned this spring, genetics graduate student Matthew Weed joined fellow students studying outdoors for the first time in his six years at the School of Medicine. Weed, who is blind, used new wireless technology for his Macintosh laptop to listen to articles being read aloud and to check his e-mail—all in the semibucolic setting of the Harkness Courtyard.

Weed is close to completing the dissertation on science and public policy that was just taking shape when he was profiled by *Yale Medicine* three years ago ["Bringing Science Into Focus," Summer 2000]. He is studying "what society decides to do about controversial research: how to regulate it, how to assimilate it." Part of his analysis compares how policy-makers in the United States and the United Kingdom regulate scientific research in areas such as stem cells and cloning. "Different countries come to different policy-making decisions. Why? I'm interested in the decisions themselves and what the mechanisms and who the contributors were."

Weed could have studied this topic in a political science department, but he says he would have missed an important element: "exposure to how scientists think about science and how physicians think about medicine." He said researchers are very reluctant to confront the fact that the practical uses of their discoveries may frighten or repel society. Scientists fear that if potential problems are made salient, they'll lose their freedom, says Weed.

But facing these issues is not optional, Weed argues. "No single government can stop knowledge from being created." The challenge is "how to assimilate knowledge even if we're uncomfortable with it."

Weed hopes to find a job in Washington with a large corporation or a government policy-making agency. He is considering strategies for how to incorporate medical support for his diabetes into his daily life once he leaves the university, where volunteer students monitor Weed's glucose levels and inject insulin twice daily. When he's away from his laptop, Weed still goes inline skating (with a friend to guide him), and he plans this summer to try water skiing for the first time.

—Cathy Shufro



## WINTER 1968

"Alumni and particularly former house staff will be pleased to learn that the stipends for interns and residents at Yale-New Haven Hospital were increased January 1, 1968, and there will be a further increase effective July 1. The January change raised interns from \$4,000 to \$5,000 per year; new stipends for residents range from \$5,500 to \$8,000 per year.

"For the 1968-1969 house staff year beginning in July, interns will receive \$6,000; assistant residents, first year—\$6,600, second year—\$7,200, third year—\$7,800; fourth year residents, \$8,400; and chief residents, \$9,100.

"The cost of a medical education, however, continues to rise along with the general inflationary spiral. The present \$1,900 annual tuition at the Yale School of Medicine will increase to \$2,150 as of September, 1968. This is equal to the tuition now charged at many other private medical schools and, incidentally, is less than the 1968 tuition at some schools. The total cost for attendance for four academic years at a privately supported medical school is estimated to be at least \$16,000."



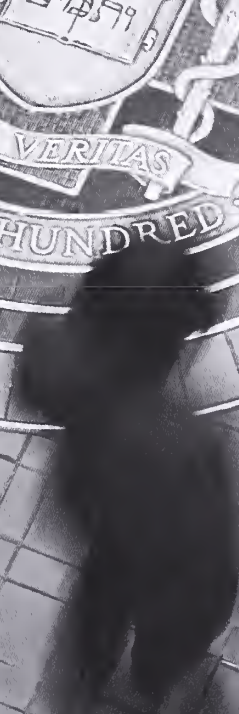
## SPRING 1991

"Both adults and children can now be treated at Yale for vascular tumors of the skin, thanks to the new pulsed dye laser acquired by the School of Medicine and Yale-New Haven Hospital.

"This laser—the only one of its kind in the region—treats port-wine stains as well as other blood vessel tumors and broken blood vessels. Port-wine stains, like the purplish-red birthmark on the forehead of Soviet President Mikhail S. Gorbachev, occur in three out of every 1,000 newborns. ...

"The laser unit, about the size of a small washing machine, uses fiber-optic cable to conduct the laser energy. Patients require no anesthesia for the treatment, which feels like the snap of an elastic band. In most cases, vascular tumors can be permanently removed, although several treatments may be required."





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PA-C	<input type="checkbox"/> _____
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