

Yale Medicine

autumn 2003

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BUILDING A BETTER DRUG

THE RATIONAL APPROACH TO DRUG DISCOVERY
IS CHANGING PHARMACOLOGY, BUT SERENDIPITY
AND IMAGINATION STILL PLAY A STARRING ROLE.

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ON THE COVER

Academic researchers in pharmacology have long relied on intuition to advance the process of drug discovery. Even in today's more technology-driven and "rational" environment, there's nothing like an inspired hunch.

Illustration by Gary Clement

On the Web

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.



It's high time to fix the malpractice mess

Your article "Showdown" in the Summer issue of *Yale Medicine* brings out the sorry state of affairs in the medicolegal climate. When I began the practice of ob/gyn after World War II, my malpractice insurance was \$25 a year.

Albert W. Diddle, M.D. '36
Knoxville, Tenn.

The lucid comments about the malpractice situation and its aggravations were apt and helpful in understanding the dilemma. However they failed to mention one of the major causes of premium increases, which is the failure of state medical examiners boards to take steps to reduce the number of compensable medical errors.

For some years the Public Citizen Health Research Group (PCHRG) has closely followed malpractice suits decided in favor of the plaintiff. During the period 1990-2000, 5 percent of the doctors were responsible for the payouts in 54 percent of the suits. In other words, over half the cases of successful litigation were the fault of only 5 percent of the practitioners.

Overall, of the 35,000 doctors who had two or more payouts during that period, only 8 percent of them were disciplined by their state medical examiners board. The PCHRG publishes these figures periodically, and they emphasize that doctors who are repeatedly found to be at fault are responsible for the increasing costs of insurance for

the rest of the profession. The conclusion is obvious: state boards should recognize that it is their duty to discipline the repeat offenders and with more than a tap on the wrist.

Frederick W. Goodrich Jr.,
M.D., HS '49
Medford, Ore.

In reporting on the current medical malpractice crisis, author Eli Kintisch characterizes it as a battle between doctors and lawyers. The cliché is catchy, but it is also misleading. Thousands of attorneys in this country, myself included, devote their professional careers to defending health care providers and hospitals in medical malpractice cases and advocating for tort reform measures that limit physician liability. This is not a case of doctor versus lawyer; it is both broader and more refined than that. At best, the generalization oversimplifies the nuances of the debate. At worst, it serves to perpetuate the misguided animosity that, sadly, polarizes the professions and leaves patients stranded somewhere in the middle.

Ken Baum, M.D. '01, J.D. '01
New Haven

More letters on this topic appear on our website, info.med.yale.edu/yymm.

Knowing when not to retire

As a "mature physician" of 65, I found that I disagree with a significant proportion of Herbert Kaufmann's essay ["Knowing When It's Time to Quit," Summer 2003]. I am at the stage of my medical career where I am working because of my joy in the practice of medicine and the feeling that I have something additional to offer to my patients. This is true of many physicians in their prime, who have continued to expand their base of medical knowledge and perhaps are now more willing to listen. It would be a shame for the medical community and for patients to lose such a valuable resource.

When I lose the desire to continue to learn, lose the joy

of going to my office and talking with my patients, then I will move to another phase of my life, retirement.

Mark W. Lischner, M.D. '65
Roseville, Calif.

To my former fellow, Herbert Kaufmann: I read your recent essay and was delighted at your eloquence if pained at your conclusion that doctors should retire. I am grateful as I approach 80 that you left unspecified the age for desuetude. You condoned your own retirement by saying that aging doctors grow out of touch with junior colleagues who prefer their own peer group anyway, that older practitioners no longer understand the science in medical journals and that—in your words—they grow irrelevant as far as their colleagues are concerned.

I failed you as a teacher if you imagine that most of the people who come to see me require that I trace the twists and turns of amino acids. It may be fun to read the latest science, but little of that is required to care for patients in the office or clinic. There are nowhere near enough physicians, and we who are spared can make a contribution by working part time in an office or clinic to let someone else bear the heavier burdens of the hospital. We need elderly doctors in our intensive care units, not taking care of patients and not, one hopes, lying in a bed, but as knowledgeable patient advocates wandering around the unit asking questions about what is being done and why, and to what purpose. The intensive care unit might even be a place for elderly doctors to talk to the families of the patients being taken care of by younger experts.

There is much good also to be said for the viewpoint of the old, who have had experience and now have the leisure for contemplation. It takes staying power, iron pants and stamina—and a willingness, no an eagerness, to accept a changed role.

People may think that you are irrelevant, but as long as you are convinced that you are not, you have something to say to them.

Howard M. Spiro, M.D.
Professor emeritus of medicine
New Haven

The letter above is excerpted from a longer essay by Howard Spiro that appears in full on the letters page of our website, info.med.yale.edu/yymm.

Dear Herbert: I am responding to your essay and Howard Spiro's response. You eloquently describe how, as we get older, our relationship with our medical community changes—a discomfort and reality all physicians must experience. At some point in time, I agree, it would be wise to retire. At what point in time this happens will depend on the individual.

Change in life is inevitable and we all respond differently. Your response, seemingly, was to retire; Howard's was to adapt to it by accepting a "changed role"; and mine was to create a new career. I also retired three years ago, and although I loved the medical community that I left behind, I decided to enter a new field and way of life. I have been auditing courses at the Yale School of Forestry and Environmental Studies and am volunteering as a stewardship coordinator for a land trust. Like Howard, I have a new niche, friends and colleagues, and I am enjoying my new life immensely.

I would like to believe retirement is a beautiful phase of life when a physician becomes free from the restrictions of a lifelong medical career. The time that decision is made and the life that is subsequently chosen will depend on one's attitude, desires, ambition and health, not age. The three of us have made our choices.

Vincent A. DeLuca Jr., M.D.
Clinical professor of medicine
(retired)
Branford, Conn.

Herbert Kaufmann's article was interesting and useful. I retired at 70 to run a vineyard and win-

ery. My experience is described in a chapter in a book called *Doctors Afield*, published by Yale University Press in 1999.

In my time at the School of Medicine, there were a number of optional courses. Are those still offered? If so, I would suggest an elective on retirement. Young people entering medicine often have a narrow view of the world. Retirement is certainly not what they are thinking about. When I retired from psychiatry and psychoanalysis, I was struck by how many of my colleagues hung on way past the time when they should have quit. They had nothing else to do. Some planning earlier in life would have served them well.

George W. Naumburg Jr., M.D. '45
North Salem, N.Y.

Thanks for the news from Cedar Street

Again I am awed by this spectacular publication you have crafted with its singular breadth and depth, sensitivity and historical continuity. *Yale Medicine* is one of many publications I receive but the only one I devour from cover to cover. Congratulations and thanks for an outstanding contribution to generations of Yale physicians.

Glenn L. Kelly, M.D. '62, HS '66
Englewood, Colo.

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, and include a daytime telephone number. Submissions may be edited for length, style and content.

VISIT US ON THE WEB
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The things that matter

As one can see from these pages, our mailbag has been bursting lately. Some of the letters affirm an idea expressed in *Yale Medicine*, while others offer a wholly different perspective. I hope this means we're covering topics of importance to readers and presenting a diversity of views on questions that are too complex to have simple answers. Just as the university thrives on the exchange of ideas, so does this magazine.

The topics in the Summer issue that drew the greatest response were physician retirement and the malpractice insurance debate. Alumnus Herbert Kaufmann's article on why he decided to retire while still in his prime ("Knowing When It's Time to Quit") was unsolicited but perfect for the *Essay* section. For our feature on the malpractice debate ("Showdown"), we did ask readers for their opinions and received a great number in reply. The letters are still coming.

Next we're turning our focus to bioethics, a growth area in science and medicine if ever there was one—and an area of increasing strength at Yale. For our Spring issue, we'd like to hear from you about the ethical dilemmas you have faced in your professional life. We will then pose the thorniest of these problems to a panel of bioethics experts from the Yale faculty. Please send your story to: Ethics, *Yale Medicine*, P.O. Box 7612, New Haven, CT 06519-0612 or by e-mail to yymm@yale.edu. We'll publish a selection of dilemmas, along with responses from our resident experts, in *Yale Medicine* and on our website, info.med.yale.edu/yymm. And since it is next to impossible to find universal agreement on the things that really matter, expect to see more letters to the editor.

Michael Fitzsosa
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SECOND OPINION BY SIDNEY HARRIS



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In the dean's office, it takes a brain surgeon

Running the med school is a complex task, which may be why Yale tapped Dennis Spencer as interim dean.

On a Monday afternoon in late June, close to a hundred senior faculty members filled the Historical Library to witness a changing of the guard. Then-Dean David A. Kessler, M.D., was about to announce his departure for the University of California, San Francisco, where he had been named vice chancellor for medical affairs and dean of the school of medicine. Standing next to Yale President Richard C. Levin was a tall, bespectacled man in a dark suit and white beard who has a passion for cultivating water lilies and has been sighted more than once on Cedar Street astride a Harley-Davidson.

"You may be asking yourself, as I did, 'Why Spencer?'" the new interim dean, neurosurgeon Dennis D. Spencer, M.D., HS '77, said a few minutes later, evoking a laugh from the crowd. Looking at Levin, he went on: "He chose a surgeon, and so I thought maybe he wants quick decisions. So I've made two already. First I will decree that the first floor of the Air Rights Garage will be reserved for the exclusive use of motorcycles. Second, I have just decided that the third-year medical students will now be required to do a three-month rotation in neurosurgery."

The room erupted in laughter and thus Spencer took the helm—at least for a time—of the medical school where he began his career in 1972 as

a resident. The moment summed up much about the person who has led neurosurgery since 1987, building the section into a free-standing department in 1997 and serving as its chair: people notice him, they listen and they seem to enjoy the experience. "He's the quintessential neurosurgeon and a wonderful exemplar of the physician-scientist," said Carolyn W. Slayman, PH.D., deputy dean for academic and scientific affairs and Sterling Professor of Genetics.

Spencer himself sees the post as an opportunity to keep the school on a steady course during a time of transition, and to move it ahead in certain critical areas pending the appointment of a permanent successor to Kessler, who came to Yale as dean in 1997.

In July, Spencer said that his initial areas of focus would be faculty recruitment, fund-raising and shepherding

the allocation of laboratory and office space that becomes available as more than 700 investigators move into the Anlyan Center for Medical Research and Education. He said that Kessler's "outstanding recruitments over the last few years" of senior faculty members have equipped the school with "an excellent complement in faculty leadership right now. ... At this stage we're focusing on mid-level positions—some senior, some junior, too, but primarily mid-level positions that have been created in the process of bringing in new department chairs."

Spencer also noted President Levin's announcement on June 23 of a \$50 million matching endowment fund for the medical school. "This promise is very real, and it's going to be the top thing on our agenda," Spencer said.

A graduate of Grinnell College and Washington University School of

Medicine in St. Louis, Spencer came to Yale in 1972 as a resident in the Section of Neurosurgery. He served as chief resident, then joined the faculty as an assistant professor in 1977.

Over the next 25 years, working with colleagues including his wife, Susan S. Spencer, M.D., FW '78, a Yale neurologist and past president of the American Epilepsy Society, he developed new approaches to the surgical treatment of epilepsy and new models for understanding the biochemical and physiological mechanisms of the disease.

In a September e-mail message to faculty, Levin announced the formation of a 15-member advisory committee to assist him in the selection of the next dean. "The committee's first task will be to assist me in evaluating the 41 candidates who have been identified by nominations and in my conversations with the department chairs and other leaders of the School," he wrote. "If a wider search is undertaken, I will seek the committee's advice on how to proceed."

In the interview, Spencer said he had not decided "whether to think about [the deanship] as a full-time position" and is focusing his attention on the tasks before him. He has appointed Joseph M. Piepmeier, M.D., HS '82, as the interim chair of the Department of Neurosurgery and cut back his time in the operating room and clinic.

"My role is to keep things moving forward, and if Rick Levin thought that was important and that I was the right person to try to do that, I'm happy to do it, however long it takes," Spencer said.

Levin praised Kessler for "six years of accomplishment and real advances for the school," notably the completion of the Anlyan Center and the recruitment of more than a dozen department chairs and program leaders. "This is a moment of sadness but also excitement as he takes on what is a tremendous new challenge," Levin said.

—Michael Fitzsosa

A security review drags on, devastating a scientist and derailing cutting-edge work

As a scientist, Heng Zhu, PH.D., is used to dead ends, setbacks and roadblocks. But nothing prepared him for the obstacles he would encounter this past year when he tried to renew his expired visa and continue working as a postdoctoral fellow in the Department of Molecular, Cellular, and Developmental Biology.

"It screwed up my life totally," said Zhu. "I wasn't able to work for a year, and I lost my fellowship." Without an income, Zhu also lost his apartment and car, and his credit rating was ruined. Because he was stranded in China for months, he and his fiancée broke up.

Zhu's troubles began in March 2002, when he realized he had let his work visa expire. Returning to his native China to renew it, he wound up languishing in Beijing for a year while the State Department did a security review. He was finally allowed to re-enter the United States in mid-April of this year.

Zhu, 35, became mired in the quicksand of heightened security measures implemented after the September 11 terrorist attacks. His case drew national attention, in part because his delay was longer than most, but also because his work is groundbreaking and well-known.

"He invented a whole new technology that has enormous value for understanding basic biological processes," said Michael Snyder, PH.D., chair of Zhu's department. Snyder said Zhu developed a method to study the function of all 6,300 proteins encoded in the yeast genome. Zhu's work, likely to aid drug discovery efforts, yielded a \$1.5 million grant from the National Institutes of Health.

When Zhu got stranded in China, Snyder and others circulated a petition, wrote to congressional represen-



"Basically, I lost everything here," scientist Heng Zhu said of his year in diplomatic limbo.

tatives and called the State Department, all to no avail. The State Department doesn't respond to questions about particular cases, said Bureau of Consular Affairs spokesperson Stuart Patt.

At Yale Zhu is not alone. According to Ann Kuhlman, director of the Office of International Students and Scholars, about 20 foreign undergraduates, graduate students, postdocs and faculty members experienced visa delays during the 2002-03 academic year.

Zhu finally renewed his visa and returned to New Haven—but not for long. Late in the summer, as his postdoctoral position at Yale came to an end, he accepted a faculty position at Johns Hopkins.

Although he's back in the United States and his career is back on track, Zhu will never recover the time he lost at Yale. "I can't turn back the clock—that's the bottom line—which is a loss to Yale and the United States as well as to me."

—Jennifer Kaylin



Among the priorities demanding the attention of the new interim dean, Dennis Spencer, are faculty recruitment, fund-raising and the allocation of space.

Neuropeptide's presence in high levels suggests soldiers are born, not made

Contrary to the image of hardened drill sergeants molding untrained youths into skilled fighting machines, a Yale psychiatrist suspects that some soldiers may be born that way.

Charles A. Morgan III, M.D., associate professor of psychiatry, studied troops taking a rigorous survival course at Ft. Bragg, N.C., home to the XVIII Airborne Corps, to see whether some handled stress better than others. Working with researchers from the base, he found that the Army Special Forces, also known as Green Berets, consistently outperformed the other soldiers. When he looked at the levels of neuropeptide Y, a brain chemical that is linked to stress, he noticed that the Berets released higher levels during periods of stress and then returned to baseline more quickly once the stress was removed.

"As a group, the Special Forces were releasing so much more, we could identify who was in that unit just by looking at the numbers," Morgan said. "The more neuropeptide Y they were releasing during stress, the fewer symptoms of confusion or mental disconnection during stress were reported." During their training, soldiers are deprived of food and sleep, pursued through rough terrain by other soldiers



Special Forces troops, such as these searching a home in Afghanistan, release higher levels of neuropeptide Y, which helps them deal with stress.

acting as the enemy and, if "captured," subjected to interrogation.

Morgan has published his research in several journals, most recently last year in *Biological Psychiatry*. But as soldiers prepared to go to war in Iraq in the spring, Morgan's studies drew attention from the national press.

He says the question raised by his findings is whether the Special Forces soldiers have always released higher levels of the chemical or whether their training somehow enhanced their ability to do so. "I don't think that's likely. I think those guys are just different," Morgan said, "but we're still testing that hypothesis."

Morgan's findings could help the Army select the most likely candidates for dangerous duty, but there are also civilian applications. "Because we found that neuropeptide Y is low in people with anxiety disorders and depression, this raises the possibility of new ways of treating them. One might expect that pharmacologic agents that act as agonists at the NPY-1 receptor might diminish anxiety," he said.

Morgan is now looking at ways to help soldiers bounce back from stressful situations more quickly and manage stress more effectively so they don't make costly—or deadly—mistakes.

—Jennifer Kaylin

WARSHAW RETURNS FOR SYMPOSIUM

For the second year, Joseph B. Warshaw, M.D., former deputy dean and chair of pediatrics, visited Yale from his post as dean of the University of Vermont College of Medicine. Eight scientists from around the country came to Yale in March to discuss the cardiovascular system at the Joseph B. Warshaw Symposium on Developmental Biology. Clifford W. Bogue, M.D., HS '90, FW '93, chief of the pediatric intensive care unit, welcomed Warshaw, describing him as a "leader in pediatrics throughout his career," with a strong interest in nurturing pediatric scientists.



Keep religion out of stem cell research, Reeve urges medical school audience

Social and religious conservatives have robbed American scientists of their chance to play a leading role in the promising field of stem cell research, actor and writer Christopher Reeve said during a visit to the medical school in April. "We're giving away our pre-eminence in science and medicine," he said. "We're going to lose incredibly valuable time.

"When matters of public policy are being decided, no religion should have a seat at the table—that is what is provided for in the Constitution," Reeve said. Yet religious conservatives, including the Pope, he said, "have an undue influence in the debate."

Because of their plasticity—their ability to differentiate into any cell in the human body—stem cells "have unlimited potential to cure disease," Reeve told the crowd that filled the audi-



In a talk sponsored by the Yale Stem Cell Interest Group, actor Christopher Reeve said science, not religion, should drive the debate over stem cell research.

torium of the Anylan Center for Medical Research and Education. Reeve also hopes that stem cell research will lead to a cure for paralysis such as his, the result of a 1995 riding accident.

In a talk sponsored by the Yale Stem Cell Interest Group, Reeve criticized President Bush's order of August 9, 2001, restricting federal funding for embryonic stem cell research to only 64 extant cell lines. (Last May,

National Institutes of Health Director Elias A. Zerhouni, M.D., acknowledged that only 11 of those lines were eligible for federal research funds.) Reeve suggested that the decision made no ethical sense in light of Bush's objection to using embryos for research. "Those lines were derived from leftover embryos from infertility clinics. Did he suddenly develop a new morality effective August 10th?"

Reeve noted that, although typically about a third of embryos are discarded as medical waste, even vocal opponents of using embryos for research have never suggested banning *in vitro* fertilization. "They know very well that you can't go to a couple and say, 'You can't have a child this way.'"

President Bush has followed his ruling on stem cells with a call for a ban on all forms of human cloning, whether therapeutic or reproductive. Reeve made a distinction between reproductive cloning of human beings (which "sounds like Frankenstein's work," and which he opposes) and cloning stem cells from embryos and adult tissues for research. Reeve rejected the implication "that science has no ethics and that it will run rampant if religion and conservative ideologies aren't brought into the picture."

He called stem cell research "the future of science." "There's going to be a seismic shift," Reeve told an audience composed largely of medical and doctoral students, "and you will ride the wave into an era when stem cells will be able to aid millions of people." He urged the audience to "make it happen here," but advised young scientists to leave the United States and pursue the research elsewhere, if necessary. "It's a big world. ... If you really want to heal people, you go where the work is being done.

"Even though I sit here in a wheelchair, frustrated by today's public policy, I'm very hopeful about tomorrow and what will be achieved," Reeve said. "And so, go do it."

—Cathy Shufro

et cetera ...

UNIVERSITY, UNIONS SETTLE CONTRACT

The university and two unions representing 4,000 workers reached an agreement in September to end a three-and-a-half-week strike, the ninth on the campus in 35 years including a week-long job action in March.

The agreement resulted in unprecedented eight-year contracts with Locals 34 and 35 of the Hotel Employees and Restaurant Employees International Union. President Richard C. Levin and the union's national president, 1967 Yale College alumnus John W. Wilhelm, reached the accord on September 18 in a bargaining session mediated by New Haven Mayor John DeStefano Jr.

Members of Local 34, which represents clerical and technical workers, and Local 35, representing service and maintenance employees, had walked off their jobs on August 27 over pay and pension issues. The new contract, which is retroactive to January 2002, increases pension benefits and will boost the pay of workers in Local 34 by 43 percent by 2009. For Local 35 employees, the total increase will be 32 percent. All workers will receive a signing bonus equal to two-thirds of the wage increase since January 2002.

—Jennifer Kaylin

SPELLBOUND BY SPELLING

Don't count on keeping up with the competitors in *Spellbound*, the Oscar-nominated documentary about the 1999 National Spelling Bee. But if you see the movie, you may spot three members of the medical school community.

They include Suzanne P. Lagarde, M.D., HS '77, FW '80, assistant clinical professor of medicine, and David Stagg, Ph.D., research scientist in pharmacology, parents of Emily Stagg, one of eight children profiled in the film. Emily's participation introduced Lagarde and Stagg to the spelling bee subculture, in which the *Paideia*, a collection of spelling bee words, is considered the Bible. Emily's strategy was to learn roots from four languages.

Eighth-grader Emily was one of 250 finalists from a field of 9 million competitors. So how did she do? See the film, with its cameo of the 1971 champion, Jonathan P.S. Knisely, M.D., associate professor of therapeutic radiology. His winning word: "shalloon."

—Cathy Shufro



Lisa Suter, a resident in the Clinical Scholars Program, raises a question during a classroom session on medical statistics.

Thinking nationally, acting locally

A reconfigured Clinical Scholars Program looks to strengthen partnerships with the community.

In 1973 Yale was one of the founding sites for the Robert Wood Johnson Foundation's (RWJF) Clinical Scholars Program, a two-year fellowship with rigorous methodological training, a strong mentoring component and work in disciplines such as clinical epidemiology and health policy. The program teaches research skills, health policy, leadership, media/communication skills and community health. Founded under the direction of the late Alvan R. Feinstein, M.D., HS '54, the program has seen more than 100 physicians complete research projects.

In 1995, when Yale's participation in the national program received a 10-year renewal, there was change in the air at the RWJF. Four sites remained in the program and three new sites were added. "We knew for some time that

there would be a new competition at the end of that funding cycle," said Harlan M. Krumholz, M.D., director of the program at Yale.

Early in 2002, the RWJF announced how the program would change—although about the same number of scholars would receive training, the number of participating institutions would drop from seven to four in 2005. Other programs offered similar training, and the foundation decided to emphasize community-based research by scholars.

Yale applied for a renewed grant in the new program.

The application process came at a difficult time for Yale. Feinstein, who had served as director or co-director until 1997 when he became director emeritus, had recently died. And shortly after the application process, the program's co-director and chair of internal medicine, Ralph I. Horwitz, M.D., FW '77, a former clinical scholar himself, announced he would leave Yale to become dean of the medical school at Case Western Reserve University in Ohio. "The program owes a great debt to Alvan and Ralph," Krumholz said. "Fortunately it had already undergone a transition in leadership at the time of the application. Alvan and Ralph were instrumental in setting up the program for the future and ensuring its future success. The dean also played a critical role in demonstrating Yale's commitment to the program."

RESIDENTS HOLD THEIR OWN RESEARCH DAY

For a couple of hours on May 29, the Fitkin Amphitheater resembled the Hope Building on Student Research Day—with physicians clustered around posters as younger doctors explained their research. The event was the first Research in Residency Day, which the Department of Internal Medicine intends to make an annual event. Four students presented posters and two others made oral presentations. Topics included cholesterol transport mechanisms, myocardial infarctions among the elderly and risk factors for heart disease in postmenopausal women.

—John Curtis

In April the RWJF announced that Yale would be one of the four sites—along with medical schools at UCLA, the University of Michigan and the University of Pennsylvania—in the program's new configuration. Annie Lea Shuster, the RWJF's national program director, said that the foundation was looking for institutions that had a curriculum designed specifically for clinical scholars and the ability to do research based in the local community. Yale had both.

"This emphasis on participatory community-based research distinguishes our program," said Shuster. "There has to be a lot of planning and work in establishing relationships with the community."

Much of that effort was already under way at Yale. Then-Dean David A. Kessler, M.D., established the Office of Community-Based Research to provide clinical scholars with opportunities to participate in projects with community organizations and Yale faculty. Krumholz hopes that the new office will help unify "a great fragmentation of effort" by coordinating the school's myriad projects in New Haven.

The RWJF is also requiring participating programs to provide a self-contained curriculum specifically designed for the clinical scholars, rather than send scholars elsewhere within the university for course work. Both Krumholz and Shuster noted that Feinstein had been adamant about doing just that. "He always thought that the Clinical Scholars Program should be a real center of gravity, not just an administration office. So from the outset, we have taken on the commitment to develop a program that is most likely to foster the professional growth of each scholar," said Krumholz.

—Colleen Shaddox

New center opens with goal of streamlining treatment for women with breast cancer

Breast cancer is one of those frightening diseases that inspires races, ribbons and celebrity support for those fighting it. Now, a consortium of New Haven health care providers is doing its part by offering a user-friendly place where women needing breast care can come for confidential medical and emotional treatment.

The Yale-New Haven Breast Center, composed of staff from Yale-New Haven Hospital, the Yale Cancer Center and the Yale Medical Group, promises convenient appointments, rapid diagnoses and same-day procedures all under one roof. The center, at 800 Howard Avenue, opened this fall.

"We want to make it an easy and good experience," said Donald R. Lannin, M.D., the center's executive director. "It can sometimes take weeks to get answers; our goal is to coordinate specialties so we can expedite the diagnosis and start providing care quickly."

Lannin said the center was a response to women's frustration with being shunted from one building and one specialist to the next in pursuit of answers and treatment. He said the new center represents the rejuvenation of a program that has long been recognized as a leader in breast cancer research and treatment but which had outgrown its space and equipment.

The new center will consolidate breast care specialties with surgery and diagnostic imaging on the lower level and oncology on the second floor. The center will also provide counseling for patients and educational programs for physicians, patients and the public.

"A woman who is diagnosed with breast cancer has all sorts of worries," he said. "There are a lot of emotional overtones, and we have to be sensitive to that as well."

—Jennifer Kaylin

et cetera ...

FENDING OFF DELIRIUM

Taking daily walks and talking about current events can lower the risk of delirium in the elderly, according to a study published April 25 in *Archives of Internal Medicine*. What's more, sticking to a regimen of such activities appears to be as important as taking one's pills on time.

"It has been well-established that compliance with drug treatments is very important for their effectiveness, but the effect of compliance with non-drug treatments has not been studied before this report," said Sharon K. Inouye, M.D., M.P.H. '89, professor of medicine and geriatrics. "It really does lend credence to the fact that the amount of nonpharmacologic therapy patients receive is just as important as drug therapy, where a dose-response relationship is expected."

Patients ages 70 or older who complied with the intervention, which also included word games, fluids for rehydration and improvements in sleep, vision and hearing, showed an 89 percent reduction in delirium risk.

—John Curtis

CARBS? IT'S CALORIES THAT COUNT

Researchers at Yale and Stanford have concluded that cutting out potatoes, pasta and bread doesn't necessarily translate into greater weight loss than high-carbohydrate diets. At least there's little published evidence to support the theory behind the Atkins and other low-carb diets, they reported this spring. "We found that calorie content and how long you're on the diet are the factors that predict weight loss, and not carbohydrate content," said Dawn M. Bravata, M.D., assistant professor of medicine and a co-author of the study. (The lead author was Bravata's twin sister, Dena Bravata, M.D., who's at Stanford.)

The study, published in *JAMA: The Journal of the American Medical Association* in April, examined past research to gauge the effect of cutting back on starch. "The medical literature is lacking studies about the long-term safety and efficacy of low-carbohydrate diets," Dawn Bravata said. "We need these kinds of studies in order to counsel patients who want to lose weight."

—John Curtis



Chimeric “icon” finds another target

A molecule effective against tumors may also be relevant to macular degeneration.

A versatile molecule developed at Yale, already shown to destroy blood vessels in tumors, now shows promise for arresting macular degeneration, a leading cause of vision loss in the United States.

Known as an icon—short for immunoconjugate—the chimeric molecule is made, using recombinant DNA technology, from part of an antibody and a molecule that targets abnormal blood vessels. “We describe it as a synthetic antibody, because it really functions as an antibody, but its targeting mechanism is different,” said Alan Garen, PH.D., professor of molecular biophysics and biochemistry. Garen used as a model an antibody found in camels, because it is more suitable for manipulation by recombinant technology than human antibodies. The targeting portion, fVII, draws the molecule tightly and specifically to the abnormal vessel; then the antibody portion activates an immune attack, destroying the vessel. An important feature of the icon is its flexible design that can generate an all-human molecule for clinical use.

The icon’s targeting mechanism ignores normal blood vessels and zeroes in on tissue factor (TF), a protein produced on the inner wall of abnormal but not of normal vessels. The same search-and-destroy strategy works against tumors by destroying the blood vessels that nourish them, while leaving normal tissue unharmed.

“The pleasing result is that the same mechanism can apply to two very different medical problems: cancer and macular degeneration. What links them are the unique properties of the blood vessels that are involved in both diseases,” said Garen, who collaborated on the work with Research Scientist Zhiwei Hu, PH.D., M.D. Ophthalmologist Henry J. Kaplan, M.D., and associates at the University of Louisville performed the macular-degeneration studies, which were published in the March 4 issue of the *Proceedings of the National Academy of Sciences*.

Macular degeneration is the deterioration of the macula—a tiny spot at the center of the retina—resulting in blurs and blank spots in the field of vision. Abnormal blood vessels are the culprit in the wet form of the disease; they leak fluid onto the macula, damaging the cells. The Yale molecule destroys those leaky vessels without harming normal ones.

So far, the icon has been tested in mouse models of both diseases, and studies are under way at Louisville on a model of macular degeneration in pigs, whose eyes are similar to those of humans. The researchers plan to apply to the U.S. Food and Drug Administration for permission to begin clinical trials of the icon for patients with cancer and macular degeneration.

An icon could be administered in either of two ways, said Garen. “One way would be to produce it externally and administer it by injection,” either into the bloodstream or directly into the affected area. A second method, which the researchers are proposing to use in the cancer trial, involves the insertion of a gene for the molecule into an adenoviral vector that has been rendered harmless. “Then you inject the vector directly into the tumor,” said Garen. “It infects the tumor cells, and this sets up what you might call *in vivo* factories for producing the molecule in the body. With this method, you get continual synthesis, and it seems to be more effective.”

—Nancy Ross-Flanigan

When errant proteins stray, a cellular cowboy rides in to save the day

In the drama of life at the cellular level, proteins can be heroes or villains. When they’re wearing their white hats, proteins provide and maintain structure, act as enzymes and hormones and perform vital functions such as transporting oxygen in the blood. But they can also run amok, contributing to cancer, heart disease and inflammatory conditions such as rheumatoid arthritis.

The cellular scenario of this Wild West tale stars Protac, a molecule developed by researchers at Yale and Howard Hughes Medical Institute investigators at the California Institute of Technology. Playing the role of the sheriff galloping in to save the day, Protac rounds up rogue proteins inside cells and orchestrates the proteins’ demise. One end of the dumbbell-shaped molecule is customized to bind to the protein of interest; the other end homes in on the cell’s natural protein-degrading apparatus. “By bringing the protein into close proximity to the degradation machinery, you can target it for destruction,” said Craig M. Crews, PH.D., an associate professor in the Department of Molecular, Cellular, and Developmental Biology with joint appointments in chemistry and pharmacology.

In a presentation at the Experimental Biology 2003 meeting in San Diego in April, Crews and co-workers showed that Protac—for protein-targeting chimera—degrades targeted proteins in intact cells. In a proof-of-concept experiment, they engineered Protac to bind to green fluorescent protein

(GFP), a naturally occurring protein that gives off a bright, green glow under ultraviolet light. When Protac was added to cultured cells containing GFP, it gathered up the glowing protein and promoted its destruction. Within an hour, the cells that contained GFP had lost their fluorescence.

While Protac has potential for treating disease, its more immediate use probably will be in screening large numbers of proteins for better understanding of their functions, much as genetic screens currently are used, said Crews.

“When a genetic screen is used to study some aspect of cell biology, the process involves generating a lot of different mutants that are each defective in some gene that encodes some protein, and then looking for individuals that have a defect in the particular process that you’re interested in. The geneticist then determines which gene, and which corresponding protein function, has been altered,” said Crews.

“But there are several areas of cell biology that are difficult to study using traditional genetics. So what we’d like to do is induce the loss of protein function, not by altering the underlying encoding mechanism—the DNA—but by physically inducing the degradation of particular proteins. One can imagine doing large-scale screens, knocking out every protein individually and looking for loss of particular functions. In this way, we hope to discover new, critical proteins that are required for intracellular processes. So in addition to targeting known proteins, we hope this molecule will aid in the discovery of things we don’t even know about.”

—Nancy Ross-Flanigan

et cetera ...

NEW AXONS IN MICE

A Yale scientist has encouraged axonal sprouting in mice by removing a protein, Nogo, that blocks the regrowth of nerve fibers in the brain and spinal cord. The research builds on previous findings by Stephen M. Strittmatter, M.D., PH.D., the Vincent Coates Professor of Neurology.

“In the mice with a mutation that prevents Nogo A/B expression, the central nervous system is largely normal but responds to injury in a unique fashion with robust axonal sprouting and long-distance growth,” said Strittmatter, lead author of a study published in the April issue of the journal *Neuron*.

The researchers bred mice without the Nogo A and Nogo B proteins. In these mice new axons sprouted after a spinal cord injury, and the mice showed better recovery of locomotor function than control mice.

“Once we can demonstrate that the Nogo protein constitutes an important pathway limiting axon growth, then we can pharmacologically improve functional recovery first in animals and then in humans,” Strittmatter said.

—John Curtis

A DOUBLING OF THE HUMAN GENOME?

A new analysis of the well-studied chromosome 22 suggests that there may be far more than the estimated 30,000 genes in the human genome. “Our study reveals twice as many transcribed bases than have been reported previously,” said first author John L. Rinn, a fourth-year graduate student, “potentially indicating there are twice as many genes in the human genome.”

Rinn and colleagues in molecular, cellular and developmental biology used advanced microarray technology to map the 34 million bases of gene-dense chromosome 22. Earlier this year in the journal *Genes & Development*, the team reported finding previously undiscovered sequences which were also found in the mouse genome. “This study was a proof of the principle that we can find, en masse, all the regions of a chromosome that are biologically relevant,” Rinn said. “In the future we will scale this process to tackle the entire human genome.”

—John Curtis



Manual of Dermatologic Therapeutics, 6th ed.

by Kenneth A. Arndt, M.D. '61, HS '62, clinical professor of dermatology, and Kathryn E. Bowers, M.D.

Lippincott Williams & Wilkins (Philadelphia, Pa.) 2002; 416 pages

This pocket manual is a practical, accessible guide to the diagnosis and treatment of skin disorders. The book outlines the pathophysiology, symptoms, clinical findings, assessment and therapy for each disease and offers detailed guidelines for choosing among therapeutic options.

Principles of Geriatric Medicine and Gerontology, 5th ed.

by Mary E. Tinetti, M.D., professor of medicine (geriatrics) and epidemiology, William R. Hazzard, M.D., John P. Blass, M.D., Jeffrey B. Halter, M.D., and Joseph G. Ouslander, M.D.

McGraw-Hill Professional (New York) 2003; 1,536 pages

This book continues its tradition of presenting the latest in diagnosis and management of disorders affecting the elderly as it addresses the prevailing principles of gerontology. This orientation, which features experts from the fields of geriatric medicine and gerontology, provides for a uniquely holistic approach to elder care. It features expanded coverage of managing the nursing home patient, diagnosis and treatment

of Alzheimer's disease, movement disorders, managing the multidrug patient, menopause, health care issues in women, health care systems, coronary heart disease and more.

The Visionary Life: Selected Writings of Lee Sannella

by Lee S. Sannella, M.D. '40

Infinity Publishing (Haverford, Pa.) 2003; 177 pages

Sannella has spent 40 years trying to understand the various states of consciousness in his own body-mind. This book is his attempt to portray the experiences, insights, experiments, conversations and loving exchanges that formed the shape and substance of that inquiry. These are stories about some of the cosmic explorers he has met. He hopes that these tales will enrich humanity by expanding the collective vision of our own human potential.

Listening to Children: Talking With Children About Difficult Issues

by Nancy L. Close, Ph.D., assistant professor in the Child Study Center

Allyn & Bacon (Boston) 2002; 128 pages

The object of this book is to inform and educate teachers, parents and other caregivers about how to interact with children ages 2 to 5 and how to respond appropriately to issues of personal concern. The book includes discussions of common challenges for children, such as dealing with anger, aggression, siblings, birth and death, and addresses their concerns about the adult world and growing up.

First Three Years & Beyond: Brain Development and Social Policy

by Edward F. Zigler, Ph.D., Sterling Professor of Psychology and a member of the Child Study Center, Matia Finn-Stevenson, Ph.D., associate research scientist in the Child Study Center, and Nancy W. Hall, doctoral candidate at Yale University

Yale University Press (New Haven) 2002; 272 pages

The authors affirm that sound social policy providing for safe and appropriate early care, education, health care and parental support is critical not only for the optimal development of children but also for strengthening families, communities and the nation as a whole. This book draws on the latest research from the social sciences and studies of the brain to make recommendations for infant and toddler care and development.

Controversies & Conversations in Cutaneous Laser Surgery

edited by Kenneth A. Arndt, M.D. '61, HS '62, clinical professor of dermatology, and Jeffrey S. Dover, M.D., F.R.C.P.C., associate clinical professor of dermatology

AMA Press (Chicago) 2002; 354 pages

This timely reference will benefit both the beginner and experienced laser and aesthetic surgeon. It examines new laser techniques, and provides expert guidance on using lasers successfully in a wide range of clinical situations.

The Yale Guide to Women's Reproductive Health: From Menarche to Menopause

by Mary Jane Minkin, M.D. '75, HS '79, clinical professor of obstetrics and gynecology, and Carol V. Wright, Ph.D.

Yale University Press (New Haven) 2003; 448 pages

This comprehensive book addresses nearly every aspect of reproductive health in readable, straightforward language. The authors provide the scientific background women need to make vital personal decisions about sexual activity, contraception, family planning and maintaining reproductive health.

Research Design in Clinical Psychology, 4th ed.

by Alan E. Kazdin, Ph.D., director of the Child Study Center and professor of psychology

Allyn & Bacon (Boston) 2002; 637 pages

This textbook describes and explains the methodology and design of research in clinical psychology. It covers experimental design, assessment, sources of artifact and bias, data evaluation and interpretation, and ethical and professional issues. The book identifies and discusses the principles, obstacles, artifacts, biases, strategies and guidelines relevant to each stage of research.

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



DEAN KAMEN

From workbench to bedside: an inventor's tale

Dean Kamen's portfolio of medical inventions ranges from infusion pumps to home dialysis machines to the iBOT, a mobility device for disabled people that is soon to be marketed by Johnson & Johnson. While he may slog through years of trial and error before solving a problem, creating technology is the easy part, Kamen recently told the Associates of the Cushing/Whitney Medical Library. Getting technology to patients is the challenge.

It often means waiting decades for FDA approval, marshaling support from the scientific community and persuading insurance companies to cover new devices. While not proposing specific reforms, Kamen called for a faster, more streamlined process for taking medical devices to market. "Just because it took longer, is it any better?" asked Kamen, president and CEO of DEKA Corporation. "Did it make it any safer? And what is the lost opportunity cost of not using it in between?"

Technology, Kamen added, is often misunderstood. He amazed the Harkness audience with a video of the iBOT in action. The machine allows the user to climb stairs, navigate rough terrain, reach high shelves and look a standing person in the eye. Kamen's fear about the iBOT? That it will be perceived as just a souped-up wheelchair.

"Technology is moving faster," he said, "but our adjustment to it is not. It took people 15 years to stop calling the Model T a horseless carriage."

—Colleen Shaddox



MICHAEL STRATTON

The human genome—more than a list

Among the estimated 30,000 human genes are more than 250 genes that are implicated in oncogenesis. That, according to Michael R. Stratton, Ph.D., the Distinguished Lecturer for 2003 at the Cancer Center grand rounds in May, is extraordinary: close to 1 percent of known genes are risk factors for cancer.

Stratton, head of the Cancer Genome Project at The Wellcome Trust Sanger Institute in England, is tracing the history of such mutations and looking for patterns of behavior to try to develop methods of analysis. His team has found, for example, that kinases are heavily represented in cancer genes, while phosphatases are not. "There has to be something biologically configured about phosphatases that does not allow them to become cancer genes. It is this sort of analysis—that is not hypothesis-based, that is purely based on statistical constructs from analysis of the genome sequence—that will give us new biological insights."

That could change the way cancers are classified, or lead to new treatments, Stratton said, before cautioning, "We just don't know whether it is going to end up that way. But I think it is a reasonable aspiration that through these global descriptions of the cancer genome we will begin to move closer to an understanding of the core processes through which cancer develops."

—John Curtis



JEFFREY STURCHIO

From Seattle to Botswana, partnering to fight AIDS

For nearly three years Merck & Co., the Bill & Melinda Gates Foundation and the government of Botswana have worked together to help prevent the spread of HIV and mitigate the impact of the AIDS epidemic. The Merck Company Foundation and the Gates Foundation are each contributing \$50 million; Merck is also donating its two HIV medicines.

Why Botswana? "Botswana has the highest HIV prevalence in the world," said Jeffrey L. Sturchio, Ph.D., vice president for external affairs, Europe, Middle East & Africa at Merck. But because it also is one of the wealthiest nations in Africa, basic health care infrastructure was already in place and Botswana's leaders were committed to the fight against HIV/AIDS. The African Comprehensive HIV/AIDS Partnerships has helped build health resource centers at district hospitals and trained nurses and doctors in HIV/AIDS prevention and treatment, Sturchio told an audience at the Center for Interdisciplinary Research on AIDS in April.

"Implementing a comprehensive HIV/AIDS program like this is a complex, dynamic and time-intensive process," Sturchio said. "It has to be done in the context of broader development policies. Mobilizing local capacity and local resources is absolutely critical. Working together it is possible to make a world of difference in the lives of people living with HIV/AIDS."

—John Curtis



JANET WOODCOCK

Using genomics to craft a safer pharmacopeia

Every year some prescriptions go awry, causing the deaths of about 100,000 patients from toxic responses to medications. "We can't predict who will respond to a drug," said Janet Woodcock, M.D., director of the Center for Drug Evaluation and Research at the U.S. Food and Drug Administration (FDA). That could change with the application of genetic knowledge to predict individual responses to medications. It is "more than promise now," Woodcock said. "It's starting to happen."

Woodcock, the keynote speaker at the annual Pharmacogenetics and Medicine Lectures sponsored by Genaisance Pharmaceuticals in April, oversees federal regulation of emerging knowledge about the role genetic variability plays in reactions to medications. Labels for a small number of drugs, she noted, already include information about genetic differences that could affect a patient's response. The FDA has begun to study electronic formats for providing more of such information to physicians.

According to Woodcock, the FDA has requested that companies provide genetic information when available, but has no plans to require pharmaceutical companies to submit genetic response data about their medications. "We need to understand the science," she concluded, "so that we can develop an appropriate policy" which will allow the public to benefit from this knowledge.

—Marc Wortman



JENS BIRKTOFT

In the footsteps of Watson and Crick

At the double helix's half-century, four Yale professors share memories of molecular biology's early days.

By John Curtis



THOMAS STEITZ



JENS BIRKTOFT

When hundreds of scientists gathered in England in April to celebrate the 50th anniversary of the structure of DNA, among them were four Yale faculty members who trained as post-docs in the late 1960s at the Medical Research Council's (MRC) Laboratory of Molecular Biology. The lab was originally a division of the Cavendish Laboratory in Cambridge, where Francis H.C. Crick, PH.D., and James D. Watson, PH.D., discerned the double helix.

While the four were at the MRC lab—about a decade and a half after Watson, Crick and their collaborators had outlined their model of DNA in the pages of *Nature*—molecular biology was viewed as anything but a growth industry. Everyone in the field knew everyone else, few labs were training molecular biologists and only three journals were interested in articles on the topic. Joan A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, recalls thinking that her interest in the molecular basis of genetic phenomena had relegated her to an “esoteric intellectual backwater.”

At the time she couldn't imagine all that would transpire over the half-century since Crick and Watson solved the structure. “It has had an impact on every aspect of biomedicine,” said Steitz. “Look at what it has done for the pharmaceutical companies and the whole biotechnology industry that never existed. The impact on forensics is astounding.”

The biological importance of DNA's structure, says her husband, Thomas A. Steitz, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, lies less in its double helix than in its base pairings. “That immediately said how DNA could be copied and how DNA could be copied into RNA. It laid the foundation for the understanding of the genetic code,” he said. New tools and techniques such as sequencing, cloning and recombinant DNA have been derived from the bases spiraling along the double helix. “It's the first important structure in structural biology.”

The Steitzes started their three-year fellowships in Cambridge in 1967. Peter B. Moore, PH.D., Sterling Professor of Chemistry and professor of molecular biophysics and biochemistry, had arrived earlier that year for an 18-month fellowship. In their last year in Cambridge, the Steitzes overlapped with Sidney Altman, PH.D., Sterling Professor of Molecular, Cellular, and Developmental Biology and professor of chemistry. (In 1989 Altman shared the Nobel Prize in Chemistry with Thomas R. Cech, PH.D., for their work on the catalytic properties of RNA.)

“Of course, the lab itself was such an amazing place to work,” Altman said at the celebration. “The ideas generated whizzed around the lab, many not useful, but when one was, it was recognized as such and shone brilliantly. ... You were expected to work more or less alone with no immediate help from senior people. The assumption was that everybody could do experiments well. The senior people taught by example: everybody was in the lab working.”

The invigorating atmosphere, said Thomas Steitz, extended to the canteen, where seating was limited and post-docs shared tables with Crick or Max F. Perutz, PH.D., a 1962 Nobel laureate, Frederick Sanger, PH.D., who won two Nobel Prizes, or Sydney Brenner, PH.D., a 2002 Nobel laureate. The conversation, Steitz said, was “always science. You wouldn't talk about what you saw at the theater.”

“At the time we were there Sanger was just able to sequence small RNA molecules, which was a significant advance,” Moore said. The scientists, fellows and postdocs there, he said, were encouraged to continue that tradition of discovery and tackle the most challenging problems. “What the MRC was always masterfully good at was making sure that most of its people were working most of the time on things that really counted,” he said. “It was the best 18 months of my scientific career. It was a wonderful place to do science.”

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



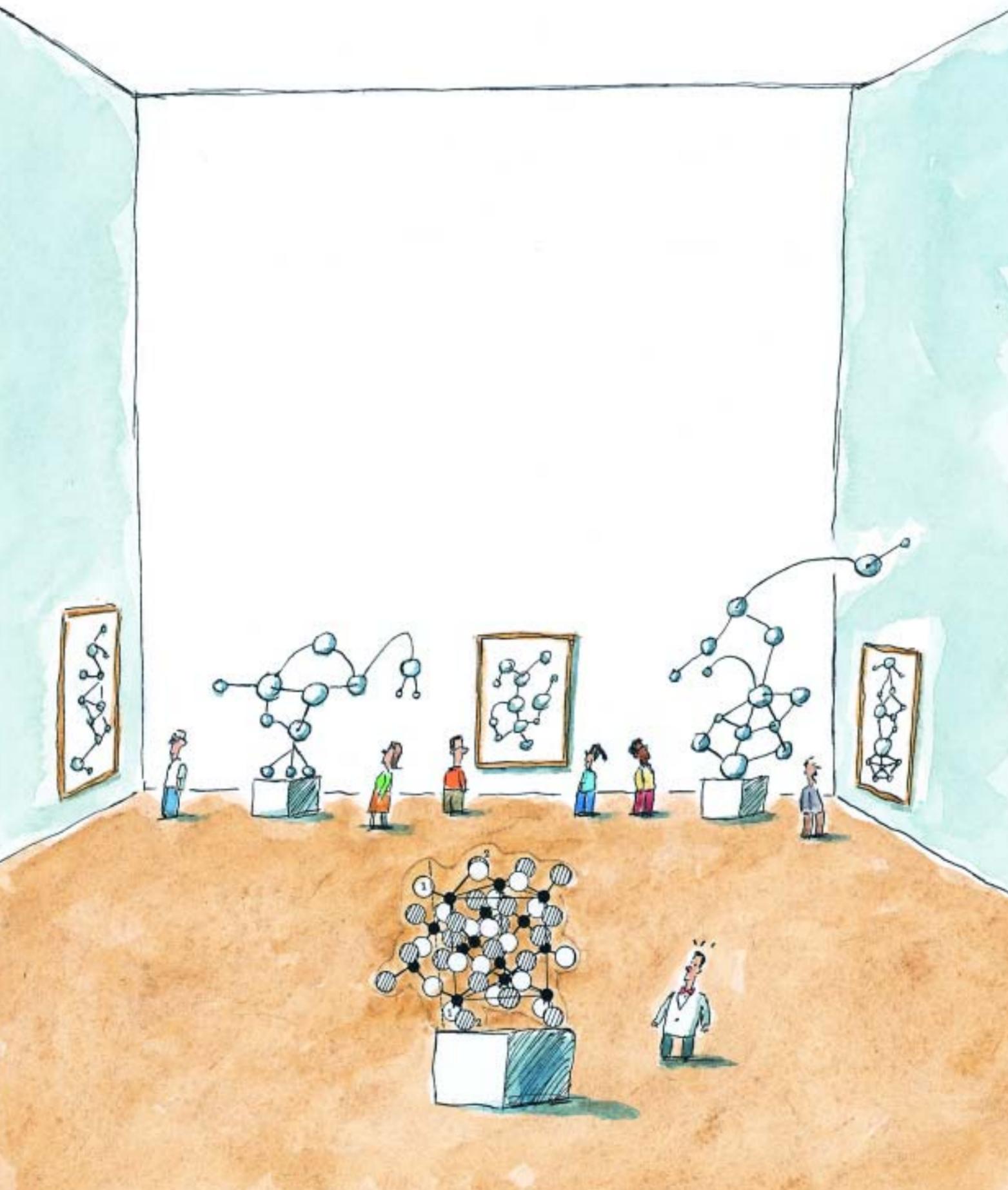
MRC LABORATORY OF MOLECULAR BIOLOGY

ABOVE Among the luminaries at the Medical Research Council's Laboratory of Molecular Biology (LMB) were Fred Sanger, Sydney Brenner and Max Perutz, shown here at a party at the laboratory's canteen in 1980 celebrating Sanger's second Nobel Prize. Brenner received an honorary doctorate from Yale in May.

OPPOSITE CLOCKWISE FROM BOTTOM At Cambridge, intellectual stimulation was cultural as well as scientific for Yale faculty members who trained at the LMB. Tom and Joan Steitz attended a garden party before the annual May Ball held at each college. Joan Steitz is fourth from left in this photograph.

Punting on the River Cam was another attraction of Cambridge. Tom Steitz, with pole on right, and Joan Steitz, seated on right, joined Richard Henderson and his wife, Penny, on the river in 1969. Richard Henderson, now the director of the LMB, was a postdoc at Yale from 1970 to 1973.

Tom Steitz, left, and the late Yale faculty member Paul Sigler attended a scientific meeting in Herschlag, Austria, in 1968.



Building a better drug

While new technologies and industrial-scale approaches to drug discovery are changing the field, academic pharmacology remains a mixture of art and science.

By Marc Wortman
Illustration by Gary Clement

“Serendipity” is a word pharmacologists use to describe the way they discovered many effective medications. Even with modern molecular tools, scientists still stumble upon drugs in unexpected ways. “Serendipity” is what happened one afternoon in 1983 in the Yale Co-op bookstore. Leafing through an old chemistry textbook, Krishnamurthy Shyam, PH.D., came across a chemical reaction that he thought might be adaptable to the design of a new series of antitumor agents. He brought his idea back to the laboratory of Alan C. Sartorelli, PH.D., the Alfred Gilman Professor of Pharmacology, where Shyam was a postdoctoral associate and is today an associate research scientist.

Sartorelli urged Shyam to follow his hunch. “If we knew what was going to happen ahead of time,” says Sartorelli, “it would be trivial. I want people to have a chance to invent.” Shyam synthesized a compound that targeted DNA and tried it on five mice transplanted with a leukemia. Two were cured, but three suffered rapid toxic—and fatal—side effects. Shyam continued synthesizing compounds in this family. Three years later Philip G. Penketh, PH.D., now an associate research scientist, joined Sartorelli’s labora-

It is becoming more and more difficult to develop drugs in an academic setting. The technology requires such a huge investment that academic labs can't compete with the Pfizers and Mercks.

—Joseph Schlessinger

tory as a postdoc and began to study how these compounds worked. Based on Penketh's findings, Shyam synthesized versions of the compound called "prodrugs," which reduced host toxicity. One of these drugs was selected for clinical trials.

Today the compound, VNP40101M, is being tested in humans by Vion Pharmaceuticals, a New Haven-based biotechnology company that Sartorelli and outside investors founded in 1993. The data from the Phase I clinical trials appear promising. "If this agent works in refractory [drug-resistant] tumors," says Shyam, "that would be a great breakthrough." Two decades after Shyam's hunch, it will still take a great deal of luck for the drug to gain approval from the Food and Drug Administration (FDA). Animal studies and even early human studies often raise hopes that later, larger trials dash. According to Sartorelli, "The chances of a compound succeeding are very, very slim." Still, Shyam is pleased. "Many scientists," he says, "spend a lifetime without getting a drug into the clinic."

A mix of old and new

Yale pharmacologists have, over the years, achieved remarkable successes by following their hunches. In the 1940s the department produced the first anticancer drug, nitrogen mustard, to treat lymphoma. In the 1950s the first antiviral agent was developed at Yale. The work of Paul Greengard, PH.D., on molecules that regulate metabolism led to his Nobel Prize in 2000.

Now the trend in pharmacological research is to move away from serendipity and happenstance. Science and industry are looking to evidence and statistics, rather than hunches, to lead them to successful drug discovery. Automated, industrial-scale analysis of compounds—so-called high-throughput screening—is the norm.

"It is becoming more and more difficult to develop drugs in an academic setting," says the pharmacology department's new chair, Joseph Schlessinger, PH.D., also the William H. Prusoff Professor of Pharmacology. "The technology requires such a huge investment that academic labs can't compete with the Pfizers and Mercks."

Moreover, there are fewer and fewer of what Schlessinger calls "classical pharmacologists" such as Prusoff, who discovered the first antiviral medication, idoxuridine, and codiscovered the AIDS drug Zerit. Rare is the individual today

who possesses advanced chemistry skills, knowledge of molecular biology and a "nose" for sleuthing out the recipe for a compound that can hit a disease target without harming the patient.

Recognizing this new landscape, Yale has taken several steps that embrace new approaches while coexisting with the old. This fall Yale is celebrating the completion of a four-story extension to Sterling Hall of Medicine's B Wing, as well as two floors of renovated laboratories in the original B Wing. Most of that space is for Department of Pharmacology faculty. (A gift from Bristol-Myers Squibb included \$2 million to help defray part of the construction costs.) In 2001, the department recruited Schlessinger from New York University, along with his wife, Irit Lax, PH.D., an assistant research scientist in pharmacology. Schlessinger, an expert in cell signaling and founder of two biotech companies, was charged with reshaping the department by hiring seven new full-time faculty members to complement the department's 14 full-time members and 16 others with secondary appointments. Discussions have also been under way for establishing a quasi-independent unit, to be known as the Center for Drug Discovery, which would seek to increase Yale's chances of finding industrial markets for its benchside discoveries.

In addition, Yale is seeking partnerships with industry over and above the traditional licensing of patents and formation of biotech firms. The international drug company Pfizer is building a \$35 million center for clinical trials near the medical school. Although the unit will focus on testing Pfizer compounds in humans and will draw heavily on Yale's strengths in magnetic resonance and other imaging techniques, including PET scanning, in research, Yale faculty also will have opportunities to study Pfizer's library of compounds.

Within the Yale campus, pharmacologists can also turn to colleagues in the Department of Chemistry on Science Hill for assistance. The former chair of that department, Andrew D. Hamilton, PH.D., now Yale's deputy provost for science and technology, served on the committee that recruited Schlessinger to Yale. He notes that several laboratories, including his own, collaborate with pharmacologists at the medical school. "Chemistry teaches us about biology," he says, "and biology in turn teaches us about chemistry. We can use this increased knowledge to find novel strategies for disrupting biological targets."

Adopting "guerrilla tactics"

Schlessinger, once a captain in the Israeli army, says that the pharmacology department "should adopt creative guerrilla tactics" as it seeks a role for drug discovery efforts within the academic setting. Rather than having laboratories focus on the costly search for promising compounds, he favors "target discovery," studies of the intracellular pathways, genes and proteins that influence disease states and lend themselves to modulation by drugs. Those high-value findings can then be licensed to outside entities, when possible, for their use in high-throughput screening of compounds.

Drug discovery at that point becomes what Schlessinger terms "a scientifically trivial step" more appropriately undertaken in an industrial setting. The medical school should instead, he contends, "explore the mysteries of nature, digging and exploring where you know nothing, where you're in complete darkness." Unlike pharmaceutical companies, which must be concerned with the size of the market, says Sartorelli, "We don't care what the size of the market is for our discoveries."

Industry already values Yale's strengths in pharmacology and other drug-discovery-related fields. "The department's knowledge base—especially strong in the areas of neuropharmacology and chemotherapy—and Yale's reputation as a world leader in imaging technologies played a major part in Pfizer's decision to locate the clinical research unit in New Haven," says Diane K. Jorkasky, M.D., vice president of clinical sciences at Pfizer.

Partnerships between Yale and pharmaceutical companies could help diminish the huge risks of taking on new discoveries for development. Bringing new treatments to patients has proven increasingly difficult in recent years, despite the wealth of recent discoveries about genetics and gene targets. Industry figures show that only one in 5,000 compounds registered with the FDA for testing is ever approved. The costs—of manufacturing the drug, establishing study centers, recruiting patients and collecting data—for compounds that fail are astronomical. At its earliest stages, a clinical trial with fewer than 50 patients can cost between \$2 million and \$4 million. Later-stage trials with large numbers of patients can cost many times that. When the price of those failures is figured into the cost of a single success, by some estimates the average drug now costs more than \$900 million to reach patients.

Department of Pharmacology decade by decade

1940s

- Department of Pharmacology founded with William Salter as the first chair.
- Discovery of first anticancer agent, nitrogen mustard, for treatment of lymphoma; demonstration of its effectiveness and the development of drug resistance by Alfred Gilman, Louis Goodman and Gustaf Lindskog.

1950s

- Discovery of first antiviral agent, IUdR, for the treatment of ocular herpes, a major cause of blindness, by William Prusoff.
- Arnold Welch becomes chair and develops first biochemically oriented pharmacology department in the country, steering the field away from a physiological approach.

1960s

- Work by Joseph Bertino on mechanism of action of antifolate chemotherapeutic agents which contributed to use of methotrexate, an anticancer agent still in wide use.
- Floyd Bloom and George Aghajanian pioneer electron-microscopic studies of the monoamine neurons in the central nervous system which underlie anxiety, depression and other psychiatric disorders.
- Nicholas Giarmann and Daniel Freedman show that LSD alters the function of serotonin neurons, providing a connection between this neurotransmitter and psychosis.
- Robert Roth and Giarmann discover that the central nervous system depressant gamma hydroxybutyrate is a naturally occurring endogenous brain metabolite that influences the function of dopamine neurons.
- Murdoch Ritchie recruited as chair, bringing with him two full professors, Paul Greengard and William Douglas.



Joseph Schlessinger, once a captain in the Israeli army, says that the pharmacology department “should adopt creative guerrilla tactics” as it seeks a role for drug discovery efforts within the academic setting.

Despite the averages, Yale enjoys an enviable record of success. Several breakthrough compounds have been discovered at Yale, and Yale and its pharmaceutical partners have one compound on the market and 10 in clinical trials. Few of the largest pharmaceutical companies can boast a comparable “pipeline” of drugs in development. For instance, Bristol-Meyers Squibb, the firm that markets Zerit and one of the world’s largest pharmaceutical corporations, lists 10 compounds in clinical development.

While making money may not be the goal of Yale scientists, few areas of investigation in the medical school have as much value for outside business entities or as much potential to bring additional revenue to the school. Returns from drug sale royalties have proven a great help to Yale. For several years, Yale received around \$40 million annually in royalties from sales of Zerit. That money helped fund research and facility expansion. Outright sale of all rights to the drug in 1999 to a trust created by Royalty Pharma AG helped to finance construction of the new Anlyan Center for Medical Research and Education at 300 Cedar Street.

Finding targets

In his efforts to reshape the Department of Pharmacology, Schlessinger has begun hiring faculty who will focus less on classical pharmacology and more on molecular biology, he says, “defining targets and analyzing processes which occur in cells.”

Ya Ha, PH.D., an assistant professor who joined the faculty in 2002, typifies the new generation of academic pharmacologists. A crystallographer, he spends much of his time modeling three-dimensional molecular structures. He seeks targets for chemical intervention in the processes that form the plaque in the brains of Alzheimer’s patients that gums up and eventually kills their neurons, causing memory loss and dementia. To model those structures he crystallizes key proteins linked to plaque formation in the brain tissue of Alzheimer’s patients. He then brings these protein crystals to a synchrotron in Brookhaven, N.Y., where he shoots them with intense X-rays. The scattered X-rays are recorded, and computer workstations combine the data into a three-dimensional molecular model of the protein he is studying. He posts the images to the scientific community as part of the Protein Data Bank (www.rcsb.org/pdb), an international repository for protein-structure data.

1970s

- Alan Sartorelli elucidates the concept of bioreductive activation of pro-drugs by oxygen-deficient (hypoxic) tumor cells.
- Sartorelli and Sara Rockwell demonstrate preferential kill of hypoxic tumor cells by mitomycin C, leading to clinical use of drug with ionizing irradiation in treatment of cancers of the head and neck.
- Ritchie provides seminal contributions to the understanding of the mechanism of action of local anesthetics.
- Greengard describes the function of the cyclic nucleotides, molecules regulating metabolism, which ultimately leads to his being awarded a Nobel Prize in Physiology or Medicine.
- Discovery and characterization of dopamine autoreceptors by Aghajanian, Benjamin Bunney and Roth lead to the development of dopamine autoreceptor-selective drugs for the treatment of psychiatric disorders.
- Douglas conducts pioneering work on the essential role of calcium in “stimulus-secretion coupling” in the release of hormones and neuromodulators.

1980s

- Discovery of Zerit (d4T) for the treatment of AIDS by Prusoff and Tai-Shun Lin.
- Aghajanian, Herbert Kleber and Eugene Redmond show clonidine, an antihypertensive drug, is useful in treating opiate withdrawal.
- Discovery of cyclophilin, the receptor for the important immunosuppressive agent cyclosporine, by Robert Handschumacher.
- Studies by Redmond and Roth on MPTP in monkeys lead to a primate model of Parkinson’s disease and the development of neural grafts, gene therapy and stem cells for treatment of this disease.

Our faculty members need to be catalysts whose work pushes the frontiers of science and helps translate science into treatments.

—Carolyn Slayman

Ha uses the data to identify molecular sites to which small compounds could bind tightly. From there, he will try to design a compound that will inhibit the processes that lead to Alzheimer's disease. "The three-dimensional molecular model will help design a molecule that could serve as a possible drug," he says. "That doesn't mean it is a good drug. That has to be tested in a classical pharmacological context." He turns to colleagues for that help in testing the compound on cells and then in animals. "The integrated approach," he says, "is the strength of this department."

One of the people Ha turns to is Yung-Chi Cheng, P.H.D., the Henry Bronson Professor of Pharmacology, who collaborates with a broad range of colleagues and has had a hand in a wide range of discoveries. Before coming to Yale from the University of North Carolina in 1989 he identified two compounds now in clinical use, one used for treating cytomegalovirus and another for treating hepatitis B virus. His laboratory has six other compounds in clinical trials, and clinical testing should begin on two others this year.

Despite his extraordinary success rate, Cheng has adapted to the changing nature of pharmacology studies. He now uses data derived from structural biology, proteomics and genomics to help him tease apart biological processes and find the optimal chemical to alter them therapeutically. "For many years we were hypothesis-driven," he says. "Now we are also taking an information-driven approach. You ask your computer to help you out. That's critical for the future of drug discovery."

Cheng has long drawn on input from other scientists and clinicians in the Developmental Therapeutics Program, which he co-directs. Operated by the Yale Cancer Center, this consortium of 30 faculty members in multiple disciplines focuses on the discovery of new compounds for treating cancer and viruses that have strong associations with the development of cancer. While Cheng's own research leads to the discovery of compounds, turning them into drugs requires testing in patients. "The Developmental Therapeutics Program is really translational between the clinical sciences and basic sciences. It works both ways," he says, providing him with insights from the clinical use of drugs into ways to discover better compounds. Program co-director Edward Chu, M.D., professor of medicine (oncology) and pharmacology, directs the Cancer Center at the VA Connecticut Healthcare System in West Haven. "We can develop biomarkers to see if

a molecule is hitting the target you intended," he says. "The only way to do that is by scientists working hand-in-hand with clinicians."

Although Yale can provide evidence of a drug's potential effectiveness, internal efforts at Yale by themselves will never bring a drug into widespread clinical use. "You need a partner," says Chu. He and others in the Developmental Therapeutics Program work closely with private industry to test Yale-discovered and other compounds which have been licensed to pharmaceutical companies.

Even industrial entities must attempt to reduce the risks they face in developing compounds, often choosing not to study compounds that appear to have little promise for success in humans. That is one of the major reasons few compounds ever advance to that stage of development. Discussions have been under way at Yale for several years to help improve the likelihood that university-discovered compounds will reach patients and that molecular targets for drug discovery will prove of value to industry. After arriving at Yale in 1997 from the FDA, where he had been the commissioner, former Dean David A. Kessler, M.D., encouraged the formation of a committee to consider the creation of a Center for Drug Discovery. The center would, according to Carolyn W. Slayman, P.H.D., Sterling Professor of Genetics and deputy dean for academic and scientific affairs, "sit at the boundary between the academic and commercial worlds." Such a center would take Yale discoveries and develop them further to create increased value for partners. "If you want to do more than convince industry to make a major investment," she says, "the more information you have that a drug will work, the more likely faculty research will progress right through to the clinic."

Besides increasing the likelihood of discoveries reaching patients, it could provide Yale with a means of tackling discovery projects that the pharmaceutical industry might avoid for business reasons. For instance, drugs for diseases that industry deems unlikely to generate enough revenues or that might compete with their existing drugs could be developed. Cheng says, "There is a big difference between Yale and the pharmaceutical industry. We are not driven by product but for the common good without profit in mind." Faculty and administrators continue to discuss the creation of the Center for Drug Discovery while Schlessinger and colleagues reshape the department. "We need instrumenta-

tion and a facility staffed by chemists and biologists who will carry Yale discoveries to the next step," says Slayman. "Pharmacology is not an inward-bounded world. Our faculty members need to be catalysts whose work pushes the frontiers of science and helps translate science into treatments."

Yale's move away from pure serendipity in the pursuit of therapies should increase the chances of success and help improve patients' lives. It should also push science in ways that industry cannot or will not. "Studies may not help pharmaceutical companies to market their products and may even damage their products' profit," says Cheng. "It would be a mistake to leave industry solely responsible for pharmaceutical science." Pharmacology department Chair Schlessinger agrees: "We have the capacity to take on more risky projects at the forefront of science, to define molecular paradigms and involve technologies that need to be developed. If we find drugs," concludes Schlessinger with a shrug, "that would be fine." **YM**

Marc Wortman is a contributing editor of *Yale Medicine*.

1990s

- Sartorelli's laboratory discovers two anticancer compounds, Triapine and VNP40101M, currently in clinical trials.
- Yung-Chi Cheng discovers one anticancer and five antiviral agents, currently in clinical trials.
- Robert Innis develops transmitter-specific SPECT and PET imaging probes to study integrity of brain dopamine systems in the central nervous systems of humans and monkeys.
- Leonard Kaczmarek's pioneering work on potassium channels reveals how a certain type of potassium channel underlies the fidelity of firing of auditory neurons.
- Bunney shows that dopamine cell depolarization blockade is a useful model for predicting the therapeutic efficacy of antipsychotic drugs.
- Eric Nestler conducts studies of molecular mechanism of drug addiction and dependence, identifying delta FosB as a molecular switch for addiction.
- Ronald Duman's studies on synaptic plasticity and mood disorders provide insight for development of novel therapeutics.
- Roth develops primate model of cortical dopamine deficiency and enduring cognitive dysfunction useful in study of drugs for cognitive disorders.
- James Howe describes fundamental properties of single glutamate-gated ion channels (which underlie most excitatory transmission in the brain).

2000s

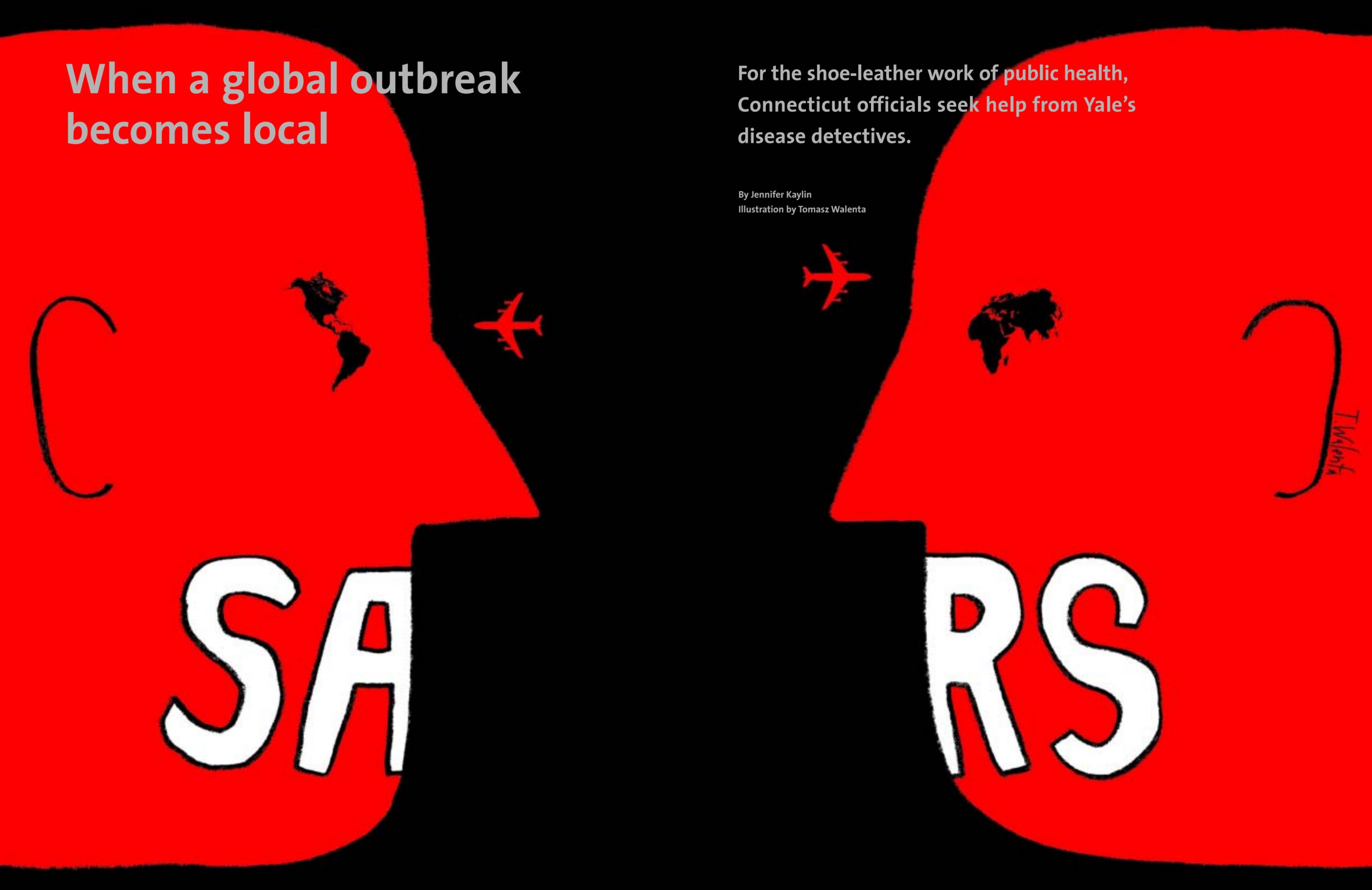
- Joseph Schlessinger becomes department chair and oversees significant expansion.
- Tamas Horvath, Redmond and Roth demonstrate that coenzyme Q is neuroprotective in the monkey MPTP model of Parkinson's disease.
- Marina Picciotto's work using genetically altered mice helps in understanding the basis of nicotine addiction.

Sources: Robert Roth, Alan Sartorelli and William Sessa

When a global outbreak becomes local

For the shoe-leather work of public health, Connecticut officials seek help from Yale's disease detectives.

By Jennifer Kaylin
Illustration by Tomasz Walenta



SARS

T. Walenta



James L. Hadler, M.D., M.P.H. '82, like public health officials around the country, spent last winter reading with only mild concern about an atypical pneumonia outbreak in south China. But then something happened to catapult the illness from “something that bears watching” to an urgent priority.

A student from the University of Connecticut had flown to Germany in March on an airplane with a doctor from Singapore who had been diagnosed with the potentially lethal new illness called Severe Acute Respiratory Syndrome (SARS). Even more alarming, the student was running a fever but continued to attend classes.

“We were facing the possibility of a SARS outbreak on the largest campus in Connecticut,” says Hadler, chief epidemiologist for the state Department of Public Health and associate clinical professor of epidemiology at Yale. “And we had two prominent basketball teams playing in national tournaments. If those players had been exposed, they could have spread the disease across the country.”

Working with UConn officials, Hadler and his staff immediately went to work identifying everyone who attended classes or had contact with the potentially infected student. Classmates and professors were notified and examined if they developed symptoms of fever or cough. Blood samples from the student went to the Centers for Disease Control and Prevention (CDC) for testing. Miraculously, nobody developed a SARS-like illness. The blood test results for the student on the plane returned negative for the SARS-related coronavirus.

While the outcome could not have been brighter for Connecticut, the incident raised questions in the minds of researchers at the CDC who were working frantically to unravel the SARS mystery. If the student had direct exposure to someone with the illness, why didn't he get infected? And if SARS isn't transmitted through face-to-face contact, then how is it spread? The CDC researchers decided to look more closely at how the infection might or might not spread on an airplane, and because Connecticut was the first state to deal with a large-exposure scare and had several persons who had shared a flight with someone with SARS, they decided that was one place to start.

The monumental task of getting airplane manifests and contacting every Connecticut resident who had been on a

flight with a confirmed SARS sufferer was too much for a state health department already overburdened with other public health emergencies, most notably bioterrorism preparedness, administering smallpox vaccines and dealing with suspected SARS cases—not to mention the more prosaic task of tracking less novel diseases that cause significant mortality and morbidity. So Hadler turned to the Connecticut Emerging Infections Program (EIP) at Yale for help.

The federally funded program is housed in a suite of offices in downtown New Haven and staffed by the Department of Epidemiology and Public Health. A joint program of the state health department and the CDC, it was created in 1995 in response to an Institute of Medicine report that found that the nation was not equipped to deal with infectious disease outbreaks, partly because the infrastructure that had once been in place had been decimated by budget cuts and eroded by complacency.

“There was a degree of hubris involved,” says James I. Meek, M.P.H., associate director of the EIP at Yale. “The attitude was ‘We have antibiotics now, so everything is under control.’ Then, of course, AIDS burst our bubble.” Add to that a resurgence of tuberculosis, antibiotic-resistant bacterial infections, changing habitats, a global food supply and worldwide travel, and Meek says it's safe to say that “infectious diseases are going to be a continuing threat to us.”

Connecticut's EIP is one of 10 such programs around the country. They are run by state health departments, but some, like Connecticut's, have links to academic institutions. The Yale staff works with the state health department to conduct population-based surveillance and research. “We're basically disease detectives doing shoe-leather epidemiology,” Meek says.

When the Yale researchers were contacted by the state to help with the SARS outbreak, they began working with the CDC. The CDC had by then secured the cooperation of the airlines and reviewed its lab results to identify which flights had confirmed SARS cases. It took two months before they actually started contacting passengers, so Meek says nobody was too alarmed when a health worker phoned to discuss their potential exposure to SARS. “Once we explained to them that if they were going to get sick they'd already be sick, everyone was very cooperative and happy to help.”

EIP epidemiologists contacted 15 Connecticut residents who were on a flight with a confirmed SARS case and interviewed them about their seat location and movements on the plane as well as their post-travel health. They also obtained blood samples to see whether the passengers had developed antibodies to the SARS coronavirus, which would indicate that they'd been exposed and transmission had occurred. Meek says the goal is to learn more about the transmission dynamics of the virus and to gain a better understanding of how much asymptomatic illness may be present.

A global prescription for a global outbreak

If the SARS outbreak has taught us anything, it is how interconnected the world is and how vital is the need for global cooperation on public health issues.

So says Ilona S. Kickbusch, Ph.D., head of the division of global health at the School of Public Health. “This isn't just an issue for developing countries,” she says. A case in point is how, in a matter of weeks, travelers spread the disease from China's Guangdong province throughout Asia, Europe and North America. “When the SARS outbreak spread to Canada we saw just how close to home it really was.”

Although it falls largely to the World Health Organization (WHO) to provide international public health oversight, prior to the emergence of SARS, Kickbusch says, the agency's hands were tied economically and statutorily. The WHO budget has been stagnant at \$800 million a year (less than it takes to run the average hospital in the United States) for the past 15 years. (It has another “voluntary budget” of about \$800 million, but that money must be spent on projects identified by the contributing countries.)

What's worse, if an outbreak occurred, the WHO had to get permission from the host country

to investigate. “For political and economic reasons, some countries weren't as compliant as one might wish,” she says. Also, countries only had to report named illnesses, not atypical syndromes, so a new illness like SARS could go unreported.

As a result of SARS, though, the World Health Assembly, WHO's governing body, voted to give the WHO more latitude in responding to global health threats. A resolution adopted by the assembly in May requests that WHO consider information about epidemics from nongovernmental sources and conduct on-the-spot studies within affected countries to ensure that control measures are adequate to prevent international spread of the syndrome. Kickbusch says that's a good start, but more must be done, including intensified global surveillance and laboratory work, funded in part by public/private initiatives.

Kickbusch would also like to see more well-trained public health professionals working at the ground level, and she says there need to be clearly stated consequences, such as economic sanctions, for those countries that withhold important public health information or fail to act as responsible global citizens.

“It's a matter of global security in the widest sense,” she says.

—Jennifer Kaylin



James Meek, left, and Robert Heimer led a team of epidemiologists that tracked down Connecticut residents who had been on a flight with a confirmed SARS case. Their goal is to have a better understanding of the SARS virus and how it is transmitted.

JOHN CURTIS

One obstacle to getting meaningful results is the accuracy of people's memory. "Recall is always a problem with epidemiological research, and after two months it's going to be very limited," says Meek. "Still, it was a 14-hour flight, so we found their recall was pretty good."

Robert Heimer, M.S. '80, P.H.D. '88, associate professor of epidemiology and pharmacology, is in charge of the program. "It's not glamorous work, but it's necessary work," he says of the EIP, which has an annual budget of roughly \$1.5 million and a staff of 12 to 14 full-time epidemiologists and lab technicians. Three physicians also work part time as clinical consultants and principal investigators for some studies. The researchers all have ongoing projects, such as studies of food- or tick-borne illnesses, but they can be temporarily reassigned if there's an emergency.

In the case of SARS, for example, the airplane study was just one part of their mission. Researchers also had to turn their attention to the Yale campus to attend to another important facet of their jobs: education. With its population of international students and faculty, many of whom travel frequently to Asia, the Yale community was understandably jittery. "There was a good deal of anxiety and misunderstanding in the beginning," says Michael H. Merson, M.D., dean of public health.

Working with university officials, Merson joined with other Yale physicians to hold three briefings around campus and post advisories on a website. "We did our best to keep people informed and to set sound policies," such as recommending that graduation go forward and that guests from China be allowed to attend, he says.

As the program's director, Heimer understands the fear and misunderstandings a new infection can generate. Occasionally a disease comes along with great destructive force, as happened after World War I when an influenza pandemic killed 25 million people worldwide. Heimer said that with SARS the initial fear was that it could be that kind of easily transmittable, upper-respiratory infection. But once that turned out not to be the case, he thinks the focus should have shifted from SARS, which has infected 8,500 people and cost an estimated \$30 billion so far, to other public health threats, such as HIV, which infects 15,000 people a day.

"Once we knew what it was, that it wasn't an influenza thing, and we knew how *not* to get infected, we should have

stopped worrying, and the media and the public should have focused on more pressing issues," Heimer says.

Meek and his colleagues agree. "All anyone at the soccer field wants to talk to me about is what's going on with SARS," says researcher Ruthanne E. Marcus, M.P.H., a lecturer in epidemiology. But the EIP also tracks many other illnesses that pose a far more immediate threat to most Connecticut residents. "Everyone thinks of the biggies, like AIDS, SARS and West Nile, but there are a lot of run-of-the-mill infectious diseases out there," Marcus says. For example, she focuses on food-borne pathogens, such as *E. coli* and *Salmonella*, which are a growing concern because of the number of meals eaten in restaurants and America's growing appetite for imported foods.

Chronic liver disease, tick-borne ailments and unexplained illnesses and death are other health issues EIP researchers monitor. They predict that as the population ages and as Connecticut residents choose to live in wooded environments that bring them into closer contact with ticks, rodents and other potential disease carriers, emerging infections will become an increasingly important health care specialty.

If SARS has served as a distraction, the even larger recent diversion of resources has been to bioterrorism. Far from seeing this as undermining their work to cope with less headline-grabbing health threats, though, epidemiologists see the focus on bioterrorism as a potential boon for the whole field of emerging infections. The recent anthrax scare and the ongoing fear of bioterrorism have contributed to a heightened awareness about infectious diseases in general, they say, and an understanding within the public health community of the importance of a well-supported public health infrastructure to deal with them. It will be another hurdle to get the public to focus on public health and not be sidetracked by the next new thing in emerging infections.

Still, for researchers in the EIP, tracking down the causes and transmission dynamics of elusive illnesses, whether new and emerging or old and resurgent, comes down to creative, grass-roots detective work and a mind open to the unexpected. As Meek says, "When most people hear the pounding of hooves, they look for horses. As epidemiologists, now we also have to look for zebras." **YM**

Jennifer Kaylin is a freelance writer in New Haven.

SARS remains a moving target

The disease that emerged in Asia late last year, SARS, is a moving target, according to Vincent J. Quagliarello, M.D., HS '81. "Every day," he told an audience at this year's medical school reunion, "there is something new reported in *The New York Times* from somewhere around the world."

What is known about SARS, said Quagliarello, professor of medicine and clinical director of the Section of Infectious Diseases, is this: it is a previously unrecognized member of the well-known coronavirus family which causes about a third of the cases of the common cold. It was first reported last November in China and, in very short order, swept across three continents. Infections travel through close person-to-person contact, mostly among family members or health care workers. Symptoms include fever, headache, myalgias, a dry cough and shortness of breath. Although only about 8,500 people worldwide have been infected,

SARS has a mortality rate of 9 percent and it has provoked fears around the world. The resulting economic impacts have been devastating for Asia and Toronto. China and South Korea have lost about \$2 billion in tourism, retail sales and productivity. Hong Kong, Taiwan and Singapore estimate losses at \$1 billion each.

Major league baseball players were advised to avoid crowds in Toronto, where thousands of people were quarantined. All over Asia people donned protective face masks. In Singapore, Quagliarello said, the Catholic Church suspended confessions and granted a general forgiveness.

SARS, he continued, is a sign of globalization. "Within weeks SARS has spread over three continents to cause a devastating impact on our societies," he said, adding that there is a bright side. "At the same time, however, investigators from over 10 countries have collaborated to identify the virus, screen for potential antiviral therapies and initiate vaccine development."

—John Curtis



A matter of taste

Debunking myths and shattering stereotypes have long been part of **Linda Bartoshuk's** career path.

By Peter Farley
Photographs by Terry Dagradi

PREVIOUS PAGES Cedar Street at lunch hour is a sensory delight, with cuisine from Mexico, China, Thailand, India and the Middle East available to all palates. During 40 years of research, Linda Bartoshuk has shattered myths and become one of the world's leading authorities on taste.

It seems fitting that in order to reach the Cedar Street laboratory of Linda M. Bartoshuk, P.H.D., a visitor passes through a motley and aromatic gantlet of outdoor food carts offering some of Earth's most piquant cuisines—Thai, Mexican, Szechwan. These vendors owe their livelihood to the never-ending fascination and pleasure humans derive from the sense of taste and, in her own way, so does Bartoshuk.

Bartoshuk is one of the world's foremost authorities on the sense of taste, best known for her discovery in the early 1990s that one in four people is a "supertaster." These individuals "live in a neon taste world," she says, where sweet is far more cloying, and bitter more astringent, than for most of us. But this finding is just a capstone of 40 years' work devoted to unraveling the most enigmatic of the human senses, a body of research honored in April by Bartoshuk's election to the National Academy of Sciences.

Along the way, Bartoshuk has relished the demolition of scientific dogma—she proved that the sweet/bitter/salty "tongue map" found in textbooks is pure hokum, for example—but her career trajectory has been most decisively shaped by a dogged refusal to accept discrimination at the hands of science's male establishment.

As a young girl in the tiny prairie town of Aberdeen, S.D., Bartoshuk devoured science fiction novels and dreamed of becoming an astronomer; she spent long wintry nights in vacant lots learning the constellations, armed only with star maps and a flashlight. In high school, she was the only girl in her physics, chemistry and trigonometry classes.

"To say I was a nerd ... would be an understatement," she says unabashedly, still looking the part with closely cropped hair, utilitarian eyeglasses and monochromatic clothes that seem pointedly unchic. Her guidance counselor cautioned her that a small-town upbringing might make the shift to college life difficult, but Bartoshuk, whose forthright speech retains the Midwestern cadence of her youth, insists that no one in Aberdeen ever discouraged her from pursuing science because she was a girl.

Bartoshuk was well into her astronomy course work at Minnesota's Carleton College when professors told her that her chosen field was hostile to women, and that it would be nearly impossible for her to obtain a position at an observatory. Shock soon gave way to anger, and when she learned that the psychology department would accept her math and science credits, she immediately changed majors.

She had abruptly abandoned a lifelong ambition, but before long Bartoshuk found an unexpected bridge between astronomy and her newly adopted field.

Beginning in ancient Greece, astronomers have used magnitude scales to compare the perceived brightness of stars; in modern times such scales were used to determine the size of the universe. Bartoshuk was thrilled to discover that magnitude scales also formed the core of psychophysics, the rich and rigorous branch of psychology that deciphers the relationships between the physical properties of sensory stimuli and the subjective sensations they evoke. Psychophysical methods have been the foundation of her research ever since.

Her undergraduate advisor had trained with the distinguished taste researcher Carl Pfaffmann, P.H.D., at Brown University, and he helped Bartoshuk secure a place as a graduate student in Pfaffmann's lab. On her arrival, Pfaffmann told her outright that he didn't want women there, and she is convinced that the first experiment he assigned her was expressly designed to fail. In any case, her male lab mates eventually convinced Pfaffmann that he was being unfair, and she went on to become a creative and productive student.

Bartoshuk eventually moved to Yale, and spent 20 prolific but trying years at the Yale-affiliated John B. Pierce Laboratory, an interdisciplinary research institute. In an autobiography published in a collection of reflections of eminent women, she wrote that "sexism started at the top and trickled down" at Pierce in those days. In an incident she calls typical, the lab's then-director stopped a newly pregnant Bartoshuk in the hall to tell her that he would be sorry to see her go. Puzzled, she said that she planned to continue her research unabated. His reply: "Women like you are going to destroy Western civilization."

In 1990, Bartoshuk found a safe haven as a professor in the Department of Surgery's section of otolaryngology, where her lab, pleasantly cluttered with stacks of scientific articles and bedecked with kitschy plastic tongues and chili peppers, remains today.

At just about the time of her move to the School of Medicine, a peculiar circumstance threw Bartoshuk and her mentor Pfaffmann together once more. Pfaffmann was suffering from Ramsey Hunt syndrome, which had damaged the sense of taste on the left side of his tongue. Pfaffmann had told his graduate students that he would

gladly serve as a research subject if an illness ever compromised his sensory function. Now he had his chance, and he called Bartoshuk.

Experiments with Pfaffmann produced valuable new data, but Bartoshuk says that the most enduring outcome of the work is personal: the intimacy of the lab gave her the courage to ask Pfaffmann about his biased behavior during her graduate school years. In reply, he told her that he never thought of her as anything but a gifted student, and she was content to leave it at that. Bartoshuk and Pfaffmann planned to publish a full account of their findings, but he suffered a stroke shortly thereafter and died in 1994. "I haven't had the heart to write it up," she says.

Despite the uphill battles she has fought, Bartoshuk does not seem to harbor resentment about the course of her career. Instead, at 64, she displays the unbridled enthusiasm of a freshly minted graduate student. As Jeremy M. Wolfe, P.H.D., a longtime friend who studies the visual system at Harvard Medical School, puts it, "The great thing about talking to Linda is that the most exciting thing in the world is whatever she's working on *right now!*"

When asked whether she ever wonders what her life would have been like if she had worked in some other field, Bartoshuk says that she's had little time to consider it. "Studying taste has been like following a trail of peanuts. As soon as I've picked one up, there's another one waiting." But the curiosity that propelled her out of Aberdeen soon surfaces. "My life looks to me like a series of accidents, which worries me," she says. "What about all the accidents I didn't have?" **Y.M.**

Peter Farley is a freelance science writer based in Boston.

Richard Edelson is heading the Yale Cancer Center as the university and Yale-New Haven Hospital enter a new era of collaboration and growth.



JERRY DOMIAN

New hand on the Cancer Center tiller

Richard Edelson sees growth ahead for one of the country's oldest and proudest cancer research facilities.

When Richard L. Edelson, M.D. '70, came to Yale in 1986 as professor and chair of the Department of Dermatology, the Yale Cancer Center (YCC) was just a dozen years old and had fewer than 185 faculty members in its ranks. Edelson, a physician-scientist who had developed a treatment for a rare form of lymphoma, was one of them. By July 1 of this year, when Edelson took office as its fifth director, the Cancer Center had grown enormously. It now has 342 members from more than a dozen medical school departments and oversees 18 core facilities funded by a \$2.1 million annual grant from the National Cancer Institute (NCI). It helps draw \$118 million in cancer-related research funding to Yale investigators yearly, making it one of the more vigorous cancer research engines in the country.

Edelson, 58, credits that progress to two of his predecessors in the director's office, pharmacology pioneer Alan C. Sartorelli, Ph.D., and former NCI Director Vincent T. DeVita Jr., M.D., HS '66, as well as current YCC Deputy Director José Costa, M.D. "They did the heavy lifting," Edelson said during an interview in mid-July. "Alan built the reputation the center enjoys today as a powerhouse in basic science and cancer pharmacology. And Vince, who is credited with having cured Hodgkin's disease and is essentially the father of combination chemotherapy, has really

laid out the framework for developing the center into a clinical powerhouse."

Therein lies Edelson's main challenge. Despite a worldwide reputation and key contributions to cancer research, Yale historically has not been able to draw the desired volume of cancer patients, especially for all-important clinical trials of new therapies. It was among the first centers designated a Comprehensive Cancer Center by the NCI, but until recently has not had the resources to meet all of its clinical goals. As a result, rumors abounded last year that the center might even lose its NCI comprehensive designation when the most recent five-year grant expired on June 30.

Instead, the NCI agreed to extend funding for a year. The university has agreed to fund the core facilities for two additional years, if necessary, while the center builds up steam and overcomes some of its growing pains.

Edelson said that is already happening. Both the university and Yale-New Haven Hospital have pledged resources, and the director predicted a new era of collaboration, cooperation and growth.

"I'm convinced we have the opportunity to develop field-shaping programs in every important area of cancer care," said Edelson, who will remain chair of dermatology but is stepping down as deputy dean for clinical affairs, a position he has held for the past three years. "We have the people, we have the setting and we have the science."

To solve a nagging space crunch in its patient areas, Edelson negotiated the immediate renovation of 25,000 square feet of clinical space in the Yale

Physicians Building and elsewhere on campus, close to doubling the existing clinical facility. The long-term solution to the space problem, he said, will take the shape of a new Cancer Center building of approximately 170,000 square feet, to be open by 2007. Several possible locations around the medical center are under discussion.

One key to growth, Edelson believes, is rebuilding the Section of Medical Oncology, which is down in ranks but now has a new structure for appointments and promotions and a commitment to hiring new faculty. As part of his recruitment, Edelson gained approval to hire 18 to 24 new faculty members in cancer-related fields, about half of whom will be medical oncologists. "This will be the clinical engine that drives cancer care, and it is one of the best routes for new patients into trials," he said. Edelson is also exploring arrangements with cancer facilities outside Connecticut that would bring Yale discoveries to a wider public while increasing the number of patients available for Yale trials.

"I don't have the slightest doubt that we're going to quickly succeed here. If I did, I wouldn't have taken this job," Edelson said.

—Michael Fitzsosa

New appointments in provost's office place science in the spotlight

New appointments in the office of Yale Provost Susan Hockfield, Ph.D., leave science and the medical side of campus well-represented in the upper echelons of the university.

Andrew D. Hamilton, Ph.D., the Irénee duPont Professor of Chemistry and professor of molecular biophysics and biochemistry, has been named the deputy provost for science and technology. Bruce F. Carmichael, M.S.N., Sc.D., former associate dean for resources and management at the School of Nursing and former executive director for major projects and facilities at the School of Medicine, is the new interim assistant provost for science and technology. Barbara A. Shailor, Ph.D., director of the Beinecke Rare Book and Manuscript Library, has been named deputy provost for the arts.

Hamilton's area of focus includes the Faculty of Arts and Sciences departments in the natural sciences.

Carmichael will oversee the natural science and engineering departments. At the School of Medicine his major task was to oversee the initial stages of construction at the new Anlyan Center for Medical Research and Education.

Shailor will help to shape and implement policies for the Schools of Art, Architecture, Drama, Music and Divinity; the Institute of Sacred Music; the Departments of History of Art, Classics and Music; the Yale University Art Gallery; and the Center for British Art.

—John Curtis

A legend in the annals of Yale medicine returns, in person and on canvas

When new interns in the Department of Internal Medicine arrived in July 1964, little did they know that they would be the last group to be trained at Yale by Paul B. Beeson, M.D., then chair of the Department of Internal Medicine. A year and three months into their training, Beeson left for Oxford University. In May, nine of that last cadre of house staff gathered with Beeson, his family and members of the Department of Internal Medicine in the Historical Library for the unveiling of a portrait of the legendary physician. Beeson, who served as department chair from 1952 to 1965, specialized in infectious disease and discovered a class of proteins known as cytokines. In 1996 the medical service at Yale was named "The Beeson Medical Service" in his honor.

"No contemporary figure has had more influence on the way Western-trained doctors practice medicine than Paul Beeson," said John N. Forrest Jr., M.D., HS '67, who heads the Office of Student Research. "Paul Beeson was revered in medicine because he promoted those around him rather than himself, valued patients and the vocation of medicine rather than reputation and never forgot that treating sick people and training young physicians was a precious gift and responsibility."

"In his presence we all felt greatness," said Lewis Landsberg, M.D. '64, HS '70, now dean of the medical school at Northwestern University. "His humbleness stood as a sharp rebuke to the hubris of lesser men."

The portrait was accepted for the Department of Medicine by David Coleman, M.D., the interim chair of the Department of Internal Medicine. "The Beeson tradition and values continue to play a major role in the training of students and house staff," Coleman said. "This portrait will be a constant reminder of that influence." The portrait, painted by Vermont artist Richard Whitney, will hang in Fitkin Amphitheater.

—John Curtis



TERRY DAGRADI

Nine physicians who began their residencies at Yale under the tutelage of Paul Beeson returned to the medical school in May to honor their mentor.



Roland Baron



Alan Dardik



Elizabeth Bradley



Jorge Galán



Sonia Caprio



Thomas Steitz



David Cone

Researchers at the School of Medicine have received 13 grants from The National Alliance for Research on Schizophrenia and Depression (NARSAD) totaling almost \$780,000. NARSAD is a leading donor-supported organization funding worldwide research on brain disorders. The following researchers will each receive a two-year Young Investigator Award of approximately \$60,000: **Patrick B. Allen**, PH.D., assistant professor of psychiatry; **Vladimir Coric**, M.D., assistant clinical professor of psychiatry; **Carrol M. D'Sa**, PH.D., associate research scientist in psychiatry; **Naomi R. Driesen**, PH.D., associate research scientist in diagnostic radiology; **Wen-Jun Gao**, M.D., PH.D., associate research scientist in neurobiology; **Xingguang Luo**, M.D., postdoctoral associate in psychiatry; **Snezana M. Milanovic**, M.D., hospital resident; **Maria Mouratidis**, PSY.D., postdoctoral fellow in psychiatry; **Edward B. Perry**, M.D., assistant professor of psychiatry; **Samuel N. Sathyanesan**, PH.D., associate research scientist in psychiatry; **Gilles D. Tamagnan**, PH.D., assistant professor of psychiatry adjunct; **Christopher P. Turner**, PH.D., associate research scientist in pediatrics (endocrinology); and **Pieter Joost van Wattum**, M.D., PH.D., assistant clinical professor in the Child Study Center.

Roland E. Baron, D.D.S., PH.D., professor of orthopaedics and cell biology, received the Louis V. Avioli Founders Award from the American Society for Bone and Mineral Research at its 24th annual meeting in San Antonio in September 2002. This award is given for "fundamental contributions to bone and mineral basic research." Baron also received a Docteur Honoris Causa from the Université René Descartes in Paris in December 2002.

Elizabeth H. Bradley, M.B.A., PH.D. '97, associate professor in public health, is the first Yale researcher to be awarded the John D. Thompson Prize for Young Investigators by the Association of University Programs in Health Administration (AUPHA). The award, presented in June at the AUPHA national meeting, recognizes investigators for their contributions to research literature in the health services field. Bradley's work focuses on the quality of care provided to the elderly population.

A researcher who studies metabolic changes associated with obesity and type 2 diabetes has received the first fellowship at Yale from the newly established Bayer Endowment for Scholars in Medicine and Management.

Sonia Caprio, M.D., associate professor of pediatric endocrinology and a graduate of the Università di Medicina e Chirurgia in Naples, is interested in the prevention and treatment of type 2 diabetes among young people. "There is a growing and serious epidemic of childhood diabetes, especially among African-Americans and Hispanics," she said.

The \$2 million endowment from Bayer will fund a fellowship to be awarded each year to a faculty member making significant contributions to advances in medicine or health care management. In addition to supporting the work of the Bayer Fellow, the Bayer Endowment will foster interaction between Yale scientists and Bayer employees through lectures and conferences on topics of shared interest.

David C. Cone, M.D., associate professor of surgery (emergency medicine) and public health, was installed in January as secretary/treasurer of the National Association of Emergency Medical Service Physicians (NAEMSP). Cone has served on the NAEMSP board of directors since 1996 and is deputy editor of *Prehospital Emergency Care*, the organization's journal. The NAEMSP provides medical oversight and research leadership for out-of-hospital emergency care systems.

Alan Dardik, M.D., PH.D., assistant professor of surgery (vascular) at Yale and assistant program director of the department of surgery at St. Mary's Hospital, was awarded the Wylie Scholar Award in Academic Vascular Surgery by the Pacific Vascular Research Foundation in San Francisco in 2002. The \$150,000 multiyear award is presented to productive scientists with independent research programs in North America. Dardik studies the effects of the force of flowing blood on cells in the blood vessels.

Jorge E. Galán, PH.D., D.V.M., chair and Lucille P. Markey Professor of Microbial Pathogenesis and professor of cell biology, and **Thomas A. Steitz**, PH.D., Sterling Professor of Molecular Biophysics and Biochemistry, were elected in April as fellows by the American Academy of Microbiology. Galán was honored for his innovative use of microbial molecular genetics and molecular cell biology to further the understanding of how microbial pathogens communicate and interact with their animal hosts, and for his molecular genetic characterization of the *Salmonella* pathogen. Steitz's specialty is the study of the structures of proteins and nucleic acids to determine their biological function. His lab recently determined the atomic structure of a subunit of the ribosome.

Mark J. Gorman, M.D., assistant professor of neurology, was appointed director of the Acute Brain Injury/Stroke Program at Yale-New Haven Hospital in April. Gorman heads a coordinated multidisciplinary stroke team, which is aimed at diagnosing and treating stroke patients as rapidly as possible.

Jeannette R. Ickovics, PH.D., associate professor of epidemiology (chronic disease) and psychology, was elected as a fellow by the American Psychological Association (APA) for 2003. APA fellows are selected for exceptional and outstanding contributions to the research, teaching or practice of psychology. The APA is the largest scientific and professional organization representing psychology in the United States and is the world's largest association for psychologists.

Akiko Iwasaki, PH.D., assistant professor of epidemiology and immunobiology, received the 2003 Wyeth-Lederle Vaccines Young Investigator Award in Vaccine Development in October from the Infectious Diseases Society of America at its annual meeting in San Diego. She also received the Ethel F. Donaghue Women's Health Investigator Program Award in July.

Ilona S. Kickbusch, PH.D., professor of public health (global health) and political science, was invited to be a member of the Hungarian Ministry of Health International Advisory Board in January by the Republic of Hungary's Ministry of Health, Social and Family Affairs. This board was established to help promote health, consolidate and modernize the health care system and reform health care financing, as part of the government's "Decade of Health" initiative.

Luke M. Kitahata, M.D., PH.D., professor emeritus and former chair of anesthesiology, was honored in November 2002 at the 50th anniversary celebration of the establishment of the Department of Anesthesiology at Tokyo University, his alma mater. He was the keynote speaker and received honorary membership in the Japanese Society of Anesthesiologists. The celebration was organized by one of his former Yale trainees, **Kazuo Hanaoka**, M.D., FW '77, who is professor and chair of the Department of Anesthesiology at Tokyo University.

Michael H. Merson, M.D., the Anna M.R. Lauder Professor of Public Health, dean of public health and chair of the Department of Epidemiology and Public Health, was named chair of the Global Health Committee, part of the Association of Schools of Public Health executive committee, effective last January.

John A. Persing, M.D., professor and chief of plastic surgery, is president-elect of the Association of Academic Chairmen of Plastic Surgery and vice chair of the American Board of Plastic Surgery. Both elections were held in Baltimore in May. Persing was also named president of the American Society of Maxillofacial Surgeons in November 2002 at its annual meeting in Orlando, Fla.

Among those receiving Seton Elm-Ivy Awards in April for their contributions to relations between the city and the university was **Mary E. Schwab-Stone**, M.D., the Harris Associate Professor of Child Psychiatry in the Child Study Center and associate professor of psychology. Schwab-Stone helped to develop a clinical consultation service for New Haven's Special Education Department, which evaluates between 35 and 40 children and youths each year, offers the department advice on program and policy issues and trains new generations of child psychiatrists on how to work in and with schools. Since 1992 she has developed and led the Social and Health Assessment Program, which oversees the assessment of mental health symptoms, competencies, Problem behaviors and risk factors in the middle and high school population.

Hongyu Zhao, PH.D., the Ira V. Hiscock Associate Professor of Public Health (Biostatistics) and Genetics, has received a three-year, \$1.2 million grant from the National Science Foundation for a system biology study. Zhao and colleagues in statistics, genomics and proteomics, bioinformatics and computer science will develop an integrated approach to reconstructing biological pathways. Zhao was also awarded a pilot grant by the Yale Center for Genomics and Proteomics, where he and colleagues will research tissue- and cell-specific expression profiling of the rice genome.

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Mark Gorman



Michael Merson



Jeannette Ickovics



John Persing



Akiko Iwasaki



Mary Schwab-Stone



Ilona Kickbusch



Hongyu Zhao



Luke Kitahata

The class of '03



ABOVE This year's Commencement was the soggiest in recent memory. It rained throughout the ceremony, leading graduates to process under the shelter of umbrellas. Jennie Bailey was among the first in the procession.

OPPOSITE Expressions on the faces of graduates and faculty captured the prevailing mood.

Medicine from the heart, as well as the head

Graduates hear a prayer for wisdom and humility, and a reminder to heed not only science, but also the spirit.

Sheltered under a tent to ward off a driving rain, 97 students received their medical degrees on Memorial Day and heard admonitions to retain their humanity, to find meaning in their lives and careers and to take comfort from lives of service.

Making their way through a sheltering gantlet of umbrellas, the Class of 2003 processed to the tent on Harkness Lawn where their families and friends waited. In his opening remarks, then-Dean David A. Kessler, M.D., told students to take pride in their accomplishment. "As you go

beyond these walls," he said, "you will increasingly recognize the degree to which you have been shaped by this place. Today you go forward to shape the future of American medicine. You are proof that this great experiment called the Yale System works and that you have been shaped by an incredible faculty."

Joahd Toure, one of the graduates, offered an invocation of thanks and a call for humility. "Let us pray that success follows us from this place," Toure said. "Let us pray for continued support from mentors, family and friends. Let us pray our education serves us well. Let us pray for knowledge to understand illness. And let us pray we remember that knowledge is not all that is needed to address the concerns of our future patients. Let us also pray for



Photographs by Terry Dagradi

compassion, wisdom, patience, humility and grace.”

In her Commencement address, Rachel N. Remen, M.D., clinical professor of family and community medicine at the University of California, San Francisco, School of Medicine, continued with a similar theme. Medicine’s emphasis on intellect and science often disregards the instincts of the heart, she said. “It may cause us to believe that the perception of the heart is soft, unprofessional, even dangerous, that the heart will somehow mar our judgment and make us incompetent as medical people,” said Remen, author of *Kitchen Table Wisdom: Stories That Heal* and *My Grandfather’s Blessings: Stories of Strength, Refuge, and Belonging*. “It has taken me years to realize that being a human being is not unprofessional. ... The heart is the strongest place from which to live a life, especially a physician’s life.”

This year’s Bohmfalk Prizes went to Sheldon M. Campbell, M.D., PH.D., FW ’92, assistant professor of laboratory medicine, and Cyrus R. Kapadia, M.D., professor of medicine. Auguste H. Fortin VI, M.D., assistant clinical professor of medicine, received the Arnold P. Gold Foundation Humanism in Medicine Award. The Leah M. Lowenstein Award went to Susan M. Richman, M.D., assistant professor of obstetrics and gynecology. John S. Hughes, M.D., HS ’76, associate professor of medicine, received the Francis Gilman Blake Award, and the Betsy Winters House Staff Award went to Stephen M. Kavic, M.D.

—John Curtis



TOP TO BOTTOM

Nikki Pinkerton received her diploma from then-Dean David Kessler in the company of her two daughters.

Karen Kim’s family joined her for a celebratory photo.

John Cowden was among several students who accepted their diplomas with children in tow.



TOP TO BOTTOM

Vivek Murthy gets a congratulatory hug.

Nimi Tuamokumo shared the high spirits of the day with her uncle Jide Labinjo, mother, Yomi Wilcox, and uncle Edward Labinjo.

Essmaeel Abdel-Dayam’s mother, Ayda El-Shirbiny, also a physician, came to New Haven for the ceremony.



ABOVE

Commencement speaker Rachel Remen urged graduates not to ignore the instincts of the heart.

It takes “a posse” to protect the world’s health, former CDC director asserts

Jeffrey P. Koplan, M.D., M.P.H., says cowboys get a bad rap. In his youth he lived the cowboy life himself on a “quarter-acre spread in suburban Boston ... A scene that stirred me repeatedly was the formation of a posse, setting off to apprehend the bad guy,” Koplan told the crowd gathered in Battell Chapel for the School of Public Health Commencement on May 26.

The world needs something like a posse to band together to solve public health crises, said Koplan, former director of the Centers for Disease Control and Prevention (CDC). In some circumstances, he acknowledged, “consensus is not possible. ... But there are many more when restraint, dialogue,

sensitivity and listening to others are called for. Not just for diplomatic show but to serve our national interests.

“There is a prevailing mind-set that we can reject a global warming treaty, be a nonsignatory to a land mine ban and seek to dilute a U.N. treaty [on tobacco control] ... with no obvious penalties,” said Koplan, who is now vice president for academic health affairs at Emory University’s Woodruff Health Sciences Center and was elected in June to the Yale Corporation. The advent of severe acute respiratory syndrome, or SARS, makes clear “the value of having trusting and close working relationships with a wide variety of nations.”

Students graduating into the public health community form part of a posse “with a sacred mission to improve the health of people everywhere,” Koplan told the 121 men and women receiving

master’s and doctoral degrees in public health.

Sahar Rooholamini and Andee Krasner gave the student address together. Krasner told their classmates “to seek justice as the prerequisite of health. It is our view that the greatest advantage of a Yale education is the platform it provides graduates to be able to amplify the voices of those who would otherwise not be heard.”

The students honored Kaveh Khoshnood, M.P.H. ’89, PH.D. ’95, assistant professor of epidemiology, with the Award for Excellence in Teaching. The Dean’s Prize for an outstanding thesis was awarded to Jennifer Collins and Amelia Shaw. The Henry J. (Sam) Chauncey Jr. Inspiration Award went to Sarah George, and Gina Engler won The Cortlandt Van Rensselaer Creed Award.

—Cathy Shufro

NIAID director receives honorary degree

At Commencement ceremonies on Old Campus, Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases and chief of the Laboratory of Immunoregulation at the National Institutes of Health, was awarded an honorary doctor of medical sciences degree. Fauci has been at the forefront of efforts to understand and treat HIV infection.



MICHAEL MARSLAND



TERRY DAGRADI (4)

CLOCKWISE FROM TOP LEFT
The School of Public Health held its Commencement ceremony in Battell Chapel.

Victor Edgerton indulged in a long-standing tradition by decorating his mortarboard with action figures.

Keynote speaker Jeffrey Koplan, former head of the Centers for Disease Control and Prevention, said public health requires the equivalent of an international “posse” to work together to solve crises.

Alice Yeung shared a moment with classmates at the ceremony in Battell Chapel.



Leo Kim discussed his work during the poster session at Student Research Day in May.

TERRY DAGRADI

For young physician-scientists, a mentor is no longer a single sage but a network

Unlike past generations, physicians now entering the world of academic medicine no longer seek a single mentor, said Edward J. Benz Jr., M.D., FW '80, a former Yale faculty member who is president of the Dana-Farber Cancer Institute. Mentorship for young scientists, said Benz, a prominent hematologist, has undergone a paradigm shift.

Rather than learning from a succession of experienced scientists, as he did, young scientists now benefit from "spontaneously forming networks" of investigators in diverse disciplines, Benz told the audience at Student Research Day in early May.

Posters lining the corridors of the Jane Ellen Hope Building described the research of 63 students completing M.D., M.D./P.H.D. and M.P.H. degrees. Projects included a comparison of expected and actual waiting times in emergency departments, a study of a South African program to prevent vertical transmission of HIV, research on the impact of controlled ovarian hyperstimulation on the success rate of *in vitro* fertilization and a study of how the molecular genetics of KRIT1 affect the pathogenesis of cavernous malformations.

Reflecting on Benz's description of changes in the system of mentoring, 7th-year M.D./P.H.D. student Stephanie Eisenbarth said she'd had several key mentors, in particular H. Kim Bottomly, P.H.D., professor of immunobiology. Graduate school, Eisenbarth said, is structured to provide students with a committee of three to six faculty members. "They, too, have a significant impact on your development as a scientist, and I think this is a positive influence on the process," she said. Her study of the role of endotoxin in asthma pathogenesis was published in *The Journal of Experimental Medicine* last December.

After hearing presentations by five students with award-winning theses, Dennis D. Spencer, M.D., HS '77, the Harvey and Kate Cushing Professor of Neurosurgery, gestured toward the presenters and commented: "We see not students, but future colleagues."

Some of the student theses can be read online at <http://ymtdl.med.yale.edu>.
—Cathy Shufro

The war between ideology and science is costing lives, speaker tells AIDS gathering

People are dying because public health policy has fallen victim to "the war of ideology over science," keynote speaker Geeta Rao Gupta, P.H.D., said at the annual AIDS Science Day at the School of Public Health in April. A health policy based on ideology rather than research "is not just wrong," she said, "it is fatal."

Gupta, president of the International Center for Research on Women, said social change arising from globalization has pushed societies "backwards to fundamental ideals and primary cultures, to hold on to what is seemingly sacred." The reversion to fundamentalism typically limits women's mobility and sexual and reproductive autonomy, she said.

The "most stunning examples" of ideology-based policy have come from the United States, she said, which has, at United Nations conferences, promoted abstinence as the only sure way to prevent sexual transmission of HIV and called for the deletion of "condom use" from a list of strategies to prevent infection. Such "ideological posturing," said Gupta, "costs lives, tens of millions of lives."

Policy based on research should include cultural analysis, said Gupta.

For instance, women's ability to protect themselves from HIV is limited by societal rules governing how women (and men) should behave. If an AIDS vaccine is developed, some societies will regard getting vaccinated as an admission of promiscuity.

"We just presume that once you have the solution, it's a good solution," said Gupta, adding: "Biomedical interventions are not gender-neutral."

During the day of panels and poster sessions, scientists, anthropologists, social workers, faculty and students discussed an array of issues related to HIV/AIDS, including prevention and care in international settings, interventions to stop the spread of the disease and the implications of race, gender and poverty.

—Cathy Shufro



JOHN CURTIS

Geeta Rao Gupta, right, the keynote speaker at AIDS Science Day, said science, not ideology, should guide health policy.

Reunion 2003

Amid the catching up, serious consideration of how war, terrorism and disease affect society and public health.



Harold Bornstein, Andrew McGowan and Robert Donohue, from left, were honored with the Distinguished Alumni Service Award at this year's reunion.

TERRY DAGRADI

Although the theme of panels at both the medical school and the public health school reunions was the impact of disease and disaster on society, Donald O. Lyman, M.D. '68, turned that topic on its head.

"It is not so much that infectious disease affects society," he said, speaking at the medical school symposium, *Infectious Disease and How It Impacts Society, Public Health and Safety*. "It is that societal patterns influence the diseases we suffer."

Past epidemics of infectious disease stemmed from unusual social patterns such as urban crowding. Long before antibiotics these diseases were successfully addressed by easing congestion and providing basic sanitation. That lesson—addressing societal problems to eliminate disease—is now being applied to lifestyle patterns such as smoking and nutrition.

Most deaths, illnesses and disabilities today stem from two sources, cardiovascular disease and cancer, Lyman said. And they, in turn, are largely the result of three things—smoking, poor nutrition and lack of exercise. In California, where he is chief of preventive medicine for the state's Department of Health Services, Lyman has begun to address those matters. An anti-smoking campaign has reduced adult smoking by a third

and consumption of tobacco products by two-thirds. Over the past decade the incidence of cancer in California has fallen by 10 percent, he said. The state has seen a similar reduction in cardiovascular disease. "Our next step will be nutrition and physical activity," he said.

Also on the panel was Frank J. Bia, M.D., M.P.H., FW '79, professor of medicine and laboratory medicine, who outlined the early history of antimicrobial agents, including the first use of penicillin at Yale during World War II. Vincent J. Quagliarello, M.D., HS '81, professor of medicine and clinical director of the section of infectious diseases, offered an update of the SARS epidemic around the world (See "SARS Remains a Moving Target," p. 29). What is known about the emerging syndrome, he said, keeps changing as more is learned about it. Margaret K. Hostetter, M.D., chair and professor of pediatrics and professor of microbial pathogenesis, discussed diseases common to children adopted from other countries.

After the symposium, then-Dean David A. Kessler, M.D., spoke on the effects of HIV/AIDS on children. Calling the disease the "worst epidemic in world history," Kessler said that by the end of the decade, 45 million people will be infected. Despite that dire figure, Kessler noted that

the world is responding to the crisis with offers of aid. The Bill & Melinda Gates Foundation, he said, has pledged \$15 million for projects to prevent mother-to-child transmission of HIV. An ongoing program at Yale sends first- and second-year medical students to South Africa to work on local HIV prevention projects.

"I think increasingly we are becoming a global medical school at a global university," Kessler said.

At the annual meeting of the Association of Yale Alumni in Medicine (AYAM), three graduates received the Distinguished Alumni Service Award: Harold D. Bornstein Jr., M.D. '53, HS '56; Robert J. Donohue Jr., M.D. '58, HS '59; and Andrew J. McGowan Jr., M.D. '58.

The AYAM's executive committee elected new officers at the reunion. Donald E. Moore, M.D. '81, M.P.H. '81, is the new president. Francis M. Lobo, M.D. '92, was elected vice president. Christine A. Walsh, M.D. '73, is the secretary.

War and public health

In Vietnam the unintended consequences of war persisted after hostilities ended. Bomb craters filled with water and became breeding grounds for mosquitoes. The effects of Agent Orange continue to emerge genera-



JOHN CURTIS (2)



TOP Barry Levy, left, and Victor Sidel discussed the effects of war and terrorism at the reunion of the School of Public Health at the New Haven Lawn Club.

ABOVE Andrew McBride was one of two public health alumni inducted into the Alumni Public Service Honor Roll.



Joseph Zaccagnino

tions later. In early June, despite the declaration of an official end to the second Persian Gulf War, unexploded ordnance continued to kill and maim Iraqis. And the disruption of the Iraqi infrastructure spread disease, as evidenced by cholera outbreaks.

At the public health reunion on June 6 at the New Haven Lawn Club, keynote speakers Barry S. Levy, M.D., M.P.H., and Victor W. Sidel, M.D., co-editors of *War and Public Health* and *Terrorism and Public Health*, cited these and other examples as they described the effects of war and terrorism on public health.

In the United States, the anthrax outbreaks that followed the September 11 attacks highlighted the importance of public health and led to increased funding to handle bioterrorism. But according to Sidel, the overall picture is less than rosy.

"What we have seen over the past year or so," Sidel said, "is the diminution of public health resources. Very few bioterrorism funds can be put to dual use. They do not make up for huge losses that health departments have suffered because of economic downturns and sharp reductions in state and local government budgets."

In the afternoon, the discussion focused on the consequences of war for public health. Gregory Hess, M.P.H. '95, who designed and managed the Peace Through Health program for the World Health Organization, described how relief efforts offer a chance for peace-building. War, said Unni Karunakara, M.P.H. '95, health advisor for Doctors Without Borders, disrupts many aspects of human security, including politics, the

environment, the economy and food supplies. "All of those impact health," he said.

Other speakers included Bruce R. Grogan, M.P.H. '76, principal in The Grogan Group, which advises both the private and public sectors on sustainable development and institutional capacity building, and Richard C. Poole, M.P.H. '78, a Naval Reserve Medical Service Corps commander, who is organizing a conference on bioterrorism and emerging infectious disease in Latin America.

Karunakara and Andrew D. McBride, M.P.H. '77, were inducted into the Alumni Public Service Honor Roll. Karunakara was honored for his international work and McBride, director of public health for Milford, Conn., was honored for his years of service, including a stint as commissioner of health for North Carolina. For his service to the School of Public Health, Eric Mood, M.P.H. '43, became the first recipient of a new award, the EPH Alumni Bulldog Award.

Joseph A. Zaccagnino, M.P.H. '70, president and CEO of Yale-New Haven Hospital, received the 2003 Distinguished Alumni Award.

"Health care is an industry in transition," Zaccagnino said after receiving the award. "It is an industry that leads and lags the rest of the world. We have access to the most advanced medical technology anywhere, but our population is not as healthy as those in many other industrialized nations, and we have 40 million citizens who are not protected by medical insurance."

—John Curtis



Lycurgus Davey

Lycurgus "Bill" Davey receives the Peter Parker Medal

In a ceremony in the Beaumont Room on May 27, Lycurgus M. Davey, M.D. '43, HS '52, was honored with the Peter Parker Medal for his service to medicine, the university and the medical school. "Dr. Davey's dedication to the Yale School of Medicine and his profession continues to this day," said then-Dean David A. Kessler, M.D. During his career Davey has won honors from medical organizations, published articles on neurosurgery and the history of medicine and served as a medical officer in the U.S. Navy during World War II. While president of the Association of Yale Alumni in Medicine, Davey, 85, reached out to graduates beyond the East Coast to bring them into the fold. Davey thanked those assembled by paraphrasing the poet Robert Burns. "It is a gift to see ourselves as others see us," Davey said, adding that "a person is truly a composite of all the influences of a lifetime."

1938 65th reunion

Ben and Blanche Lyons moved this year to a new and very active retirement community in West Redding, Conn., just 10 miles from Westport and Norwalk, where he had his ophthalmology practice. We had to forgo attending the 65th reunion activities because Blanche fell and injured her pelvis just before the scheduled meeting. She is recovering at home after spending some time in the hospital. Lester Wallman, married to Elizabeth, has spent more than 50 years on the faculty of the University of Vermont Medical School as a professor of neurological surgery and remains active as an emeritus professor. The Wallmans found it difficult to attend the Yale reunion because of his close relationships at Vermont and was attending some of the festivities of the reunion there. He has three children, a son, also a physician, and two daughters. John McGillicuddy is in an assisted-living facility in Framingham, Mass., and for the past 10 years has had extensive neurological problems, including severe loss of sensation in both legs. Ed Roberge of Stratford, Conn., also suffers from extensive neurological problems. Jim Radcliff, who is almost blind, lives in Fairhaven, Mass., with his wife, Betty. With all of us in our 90s, it is difficult to attend.

Ben Lyons

1943 March 60th reunion

Eight members of the Class of 1943M attended the reunion in June. Our class numbered 48 at graduation. This was a remarkable attendance when one considers classmates who are ill and those who have died.

"Bill" Davey received the Peter Parker Medal this year for exceptional service to the Yale medical school. (See opposite page.) He is preparing two manuscripts for publication—

A History of the Yale Medical Library and *A History of Neurosurgery*. Rocko Fasanello, now fully retired, contributed his unique charm, warmth and good humor during the gathering. He was accompanied by his daughter. Gerard Fountain retired from psychiatric consultation and supervision of psychiatric residents at the Dartmouth Medical School. He devotes many hours each day to painting. He comments:

"Some paintings I keep; others I throw away."

Stuart Joslin, having completed several decades of pediatric practice in Stratford, Conn., was increasingly concerned as to why so many children are unhappy. In 1970 he entered a psychiatric residency and a fellowship program at the Yale Child Study Center. Following this training he practiced child psychiatry in Stratford, retiring in 1998. He hopes to write a book about his experiences.

Henry Markley practiced internal medicine in Greenwich, Conn., from 1950 to 1979. He continues to direct the Greenwich Hospital Home Care service, which he founded in 1956. This program added hospice care in 1980. It serves as a model for new home care programs throughout the country.

Sophie Trent-Stevens, after an extraordinary career in tropical medicine in various parts of the world and 20 years of primary practice in Meriden, Conn., enrolled as a graduate student in the art department at Central Connecticut State University, and received her M.A. degree in art and art education in 1982. Her "new career" in the art field has led her to serve as a docent at the New Britain Museum of American Art. She spends much of her time writing poetry and painting. She has published four books of poetry. Many of her paintings have received awards.

Morris Wessel continues as pediatric consultant two days a week at the Clifford W. Beers Child Guidance Clinic. He was one of the founders of the Connecticut Hospice 25 years ago and has an interest in the role primary pediatricians can play in serving children who experience significant losses. He has published several articles on this subject. Robert Wyatt retired 10 years ago from a gynecological practice in Greenwich, Conn., and moved to Del Ray Beach, Fla. His son accompanied him to the reunion.

Morris Wessel

1943 December 60th reunion

On one of the rare perfect days of June this year we began our 60th reunion celebration. Only Hunter Comly and Tom Bucky came. Tom, with wife Doris, and Hunter, with Rita Iannace, attended the wonderful clam-bake together and sat with members of the Class of '43 March and enjoyed their humor as they spouted poetry. We enjoyed ourselves, but regretted not seeing again our old classmates; there are now only about 20, and it was a lost opportunity. They would have appreciated, as we had, that the old cooperative spirit of Yale Med toward teaching and learning has not changed, despite the enormous growth. The new buildings on the medical campus were bewildering (after 60-plus years) but beautiful and inspiring. The modern medical student is fortunate. We hope you'll all attend the next reunion.

Tom Bucky and Hunter Comly

1948 55th reunion

Spring seems to have escaped us this year. But we did catch a day of sunshine on Friday, June 6, which made the clambake all the more enjoyable. Although turnout for our class was disappointing, our financial secretary, Ben Rush, provided information





about some of our absentees. **Ben's** wife, Nora, passed away this year after a long illness. **Ben** continues in his retirement role as professor emeritus of surgery at the New Jersey Medical School, teaching medical students and imparting his medical and surgical experiences to residents as well. He was able to take the Yale alumni trip to Australia. He reports that out of a class of 55, 40 of us are still on this side of the green although the health status of most is unknown. He did report that **Jim Needham** and **Art Terrill** felt that travel was not an option and that others felt the same way.

Our other secretary, **Paul Koehler**, was present with his wife, Marge. **Paul** has two new hips and a knee and has remained sequestered at his home in Newbury, N.H. Our former secretary, **Paul Goldstein**, with spouse Betty, did not have to travel far from Branford, Conn., to be part of the celebration. **Paul** spends his retirement keeping his hand in the delivery of health care. He is a supervising attending in the pediatric primary care clinics at Yale-New Haven and the Hospital of St. Raphael. The young, sharp and bright residents help to keep his cerebral circuits stimulated. He finds they can still stand a bit of gray-haired wisdom. **Howard Simon** with wife Chris came to the clambake but couldn't make the dinner on Saturday. **Bob Lempke** and wife Mary were present at our dinner at the Graduate Club, where we were guests of the medical school along with the Class of 1953. **Bob** has found his niche in retirement with painting in oils, acrylics and watercolors. He has been rewarded with shows both locally in West Lafayette, Ind., where he and Mary live, and statewide as well. Mary also celebrated her reunion here with the Yale School of Nursing. Our stalwarts **Allyn Bridge** and wife Charlie came in from Moreno Valley, Calif. Charlie is the class agent for the School of Nursing '48 and celebrates her 55th as

well. She is busy as a volunteer for AARP, helping seniors in tax counseling. **Al** is active in a Learning in Retirement program at the University of California, Riverside. They love California.

News from some of our absentees: **Bud Rowland** and wife Ester were scheduled to be with us, but last-minute personal matters cancelled their plans. **Bud** recently retired as chair of neurology and director of the Neurological Institute at Columbia. In his retirement he published a book celebrating the 50th anniversary of the National Institute of Neurological Disorders and Stroke. **Arden** and Helen **Miller** just sold their home and moved into a villa nearby, where many of the chores of home ownership are delegated to others. **Paul Goldstein** found **David Holman** celebrating his 50th at the Graduate Club; David reported that brother **Hal Holman**, M.D. '49, is still full time at Stanford Medical School. **Hal** continues his research in autoimmune disorders and recently was cited by the American Rheumatoid Arthritis Society for his work. He spends most of his time promoting and developing a unique primary care delivery system to the great Palo Alto community.

We had a remarkable class and produced many stars in the medical science and health care fields. There are many great memories of years in New Haven, particularly the first class show we produced with the Class of '49 and the basketball and squash games in facilities now gone. You would be amazed at the renovation and expansion that has taken place. The Boyer Center, the Hope restoration and the new six-story building at 300 Cedar St., the site of the old nursing dorm, are reasons alone to come back for our 60th.

A stronger effort to attend would make for an even more pleasant event. Stay well!

Paul Goldstein

1953

50th reunion

Wow!! Our 50th reunion broke all alumni attendance records, with 27 of our 46 survivors, almost 60 percent, attending. As far as we can tell, this is the largest number and the highest percentage in medical school history. All enjoyed a busy and convivial weekend filled with camaraderie and love.

Fred Young requests reverse alphabetical order so let's say he and Mary Lou are among our most consistent returnees. **Bill** and Martha **Wilson** ferried in from Block Island. **Bill** and Connie **Shepard** were first-timers from California. From the coast of Maine came our devoted **Barbara** and **Irv Rosenberg**—he's in charge of our reunion fund giving. Flying in from Puerto Rico were **Jose** and Leila **Ramirez-Rivera**. **Paul** and Betty **Quie** arrived from Minneapolis. **Rhoda** and **Ed Powsner** arrived from Ann Arbor. **Wick Potter** was accompanied by his New Haven native, Joanne. **Harvey Peck**, still working full time, brought Betty Thompson, recently retired. Janiece and **Bob Nolan** returned for their second 50th, having been here last year. Faithful Hyla and **Bob Melnick** toiled up from Larchmont. Equally faithful in their attendance are Carol and **Fred Lane**. **Dick Knowles**, from Newport, accompanied by his delightful son and daughter, arrived for Saturday's events. From across the country came **Dave** and Barbara **Holman**. Our other gracious first-time couple was Bernice and **Bud Hauser**. **Vince Gott**, who chaired the committee responsible for the class survey, brought both Iveagh and his PilotPoint. Peggy and **Irv Goldberg** returned, but had to leave before the Sunday brunch. Betty and **Tom Gentsch**, now in Seattle, are reunion regulars. **Lou Del Guercio**, just elected to the Executive Committee of the alumni association, was accompanied by his wife, Paula. **Rex Conn** joined us once again. Tooling down from Auburn, N.Y.,

were Emily and **Bill Chaffee**.

Jeanne and **Remi Cadoret** made their every-five-year trip from Iowa. **Hal Bornstein** proudly received his Distinguished Alumni Service Award from then-Dean Kessler at the annual meeting of the alumni association. **Claude Bloch** joined us for much of the weekend. We enjoyed Andrea and **Seth Abramson's** company for both Saturday dinner and Sunday brunch.

Our classmates and spouses were especially pleased and proud to welcome back four of our class widows: Anne-Marie Doppman, Doe Dunn, Helen Etzwiler and Nina Whalen. While it was not always easy for them, we're sure they enjoyed themselves, since they indicated they'd be back in five years!!

As the 50th we were guests of the medical school for both the Friday night clambake and Saturday night dinner. We had a class meeting on Saturday afternoon in the sparkling new education and research building at the corner of Cedar and Congress, previously the site of the nurses' dormitory. The weekend closed on a talkative and delicious note as Maureen and I accommodated 44 guests at our home for Sunday brunch.

The good Lord willing, all the classmates who returned plan to come back in five years. We hope some of the non returnees will also plan to join us.

Harold D. Bornstein Jr.

1958

45th reunion

The 45th reunion of the Class of 1958 was an outstanding success with 20 members of the class entering into the festivities. The high point of the weekend came when **Andy McGowan** and **Bob Donohue** each received the Distinguished Alumni Service Award. The awards were given during the alumni association business meeting, which was held in the new Anlyan Center for Medical Research and Education, a major addition to the campus on the site of the

old nurses' dormitory at 300 Cedar Street.

Friday afternoon, early arrivals gathered to talk about what they were doing and going to do. **Pauline Wood**, who had retired from the University of Rhode Island's Health Services, was honored by having a building named the Dr. Pauline B. Wood Health Services. Her medical school compatriot, **Marcia Kraft Goin**, has not retired and has been elected president of the American Psychiatric Association.

Otherwise the rest of the weekend was spent feasting. Friday evening the group attended the medical school clambake. Saturday there was a buffet at Harkness after the awards. A small group opted for clam pizza at Pepe's. Saturday night we dined at the Union League Cafe through the good works of **Michael Kashgarian**.

The dinner was attended by **George K. Aghajanian**, **John P. Arnot**, **Gerard N. Burrow**, **David A. Carlson**, **John A. Creatura**, **Robert J. Donohue Jr.**, **Lawrence Dubin**, **Donald D. Duncan**, **Marcia Kraft Goin**, **Stanley Harris**, **Michael Kashgarian**, **Theodore W. Lieberman**, **Andrew J. McGowan Jr.**, **Albert Muggia**, **Carol F. Phillips**, **William B. Radcliffe**, **Paul A. Rudnick**, **Raymond W. Turner**, **John Patrick Wood** and **Pauline B. Wood**.

Jay Kislak and **Jim Greenwald** were scheduled to attend but never appeared. **Ted Miller** sent his regrets. Suffused with good fellowship and warm feelings for the Class of '58, the group disbursed, vowing to return in five years.

Jerry Burrow

1963

40th reunion

Neither the noisy union demonstrators on Friday nor the rainy weather on Saturday could dampen our enthusiasm as we gathered in New Haven on June 6th and 7th to celebrate our 40th anniversary as Yale M.D.s. The sumptuous clambake on Friday provided an ideal venue for aggiornamento, with ample food, drink and conversation. Our class dinner Saturday night at Zinc on Chapel Street provided a more intimate ambience to continue our reminiscences and share our current lives. Apparent throughout the weekend were the youth and beauty of the wives and significant others in attendance. The salutary effects on their partners were quite obvious.

Of the 16 classmates in attendance, three have retired completely: **Dave (Carol) Fulmer** from internal medicine, **Bob (Marnie) Mueller** from pulmonary medicine and **Chuck Wilson** from radiology. The professors in our midst, actively involved in advancing our profession, included **John (Michelle) Conte** in infectious diseases, **Bill (Jackie) Friedewald** in biostatistics, **Craig (Gail) Llewellyn** in military medicine and **Sheldon (Doren) Pinnell** in dermatology. Also still actively in practice are **Art Ackerman** in anesthesia, **Dudley (Hedva) Danoff** in urology, **Alex (Christine) Gaudio** in retinal surgery, **Bob Grummon** in primary care, **Ben (Janice) Harris** in rheumatology, **George Holsten** in pathology, **John (Judy) Mahoney** and **Jay Pomeranz** in psychiatry. **Hal (Barbara) Kaplan** continues an active mix of gastroenterology and hospital administration.

After dinner we shared memory lane excursions and philosophical insights and enjoyed a drop-in visit from then-Dean David Kessler. We distributed and shared the written responses from many classmates who sent their regrets along with some





insights. **Barbara Rosenthal Almond** continues an active practice in psychoanalysis; **Dave Cross** and **Dave Holden** have both retired from primary care. Professor **Peter Gregory** has gone emeritus, but still does some liver clinic time. **Tom Tillack** is still a full-time professor of pathology, but going part time in July. **Lee Talner** is already on the part-time track in academic radiology. **Jerry Winer** remains active full time as professor of psychiatry.

We remembered with fondness and sadness our deceased classmates: **Miguel Alonzo**, **Millard Amdur**, **David Langtree**, **Peter Livingston**, **Tom Peters**, **Marvin Skolnick**, **Robert Shapiro** and **Gary Van Galder**.

Finally, planning has already begun for our 45th reunion. Everyone in the class has been deputized to get on the phones and help ensure a massive turnout in 2008. We felt badly for all the classmates who missed out on sharing a great weekend. We missed them.

Alex Gaudio and **Hal Kaplan**

1968

35th reunion

We shared our 35th reunion dinner in New Haven at the Quinnipiac Club. Then-Dean Kessler joined us for cocktails and spoke optimistically about new activities and buildings on campus.

The sad news for us was the loss of **C. Bruce Wenger** in November of 2002. We shared a note from his wife and remembered all our classmates who have died since graduation.

Rutledge Currie enjoys the good life as a radiologist in North Adams, Mass. **Alan Finesilver** goes west from his Wisconsin rheumatology practice to fly-fish in Montana as often as he can. **William Flynn**, surgeon in Boston, is as eager and energetic as ever, and ... continues as a baseball "nut." **Grace Jordison-Boxer** enjoys a practice in community medicine in Jackson, Mich., while husband

Larry teaches and practices at the University of Michigan.

Frank Lucente leaves New York City for long weekends at his country house near West Point, N.Y., where he enjoys the rural life and cooks wonderful things. **Don Lyman** continues as a public health official for the state of California and will serve as president of the American Cancer Society (California Division) in 2003-04. **Rod** and **Joan Martinez** invite us all to visit them in San Pedro Sula, Honduras, where—they say—the town has gone modern with strip malls and traffic lights. **Chuck Post** seems to spend more time at sea and less in the air with his gadget-laden sailing craft. **Elizabeth Short** is moving from Washington, D.C., to Pasadena, Calif., where her husband will be CEO of City of Hope hospital.

Donald O. Lyman

1973

30th reunion

Thirty years later, eight members of the Class of '73 met for dinner and reminiscing at the Polo Grille in New Haven. There were the customary reunion activities reported elsewhere, but the eight of us that made it found that three decades make you closer, if grayer—all grayer except for **Chris Kull Walsh**, who everyone agreed hasn't aged, and **Tom Sweeney**, whose red hair has matured well.

Chris, a professor of clinical pediatrics and pediatric cardiologist at Albert Einstein, has completed two terms on the executive board of the AYAM and was elected its new secretary. Her election keeps her on the board and the class representation at two, including yours truly, giving our class the singularly best representation. **Chris** brought her husband, Sean.

Reunion gave me and my wife, Sue, the excuse and the motivation to come in from our new home in Santa Rosa, Calif., where I now work for Kaiser as a full-time plastic surgeon. Coincidentally, **Jim Robertson** is also in Santa Rosa, practicing nephrology. He couldn't make it but sent his regards. I also had e-mails expressing similar wishes from **John McDowell**, **Tom Romano**, **George Lister** and my former Houston next-door neighbor, **Bob Galloway**.

Next furthest, **Marvin Miller**, a pediatrician, flew in from Dayton, Ohio.

David Coulter drove down from Boston. **David** is a pediatric neurologist at Children's Hospital Boston and Harvard. Incidentally, **David** was recently elected vice president of the American Association on Mental Retardation, making him, in June 2004, the first M.D. to serve as AAMR president in 20 years.

The others were the faithful local denizens. **Harry Romanowitz** and his wife, Sheila, remain in Stamford, where he now serves as pediatrician-in-chief for Stamford Hospital. **Jim Sullivan** lives in Waterford with his wife, Rita, and practices adult and pediatric neurology with a multi-specialty group in Mystic. **Tom** and **Anne Sweeney** and **Rick** and **Dotty Young** remain in New Haven. **Tom** is in a private vascular surgery practice, the heir to Stern and Toole. **Rick** is chief of pediatrics at St. Raphael's.

The class population, according to most recent records, remains at 87. We noted and respected the passing of four: **Omieri Mitoko**, **John Frederick Neil**, **Robert Joseph Polakwich** and **Charles F. Stroebel**.

The conversation over dinner, as you might expect, brought us up to date with current careers, children and interests. Then-Dean Kessler stopped by to visit. Reminiscing suffered somewhat from failing memories. Some paths have crossed in the last 30 years, and **Chris** seems to have maintained correspondence

with most of the women. We had a room in the restaurant all to ourselves to chat the hours away, until we all realized it was getting past our bedtime—that never happened in medical school.

Harold R. Mancusi-Ungaro Jr.

1978

25th reunion

Twenty-five members of the Class of 1978 gathered in New Haven in early June for their 25th reunion and enjoyed a warm, relaxing evening at the Graduate Club Saturday night for dinner. This report is offered with apologies for omissions, misspellings and misidentifications, but with hope that *everyone* will return for the next reunion to set the record straight. I'm especially sorry for crimes against spouse names. With Bacchus as my witness, and with your forgiveness, here's who was there: **Stan Tillinghast**

(cardiology practice in California) and wife Margaret, **Sally Rudicel** (alive and well in Boston), **Kathy Ales** (internal medicine and hospice care in Pennsylvania), **Emily Fine** (ob/gyn in New Haven), **Suzie Hodgson** (pediatrics) and husband John, **Duke Cameron** (cardiac surgery at Johns Hopkins), **Jonathan Weinberg** (psychiatry in Boston), **Robert Kraft** (plastic surgery on Long Island) and wife Ruth, **Harry Staszewski** (heme-onc in Long Island) and wife Sherrie, **Stu** and **Amy Forman** (psychiatry in Hartford), **David Cawthon** (neurology in Seattle), **Ken Lee** (hand surgery in California), **Cindy Kretschmar** (oncology in Boston) and husband John, **Joanne Bodurtha** (genetics in Virginia) and **Tom Smith** (oncology in Virginia), **Eric Einstein** (internal medicine in Norwalk) and wife Claudia, **Art**

Gershkoff (internal medicine in Philadelphia) and wife Grace, **Olag Ogland** (psychiatry in Connecticut), **Bob Gelfand** (endocrinology and drug development near New Haven) and wife Susan Boulware, **Rich Baron** (internal medicine in Philadelphia), **Tom Amatruda** (oncology in Minnesota) and wife Lynn, **Mac Hansing** (directs a new internal medical school in the United Kingdom), **Seth Powsner** (psychiatry at Yale) and wife Elizabeth Yen, **Kay Johnson-Keys** (ob/gyn in South Windsor, Conn.) and her family. **John Wagner** was in for the reunion, but had to leave before the dinner. **Linda Hall** and **Marcia Wade** both sent regrets. Pictures of each class member will be printed on decks of cards at the next reunion and distributed to make identification easier. See you in 2008!

Duke Cameron and **Seth Powsner**

1983

20th reunion

To describe the many contributions of our classmates to the fields of clinical practice, academic medicine, teaching of medical students and residents, basic research, clinical research, government service, public health, international health, genomic and pharmaceutical enterprises, state societies and national association leaderships would take far more space than we are allotted. In fact, asking any classmate "what are you doing?" results in an answer that would more than fill our column in *Yale Medicine*. Included here are thus just snippets of news about classmates. Once again we show that our class really is, as we sang in our second-year show theme song, "one singular sensation, Yale Med Class of '83 ..."

Our 20th reunion included opportunities to learn what is new at Yale both academically and architecturally in the medical area. A highlight of the reunion was the visit by then-

Dean David Kessler at our class reunion dinner at Sage's Grill (best known to us by its former name, Chart House, home of "mud pies" and ocean views).

Attendees at our reunion included: **Brent Neuschwander-Tetri**, gastroenterology/hepatology, St. Louis University; **Elena Citkowitz**, cardiac rehabilitation, St. Raphael's, New Haven, and teaching internal medicine, Yale; **Lois Morton**, psychiatry, orthopaedics, Connecticut, with Liz; **Dwight Stapleton**, cardiology, Guthrie Clinic, Pennsylvania, with Susan and their two kids; **Michael Tom**, otolaryngology, New York, with Linda; **David Norton**, pediatrics, Mary Lane Hospital, Ware, Mass., and teaching and international health work; **Leslie Greengard**, mathematics and computer science, NYU, and founder, software company, Connecticut; **Steve Socket**, immunobiology/allergy, New York.

Other classmates heard from or about recently include: **Peter Blier**, pediatrics, Riverbend Medical, Massachusetts; **Alan Bloom**, ophthalmology, Rochester, N.Y.; **Linda Grais**, founder, structural biology company, California; **Jim Grober**, rheumatology, Northwestern, Illinois; **Tammy Harris**, family practice, Southboro, Mass.; **David Helfgott**, internal medicine/infectious disease, NYC; **Don Johns**, neurology, Beth Israel Deaconess Medical Center, Massachusetts; **Judy Melin**, internal medicine and administration, Lahey Clinic, Massachusetts; **Dan Oren**, psychiatry, Bristol-Myers Squibb, and teaching psychiatry, Yale; **Susan Seward**, internal medicine, Massachusetts General Hospital; **Dan Sosin**, CDC, Atlanta; **Valerie Stone**, internal medicine, Massachusetts General Hospital;

Eric Winer, medical oncology, Dana-Farber Cancer Institute, Massachusetts; **Tina Young Poussaint**, radiology, Children's Hospital, Massachusetts.

We owe special thanks to **David Helfgott** for doing the initial coordination work to get us ready for our reunion. Many thanks to **David Schwartz** for leading the philanthropy efforts for our class. Particular thanks to **David Norton**, **Elena Citkowitz**, **Leslie Greengard** and the alumni association staff who provided information about our reunion events. We are, as always, indebted to **Patty DiNatale**, **Sharon McManus** and **Diane Morrissey** of the Yale Medical School Alumni Affairs Office for their terrific coordination and planning efforts, and to **Claire Bessinger** of *Yale Medicine* for assuring our events are recorded. Let's all get together in 2008 to hear about each other's accomplishments. See you (all) at the 25th!

Judy Melin

1988

15th reunion

We had an intimate number of returnees for our 15th reunion. Ironically, the Yale medical school campus seems more different than any of our classmates!

Things are looking clearer to **Joi Barrett**, who recently had LASIK surgery. She can now find her children in the swimming pool. This is important in Sacramento, Calif., where **Joi** is an internist. **Joi** takes the farthest-traveled award, hands down. Closest was **Mike DiGiovanna**, who walked over after oncology rounds to get one of the last lobsters Friday. Mike devotes most of his time to breast cancer research.

Martha Brochin brought husband Joe Camilleri and two children. As a pediatrician, she seems to know everyone in the greater New Haven area and had a lot of news from various encounters at Stop and Shop!

Rhonda Karol and **Steve Bowers** joined us for Saturday



dinner. **Rhonda** recently took over her father's Queens dermatology practice. She and hubby Gordon Berger have two children. **Steve** spent five years in the Indian Health Service before returning to New Haven.

Apparently an ER job and family aren't challenging enough, so he is beginning the master's in public health program.

A weekend highlight was a tour of the new anatomy lab with Bill Stewart. Shiny stainless-steel boxes with downdrafts hold cadavers, and computer monitors hang from the ceiling. The entire course is available online. The beautiful new Anlyan Center (half classroom, half lab space) towers over our old parking lot, and the site of Acky's coffee shop is now the bookstore.

Several classmates sent news via e-mail. **Ken Andreoni** is doing transplant surgery in Chapel Hill, N.C., and has two daughters. He reports that **Joe Dizon** lives in Westchester and is commuting into NYC. **Walt Stadler** does oncology in Chicago, and **Gerri Mogavero** reads X-rays in Indianapolis.

Lisa Conrad Larkin writes from Cincinnati, where she practices internal medicine and has two children. She hears from **Kelle Harbert Moley**, who does reproductive medicine research in St. Louis. Depending on the season, **Mike Mockavack** tells me he is either snow or water skiing, when he isn't doing ophthalmology.

Nicole Davis and **Alex Vukasin** couldn't come, due to their children's soccer and ice hockey schedules. (Who's running our lives, anyway?) They have surgical practices (gynecology and urology, respectively) in Princeton, N.J.

In Alamo, Calif., **Sue Valley** rides horses with her daughter. Julia won a world championship in 2000 in Louisville! At work, **Sue** is the chief of anesthesiology at the VA Northern California Health Care System.

I recently saw **Leslie Weinstein** and met her 2-year-

old son. **Leslie** has a solo ENT practice in San Francisco. I am practicing dermatology in Rhode Island. In the winter, we enjoy skiing. In other seasons, I live on soccer fields with my three children.

I hope all of you will put June 2008 on your calendars and come for the 20th!!

Kathleen Carney-Godley

1993 10th reunion

Most of us agreed that we looked the same and that no one had aged. Most of us had moved beyond or were on the verge of moving beyond the fellowship-training era. Conversation focused on practice associations, billing, mortgages and children. In keeping with Yale tradition, the class continues to demonstrate leadership in areas in and out of medicine. We were all delighted to find the Yale System still intact!! The reunion was attended by 18 alumni and several family members.

Juan Bartolomei is practicing neurosurgery at Yale. He and his wife, Nicole, were both present. A few alums retired to **Juan's** place in Madison, Conn., after the clambake to reminisce about good times. **Adina Chelouche** and husband George Tellides, M.D., a cardiovascular surgeon at Yale, came with children Theodore, Julia and Alexander. **Adina** is practicing obstetrics and gynecology at Yale.

Eileen Deignan arrived with husband Victor Hsu, M.D. (rheumatology, Brigham and Women's Hospital), and son Evan. **Eileen** is in a private dermatology practice in the Boston area. **Dee Dockery**, who made the trip from Dallas, Texas, is practicing radiology at Baylor University Medical Center. **Ann**

Dolinsky lives in New York City, where she is an attending psychiatrist at Columbia University. **Stephanie Falcone**, who brought her daughter, Hana, practices general surgery and specializes in breast surgery in New York.

Christopher Fey is practicing radiology in Greenwich, Conn., and continues to make even the grumpiest among us laugh. He was all smiles, as was everyone else around him. **Joe Fodero**

made the trip from Livingston, N.J., where he practices plastic surgery. **Myles Greenberg**, who traveled from North Carolina, has joined a venture capital investment firm interested in promoting biotechnology. He continues to serve as part-time faculty in emergency medicine at the University of North Carolina. **Gregory Heinen** brought the entire clan all the way from Riverside, Calif. His wife, Judith, and children, Geoffrey, Jonathan and Katrina, were all a pleasure. **Greg** is practicing orthopaedic surgery and specializing in arthroscopic reconstruction. **John Houston**

practices pediatric urology in Chicago at the Children's Memorial Hospital, Northwestern Medical School. **Robert Iannone** practices pediatric hematology-oncology in Philadelphia at the University of Pennsylvania. **Michael Kaiser** is an attending neurosurgeon at Columbia Presbyterian in New York. His wife, Michelle, is an attending at Columbia in internal medicine. Children Nicole, Cindy and Christopher were present. **William King** made the trip from Philadelphia. He is currently practicing general pediatrics at Temple University Children's Medical Center.

Stephen Marshalko, wife Lisa and son Stephen were present. **Stephen** completes his fellowship in interventional cardiology at Yale this June. **York P. Moy** practices urology in Waterbury, Conn. He and wife Veronica and son Nicholas were present.

Stephen Solomon made the trip from Baltimore. He is an attending radiologist at The Johns

Hopkins Hospital & Health System. Thanks go to **Dave Tendler** who rallied many of you to attend. **Dave** made the trip from Durham, N.C., where he is an attending gastroenterologist/hepatologist at Duke University Medical Center.

The reunion was certainly a joyous celebration and ended after dinner with hugs, handshakes and good wishes. We hope all 1993 grads will plan to be in New Haven in 2008 to celebrate our 15th reunion.

John T.B. Houston

1998 5th reunion

A record-breaking 26 members of the YMS Class of 1998 returned to New Haven for our 5th Reunion.

Childsy (Robinson) Art is a private practice pediatrician in Williamstown, Mass., where she lives with her husband, Jamie, and daughter, Maddie. Although she misses California, she does appreciate her proximity to the Woodchuck Cider brewery.

Not content with a mere M.D., **Senai Asefaw** has been moonlighting as a hospitalist at YNHH while pursuing an M.B.A. at the Yale School of Management.

Tamar Braverman and husband Michael live in Westville with their daughters, Yael and Talia. Tamar is a community internist, and reports annual attendance at the second-year show, although we're not sure why.

Christi Cavaliere drove from Michigan to the reunion with her grandmother, and reported making a U-turn across the median of I-80 to avoid a jackknifed, burning tractor-trailer. **Christi** is finishing the two-year research component of her plastic surgery residency at the University of Michigan and starts back on the wards this summer.

Also a resident in plastic surgery at Michigan, **Catherine Curtin** has embraced the opportunity to be a Robert Wood Johnson Fellow by taking art les-

sons, joining a women's soccer team and studying epidemiology. She and Terry Spauling also enjoy the occasional golf round.

Dan Coghlin has just joined wife Barb in a community pediatric practice in Rhode Island. Their infant daughter, Molly, states that all of her immunizations are up-to-date.

A second-year dermatology resident at Northwestern, **Naomi Donnelley** enjoys living in Chicago, where she and her golden retriever take regular walks in Lincoln Park. Naomi's dog is named after the Mark Twain character, Huckleberry Finn. He is not, as we had originally thought, named after the Hanna-Barbara character, Huckleberry Hound.

Caroline Dumont and husband Brian Tobin continue to call New Haven "home" and to call their new daughter "Cecille." Caroline is finishing up her psychiatry residency on a part-time basis; though she has two more years of 20-hour weeks, she appreciates the time she gets to spend with Cecille and Brian.

Lori Etter is joining a dermatology practice in Durham, N.C. She and her boyfriend, Jeff Welty, have recently purchased a home to share with their dog, Millie, and their dog-to-be, Otis.

Naomi Botkin has one year left in her cardiology fellowship at UMass. She lives in Worcester, and purports to be able to pronounce it.

Karin Finberg, after spending 47 consecutive years in New Haven, is heading to Boston for a pathology residency at Mass General.

Scott Floyd has finished an internship at St. Raphael's. He, wife Stephanie and son Jack have bought a house in Boston, where Scott will complete a

residency in radiation oncology. Actually, we doubt Jack really contributed much toward the down payment.

Peter Hunt stayed on at UCSF for a fellowship in infectious disease. He has been awarded a five-year grant to study HIV. He reports playing trumpet fortnightly in a band that features Finnish folk tunes as well as jazz standards.

Now a dermatology faculty member at the University of Maryland, **Lynda Kauls** is settling into Baltimore with her husband, Geoff Emerson, an ophthalmology resident at Johns Hopkins.

Despite looking like he hadn't slept in about two years, **Matt Levine** reports being thrilled to be a general surgery resident at Mass General. **Matt** and wife Leslie enjoy living in Charlestown with their dog, Jack.

After finishing a combined residency in medicine and pediatrics, **Rich Lyn-Cook** is staying at Mt. Sinai for a med-peds epidemiology fellowship. His wife, Monica Lopez, is a surgery resident at Einstein.

Ursula McVeigh has finished her chief resident year in internal medicine at the University of Vermont and will stay on as a hospitalist in Burlington after a one-month solo hike along the Appalachian Trail.

Matt Mealiffe made a heroic effort to make it to the reunion, coming up for Friday night despite having to present a poster at the gene therapy meeting in Washington, D.C., on Saturday afternoon. **Matt** continues his fellowship in medical genetics at the University of Washington, and will be moving down the block to a new lab at the Fred Hutchinson Cancer Research Center this summer.

Heather Nye has completed her combined med-peds residency at Harvard and is heading out to San Francisco to be a hospitalist at UCSF. She is particularly looking forward to being near family after 16 years of East Coast living.

Leo Otake is completing his

internship at YNHH in general surgery on his way to becoming a plastic surgeon.

Greg Raskin's daughter Daphne won several awards at the reunion, including Least Likely To Smear Herself With Food. **Greg**, who works at a biotech investment fund in NYC, thinks that Daphne got most of her charm from her mother, Jackie Weiss.

A.J. Rubineau (nee Babineau) is a family practice resident at Brown. She and partner Brian Rubineau (ne Rubin) have two children, Eli and Daisy.

Lisa Gale Suter is completing a rheumatology fellowship at Yale before starting a two-year Robert Wood Johnson fellowship. She and husband Lindsay have an 18-month-old son, Fenn, and a 10-foot waterfall, complete with sluice gate.

Having finished her pediatrics residency at the University of Washington, **Meena Thayu** has been a hospitalist at the University of Pennsylvania for the past year. She eagerly anticipates starting a pediatric GI fellowship at CHOP.

Steven Williams is a plastic surgery resident at YNHH. We would like to apologize for having teased him so much during medical school for his cell phone—if only because we pretty much all have one now. Just another reminder that it's a fine line between punch line and prophet.

Ashley Wivel is a chief resident in emergency medicine at the University of Indiana. She and husband Ryan Kime, also an ER resident, have become huge NASCAR fans.

Greg Raskin

A new MASH for a new millennium

Hymns, novels and phone calls home sustain a Yale alum on the ground in Baghdad.

By Cathy Shufro

Intensive training for handling wounds prepared Air Force Major **John C. Lundell**, M.D. '94, for the casualties he might encounter as a battlefield anesthesiologist. But in the weeks after Lundell arrived at his post in a tent hospital at the Baghdad airport in early July, his caseload resembled family practice more than trauma medicine. At Camp Sather Lundell treated several patients who were dehydrated and some who had blood in their urine, sutured cuts inflicted by can tops and pocket knives and took care of an airman having a heart attack.

All that changed with the bombing in August of the United Nations office in Baghdad. Since then, his wife **Andrea L. Lundell**, M.D. '94, reports from their home in Texas, he has treated both soldiers and civilians, Americans and Iraqis, some with severed limbs or serious burns resulting from the ongoing violence in Iraq. And it turns out that at Brooke Army Medical Center in San Antonio, where she is chief of cardiothoracic imaging, she has treated patients her husband stabilized in Baghdad. "A lot of the bad cases end up coming here for further work," she said.

In e-mail messages to *Yale Medicine* in July, Lundell reported that when he was not working shifts, he kept busy playing bridge with tent mates, washing his clothes and reading novels, the Book of Mormon and the hymns he'd loaded onto his Palm Pilot before leaving his home base in Texas. When he couldn't sleep, his cycle disturbed by the rotating shifts, Lundell sometimes hung out at the hospital, chatting with those on duty or with other restless airmen who had drifted up to the hospital tent. Twice a week, Lundell could count on phoning his wife and children, 5-year-old Madeline and 3-year-old John W.

Lundell said he felt safe where he worked, well inside the base for 1,500 Air Force personnel. He went to Iraq as part of what he calls "a lean, mean wound-fighting machine," a five-person mobile field surgical team that also includes a general surgeon, an orthopaedic surgeon, an emergency medicine physician and a critical care nurse. With equipment they carry in 70-pound backpacks, the

team can assemble a portable OR in less than two hours. Their supplies can see them through 10 life- or limb-saving operations. The team can also collect fresh blood from any service member whose blood type, printed on dog tags, matches the patient's.

A week before his departure Lundell explained that his team is trained to treat patients during "the golden hour of trauma," when the team has the best chance of saving a life by controlling bleeding—which causes about half of combat deaths. "The old system of dragging them off the battlefield and shipping them off to an Army hospital took much more time. ... We can pack a spleen or amputate a leg," he said. Now the team can stabilize patients before sending them on to a larger hospital.

Team members do face limitations. For instance, they can't use all their fluids on a single patient, even if a life depends on it. "In a level one trauma center, where we have basically unlimited resources, there's a better chance of saving someone that is severely injured, but in the field there would be nothing left for the nine other patients we're supposed to treat," says Lundell. "Sometimes you have to make tough decisions and decide who is going to be treated expectantly, meaning comfort measures—mostly analgesia, morphine."

The possibility of letting a patient die "is something we've had to think about. ... That would be rough, because we're trained to not let people die. We're trained to save lives."

Lundell's role in the mobile field surgical team brought him what he jokingly calls "my 15 seconds of fame." In May, he appeared in "Blood on the Battlefield," a *National Geographic Explorer* documentary on battlefield medicine. Lundell's 15 seconds (actually more like 30) showed his team practicing setting up an OR and then operating on "victims" hemorrhaging fake blood. Lundell and his team members actually learned most of what they know of trauma care by treating real-life victims at Wilford Hall Medical Center on Lackland Air Force Base in San Antonio, where they were stationed before going to Iraq. Lundell said taking care of people injured in drunken-driving accidents kept them "up to speed in dealing with people who are bleeding to death." In Baghdad, the team is working as a "building block" for a hospital staff of about 25. They work in a 20- by 70-foot air-conditioned vinyl tent with a wooden floor.

Lundell supported the U.S. invasion of Iraq, likening it to surgery. "You really would rather not operate on people. An operation is a controlled injury, controlled trauma. But if you have to operate, you want a finely honed instrument. The military is the knife. You have to cause injuries, but hopefully it's for the greater good. ... Certainly I regret some of our troops having to pay the ultimate price to free the Iraqi people, but I do support the president." He says that his wife agrees, then adds: "I don't know how our support would change if something were to happen to me. It's not something we have much control over. We do our best to do what we signed up to do."

Doing what they signed up to do has made life for the couple unpredictable since September 11. Both were in the Air Force and were periodically "at risk" for deployment, potentially at the same time—in which case the children would have stayed with relatives. The pressure eased in July 2002, when Andrea completed her three-year Air Force obligation and began a civilian job at Brooke Army Medical Center. Both husband and wife, who met as first-years at a volleyball game on Harkness lawn, took part in the Armed

Forces Health Professions Scholarship Program. The government paid their medical school costs and provided a salary for John's fellowship year in cardiothoracic anesthesia. In return, the Lundells spent a year in service for each year of support they received: she for three, he for five.

Andrea Lundell says she is coping with her husband's absence, expected to last four months, by keeping the big picture in mind: "I try to remember that there are many other men and women over there who are making sacrifices, too, and there have been many others who have in the past. ... I keep a positive attitude." She feels supported by colleagues at Brooke Army Medical Center. "A lot of people over there know what it's like to have somebody go."

When John Lundell completes his Air Force service in June, he expects to go into private practice to maximize time with his family. "I like doing and I like teaching. If I can find a place where I can teach some and do, then I'll be happy."

Lundell is grounded by his faith as a Mormon, which is "part of the fiber of my being. It helps me feel prepared for whatever may come."

Cathy Shufro is a contributing editor of *Yale Medicine*.



In July, John Lundell, a 1994 graduate of the medical school and a major in the Air Force, arrived in Baghdad, where he is an anesthesiologist in a mobile surgical team that can assemble a battlefield operating room in less than two hours.



TOP TO BOTTOM

Ruth Potee, with her husband, Stephen Martin, also a physician, and their children, Ella and Ben.

Alexander Zuckerbraun continues to see patients and raises grapes on his vineyard in California.

Laurence Tanner heads New Britain General Hospital, where he keeps seeking ways to ease the financial crunch.

Medicine and society have changed—but not conditions for residents

When **Ruth Potee's** father started his medical residency at Boston City Hospital in 1949, the system was pretty simple: young medical school graduates received room, board and a lab coat in return for patient care and the training that went along with it. At the time, only residents at Bellevue Hospital in New York City received a stipend.

That changed when Gale Potee and his colleagues formed the first house staff association in the country and won stipends from the city of Boston. "It started a movement where residents were recognized as not just students, but doctors who deserve some compensation," says Ruth Potee, M.D. '99. But change is slow. Half a century later, when Potee was deciding where to train, she could safely expect a paycheck, but she also wanted an institution where the house staff had a say in how the hospital runs. "I didn't want to be at a place where I was a voiceless peon in the system," she says. She joined Boston Medical Center, where in 1972 the house staff association became a union with bargaining rights, and became an active member of the organization her father had helped found.

In 2002, in the final year of her residency in family medicine, Potee became national president of the union, the Committee of Interns and Residents (CIR). (Union rules allow members to remain on the executive committee for two years after completing a residency.) Now the largest house staff union in the country, CIR still represents only about 12 percent of the nation's 100,000 residents. "It's hard to organize residents," Potee says. "They have no time to organize themselves. They are so tired and broken and depressed, they can't imagine things ever getting better."

But Potee firmly believes residents need to be organized, especially since medicine and

medical students have changed so much since the system was devised. For much of the 20th century, residents were usually young, male and single. Today's resident is far more likely to be older, female, married and a parent. Potee was a member of the first majority female medical school class in Yale history, entering medical school at age 26 after working in politics in Texas and New York. She married and had her first child while at Yale, and gave birth to her second child during residency. (Half of women in medicine give birth during medical school, residency or fellowship, says Potee, who wrote her thesis on medicine and motherhood.)

Through her position at CIR, Potee works to make residency better for today's graduates. Founded in New York City's public hospitals in 1957, CIR won a collective bargaining agreement and established a benefit plan for house staff early on, and in 1975 negotiated a contract provision limiting call to one night in three. In a landmark 1999 case brought by CIR, the National Labor Relations Board ruled that residents are employees, not students. CIR helped shape New York state's Bell Regulations on duty hour limits for house staff, a model for the new duty hours guidelines from the Accreditation Council for Graduate Medical Education, which went into effect in July.

The union also fights for minimum staffing levels for ancillary hospital personnel, so hospitals can't cut nurses or technicians and expect residents to fill in. Those kind of cuts are bad for residents and for patients, Potee says. "The hospital can't balance its budget on the backs of residents," she says. But with budget deficits in most states, hospitals' finances aren't likely to improve any time soon. "I worry that residents are the group that tends to fill in the cracks, and the cracks are ever widening."

—Karen Schmidt

From Brooklyn to the vineyards: how a surgeon became a country doctor

Alexander Zuckerbraun, PH.D., M.D. '55, often finds fresh fruits and vegetables in the back of his pickup truck—in late May two sacks of oranges, a week later a flat of Bing cherries. These anonymous gifts come from this "country doctor's" patients who are farm workers. Although at age 79 Zuckerbraun calls himself a country doctor, he is really a hybrid: a family practitioner who spent 20 years as a surgeon, a California ranch owner with a Brooklyn accent.

Zuckerbraun took a while getting to medical school. After studying chemistry at the University of Michigan, he was drafted in 1943 and spent three years working on the atomic bomb project at Columbia University, Oak Ridge, Tenn., and Los Alamos, N.M. When he applied to study medicine 14 schools rejected him. He's not sure why he was turned down; perhaps it was because his stellar chemistry grades contrasted with some dismal grades in other subjects. (He recalls a D in history.) Nonetheless, he says, "I was going to do medicine whatever it took." Figuring a PH.D. in chemistry would be good preparation for medicine, he earned his doctorate at the University of Minnesota and applied again. He got into Yale.

Zuckerbraun and his new wife, medical technician Ruth Hitchcock, moved into veterans' housing—a two-family Quonset hut near the Peabody Museum. Zuckerbraun laughs when he recalls inviting an admired professor, pathologist Averill A. Liebow, M.D., and his wife over for drinks. "They acted like they were very much at home. This was almost like a shack."

More daunting than living in a near-shack, however, was the transition from chemistry to medicine. He didn't like anatomy at first, and he suspects he would have failed the first few quizzes at some other medical

school. "I wouldn't have made it without the Yale System. Any other medical school would have thrown me out." After graduation and surgery residency, Zuckerbraun and his wife settled in Santa Maria, a small town near the central coast of California where they raised seven children.

In the late 1970s Zuckerbraun made another radical lifestyle change. "I decided to be a country doctor, to work out of my office. No appointments. You just come in when you're sick. I won't see you in two weeks; I'll see you when you're sick."

He still thinks like a surgeon, always considering both a surgical and a medical remedy for a problem. From his patients, most of them field workers, he has learned to speak fluent Spanish.

Along with his prescriptions comes preaching. "I don't preach religion. That's personal. I preach education." He asks a young man, "Would you like to keep doing what you're doing for the next 30 years? Bent over picking strawberries?"

Not that Zuckerbraun is averse to picking fruit himself. He and his wife own a 317-acre ranch east of town, where nearly an acre of wine grapes should be ripe for winemaking in a year or two. Zuckerbraun has no plans to retire. "I wanted to be a medical doctor since I was five years old. What am I supposed to do, quit now?"

He hopes to be practicing medicine in 2005, he says, and to join his classmates in celebrating their 50th reunion.

—Cathy Shufro

On the front lines of the battle to provide affordable care

New Britain General Hospital was the eighth-largest employer in town two decades ago. Now it's number one. That may sound like good news, but it's not, says hospital President and CEO **Laurence A. Tanner**, M.P.H. '72.

His hospital now ranks as top employer because the city's seven largest manufacturers all left town, went under or reduced their work force. Tanner has long experience with how that kind of economic pressure affects health care: since studying hospital administration under John Thompson at Yale in the early 1970s, he has served three decades as a hospital administrator, working for 15 years at two other Connecticut hospitals before joining New Britain General as its president in 1987. Now Tanner foresees "chaos" as local economic pressures combine with cuts in government funding and the end of the "Robin Hood theory of health care."

The struggle to survive financially overshadows all other concerns for Tanner as he runs the Central Connecticut Health Alliance, which employs 3,000 people and comprises three hospitals, two nursing homes, two assisted-living facilities and a mental health center with several locations. Two-thirds of New Britain General's income comes from "inadequate and drastically shrinking" state and federal funds. Last spring, Connecticut was paying only 50 cents per dollar of costs for Medicaid, while the federal government paid 90 to 94 cents per dollar for Medicare. Insurance companies no longer bridge those gaps through higher fees paid by insured patients. "Industry has said they can't afford it," says Tanner. The problem is compounded by the expectation of patients that they will have access to the latest diagnostic technologies and therapies, regardless of cost.

New Britain General has controlled costs by restricting prescription formularies, postponing building repairs and joining with other hospitals to buy supplies. The hospital has also diverted funds from education and prevention into the operating budget. "We think we're doing a disservice from a public health perspective, but we have a financial imperative," says Tanner. "I have the day-to-day dilemma of how to provide care for the person in the hospital today." Tanner worries that recent medical advances and those on the horizon will be denied to patients who can't pay. For instance, a cardiac defibrillator like Vice President Dick Cheney's costs \$30,000 to buy and implant. Medicare reimburses less than \$20,000. So who gets to have one?

Tanner's strategy for improving financing long term is to talk to policy-makers. He occasionally visits the Connecticut Legislature and has twice addressed the federal House Ways and Means Committee. His goal is to help lawmakers understand the impact of cuts in funding, of new regulations and of the nursing shortage—"informing the decision makers on the consequences of acting or failing to act."

In fact, the nation's decision-maker-in-chief visited New Britain General on June 12. President George W. Bush chose Tanner's hospital as the venue for a speech on Medicare reform and prescription benefits. The president addressed 250 people in the hospital cafeteria en route to Maine to celebrate his father's birthday. Although Tanner did not get to button-hole Bush to convey his own policy proposals, he found the visit satisfying. "It tied public policy to a real hospital."

The region's bad economy has touched Tanner personally: his wife, Janice Ann Piazza, recently lost her job as a manufacturer's website developer. "She was outsourced and downsized," he says wryly.

When he feels overwhelmed, Tanner visits the neonatal ICU. There he likes to watch the premature babies "and see them thrive." Visiting the newborns provides an antidote to the "daunting process" of running a hospital with shrinking resources. "It's a frustrating process and in some cases a depressing process," says Tanner. "In some ways it's also an invigorating process. When you have a small victory, it's a victory. You know that what you're doing is benefiting people. There's somebody out there who's getting a service that they wouldn't otherwise get."

—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 or write to Faces, Yale Medicine, P.O. Box 7612, New Haven, CT 06519-0612.



Franklin Epstein



Kenneth Arndt



Robert Maudsley



Michael Apuzzo



Paul Wang



Kelsey Wirth and Samuel Myers



Dan Stolar



Nicole Cundiff and Scott Durbin

1940s

Franklin H. Epstein, M.D. '47, HS '49, professor of internal medicine (nephrology) at Harvard Medical School and Beth Israel Deaconess Medical Center, received the David M. Hume Memorial Award from the National Kidney Foundation in April at the annual meeting in Dallas. The honor is presented to a distinguished scientist-clinician who exemplifies the high ideals of scholarship and humanism.

William E. Kenney, M.D. '41, HS '45, an orthopaedic surgeon, writes to say that he retired 11 years ago after a severe coronary attack. Kenney began his career as a coroner's physician in St. Louis, and later served as president of the medical staff at Truesdale Hospital in Fall River, Mass. He established a treatment program for children at The Cerebral Palsy Rehabilitation Center and Services in Fall River, where he was also medical director.

1950s

As a result of a bequest, arranged by his children, from the estate of **Kent Ellis**, M.D. '50, the Historical Library at the School of Medicine has named the reference room in his honor. At a dedication ceremony held in January a plaque was installed on the door, and bookplates will soon adorn the books which were purchased with the bequest.

1960s

Robert A. Ahtel, M.D., HS '69, FW '71, clinical professor of pediatrics (cardiology) at Stanford University School of Medicine, has joined the Northwest Pediatric Cardiology outreach program for Stanford University Medical Center, based in Sacramento, Calif.

Kenneth A. Arndt, M.D. '61, HS '62, clinical professor of dermatology at Yale and in private practice at SkinCare Physicians of Chestnut Hill, Mass., received the Leon Goldman Memorial Lectureship Award from the American Society for Laser Medicine and Surgery in April at its annual meeting in Anaheim, Calif. The award honors a physician who has demonstrated excellence in clinical laser research and services to patients. Arndt was a founding member and former president of the society.

Robert N. Frank, M.D. '66, professor of ophthalmology, anatomy and cell biology at Wayne State University School of Medicine in Detroit, was elected editor-in-chief of the journal *Investigative Ophthalmology & Visual Science* (IOVS). His five-year term started January 1. IOVS is the major publication of the 10,500-member Association for Research in

Vision and Ophthalmology. Frank also writes to say that his youngest child, Ariel Frank, is beginning her first year at the School of Medicine this fall.

Robert L. Marier, M.D. '69, former dean of the Louisiana State University (LSU) School of Medicine, was named acting dean of the new School of Public Health at LSU Health Sciences Center. Marier stepped down as dean of the medical school last October to oversee planning of the new school of public health.

After 27 months, **Robert F. Maudsley**, M.D., HS '69, has stepped down as dean of Health Sciences at Aga Khan University in Karachi, Pakistan, and returned to Nova Scotia, Canada. He writes that he is now retired for the third time and plans to volunteer at a local hospital and Dalhousie Medical School.

1970s

Michael L.J. Apuzzo, M.D., FW '67, HS '73, the Edwin M. Todd/Trent H. Wells Jr. Professor of Neurological Surgery, Radiation Oncology, Biology and Physics at the Keck School of Medicine at the University of Southern California, Los Angeles, received the Gagna A. and Charles Van Heck Prize from the National Funds for Scientific Research in Belgium for his contributions to the management of previously untreatable diseases, such as neurodegenerative diseases and brain tumors. King Albert II of Belgium presented the award in September at ceremonies at the Royal Academy of Medicine in Brussels.

Joseph A. Zaccagnino, M.P.H. '70, president and CEO of Yale-New Haven Hospital and the Yale New Haven Health System, was awarded an honorary doctorate of humane letters from Quinnipiac University for his civic and humanitarian contributions and his superior leadership skills. In addition, he gave the commencement address to graduate students in nursing, physical therapy, health sciences business, communications and education. Zaccagnino was also sworn in as chair of the National Committee for Quality Health Care at its 25th anniversary meeting in March in Washington. He will lead the board of trustees of the nonprofit organization, which is dedicated to enhancing the quality of health care in the United States.

1980s

After a 27-year career, **Mark L. Dembert**, M.D., M.P.H. '83, retired with the rank of captain in November 2002. Dembert writes to say that he has combined preventive/occupational medicine, disaster medicine and psychiatry to work for the Virginia Department of Health. He is the Eastern Region Medical Consultant for Emergency Preparedness and Response (chemical-biological terrorism), which is based in Norfolk and covers a population of 1.5 million and an area of several thousand square miles.

Heather J. Folsom, M.D. '81, M.D., a psychiatrist who began her medical studies at Yale with the Class of 1981, has written a book titled *Philosophie Thinly Clothed, and Other Stories*, which draws on her experience and fascination with the hidden world of unconscious meanings and motives. Her book, published this year by Cadmus Editions, is a collection of 42 short stories, allegories and moral tales.

Paul P. Wang, M.D. '86, associate director of clinical development at Pfizer Global Research and Development in New London, Conn., will complete a four-year term in December as a founding member of the subboard of Developmental and Behavioral Pediatrics for the American Board of Pediatrics. This subspecialty, established in 1999, focuses on problems such as mental retardation, autism, cerebral palsy, ADHD, enuresis, school refusal and behavior management.

1990s

Stephen Allegretto, M.P.H. '97, lecturer in public health at Yale and administrative director of finance at Yale-New Haven Hospital, has been promoted to vice president of financial planning at the Yale New Haven Health System. His responsibilities will include financial planning and analysis and decision support for the three-hospital system, which includes Yale-New Haven, Bridgeport and Greenwich hospitals.

Jennifer S. Meltzer, M.P.H. '97, pediatrics department administrator at the Beth Israel Medical Center in New York, was married in October 2002 to Vineet Goswami, an account executive for office equipment at Konica Office Products in New York.

Samuel S. Myers, M.D. '92, an internist in a private medical research and guidance practice and a clinical instructor at the School of Medicine at the University of California, San Francisco, was married in October 2002 to Kelsey D. Wirth, founder, board member and former president of Align Technology in Santa Clara, Calif.

Scot Phelps, J.D., M.P.H. '95, was appointed assistant commissioner of emergency management at the New York City Department of Health and Mental Hygiene in 2002 and has been teaching a course on disaster management at the New York Medical College. He writes that as head of the new emergency management bureau he is getting the opportunity to combine his experiences as a paramedic, emergency manager and administrator to better prepare New York City against terrorism.

Dan Stolar, M.D. '93, who began medical studies at Yale with the Class of 1993, writes to say that after completing four and a half months of third-year clerkships, he took a leave of absence from the School of Medicine to pursue creative writing and eventually withdrew as a student in good standing. This spring his first book, *The Middle of the Night*, was published by Picador

USA, a division of St. Martin's Press. "Though I did not graduate from Yale School of Medicine, I am very grateful to the many medical school faculty and students who offered their support while I struggled with this difficult decision. It is no exaggeration to say that this book might never have been written without their help."

2000s

Angeli Achrekar, M.P.H. '01, received the 2003 Carl W. Tyler Jr. Award for Excellence in Public Health Practice at the annual CDC Partnering Meeting in Atlanta on February 12, 2003. Achrekar is an Association of Schools of Public Health fellow with the CDC's National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health.

Nicole S. Cundiff, M.P.H. '00, product manager in marketing for Sanofi-Synthelabo in New York, and **Scott C. Durbin**, M.P.H. '99, executive director of finance and corporate development for Alteon, a small public biotech company in Ramsey, N.J., were married in July in New York.

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

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Brandon Brei, of Orange, Conn., a predoctoral student in the School of Epidemiology and Public Health, drowned on March 22 off the coast of San Juan, Puerto Rico, while trying to save a fellow student caught in an undertow. He was 26. Brei studied the ecology of vector-borne spirochetes. His research provided valuable information about strategies for controls.

Edward S. Brown, M.D. '43, of Sagamore Hills Township, Ohio, died on April 30 at the age of 85. Brown was the director of emergency services at St. Luke's Hospital in Cleveland for more than 20 years and director of the hospital's health services. He was a captain in the Army Medical Corps during World War II, receiving a decoration from the Philippine government.

Felix M. Brown, M.D. '93, a pathologist and associate director of surgical pathology at Brigham and Women's Hospital, died of cancer on May 27 at his home in Dedham, Mass., at the age of 36. In his honor, the Department of Pathology at Harvard has created an annual award to be presented to pathologists-in-training whose qualities of humanity, generosity and dedication complement their talent as physicians.

Nicholas J. Daukas, M.D., former assistant professor of ophthalmology at Yale, died on February 25 at the age of 80. Daukas, of Middletown, Conn., and Watch Hill, R.I., was an All-American football player in college and an All-Pro tackle for the minor-league Brooklyn Dodgers football team while in medical school.

Robert M. Donaldson Jr., M.D., the David Paige Smith Professor Emeritus of Medicine and former deputy dean and acting dean of the School of Medicine, died on July 9 at the age of 75 at his Cape Cod home. Donaldson joined the Yale faculty in 1973 and later served as vice chair and acting chair of the Department of Internal Medicine. From 1991 to 1992 he served as acting dean. A specialist in gastroenterology and a prolific contributor to the medical literature, Donaldson edited the journals *Gastroenterology* and *Current Opinion in Gastroenterology* and served on the editorial board of *The New England Journal of Medicine*.

Donnell D. Etwiler, M.D. '53, HS '54, died of cancer on April 6 at the age of 76. Etwiler founded the International Diabetes Center in St. Louis Park, Minn., in 1967. He established 60 diabetes care programs around the world, including 30 in Russia, for which he won the Russian Peace Prize in 1994. For 25 years he served as medical director of Camp Needlepoint, a summer camp for children with diabetes in Hudson, Wis.

Evelyn T. (Stotz) Farnsworth, M.N. '38, M.P.H. '55, of Wellesley, Mass., died on February 12 at the age of 100. Farnsworth served as an ensign in the U.S. Navy Nurse Corps in World War II. During her career she was an assistant administrator at the Boston Dispensary and Rehabilitation Institute.

James E.D. Gardam, M.D. '45, former vice president of medical services and governmental health programs at Prudential Insurance Co. of America, died on May 30 in Millville N.J., at the age of 81. While at Prudential, Gardam received a citation from the Secretary of Health and Human Services for his efforts to accelerate the federal reimbursement for new medical tests, services and procedures. After his retirement he founded the Argyle Medical Associates, consultants to health insurers.

Patricia Goldman-Rakic, PH.D., professor of neurobiology, neurology, psychiatry and psychology, died on July 31 at the age of 66 from injuries after being struck by a car. Goldman-Rakic, who joined the faculty in 1979, pioneered the study of memory function. She was the first researcher to explore the frontal lobe, formerly considered inaccessible to scientific analysis, and to discover and describe its order and structure, which is responsible for the highest level of cognitive functions. She also studied amphetamine abuse in adolescents and young adults and how it diminishes the mind's performance.

S. Jerome Greenfield, M.D. '39, died on May 6 in the Boca Raton (Fla.) Community Hospital at the age of 88. Greenfield, a retired ophthalmologist from Millburn, N.J., served as a physician in the Army Air Corps in England and Iceland during World War II, attaining the rank of major.

William A. Gryboski, M.D. '56, HS '62, of Tequesta, Fla., died of lung cancer on January 18 at his vacation home in Greensboro, Ga., at the age of 73. Gryboski, formerly of New Britain, Conn., served as a chief surgical officer in the Navy aboard the aircraft carrier U.S.S. Essex and as chief of surgery at the U.S. Naval Submarine Base in New London, Conn. During his 26 years as a senior attending surgeon at New Britain General Hospital he introduced several new procedures, including the insertion of cardiac pacemakers.

Jerold A. Haber, M.D. '71, of Atlanta, died on April 30 at the age of 57. Haber, an orthopaedic surgeon, pioneered outpatient IDET (intradiscal electrothermal annuloplasty) and APLD (automated percutaneous lumbar discectomy) "Band-Aid" back surgery. Haber, an accomplished photographer and potter, has permanent photographic exhibits at Northside Hospital and the radiation oncology department at St. Joseph's Hospital Cancer Center, both in Atlanta.

Frederic L. Holmes, PH.D., the Avalon Professor of the History of Medicine at Yale, died on March 27 at the age of 71 after a long illness. As chair of the Section of the History of Medicine from 1977 to 2002, Holmes was a leading force in building Yale's program in the history of science and medicine, both as a scholarly field and as a link between the humanities, natural sciences and medicine.

Peter B. Hukill, M.D. '53, died on May 18 at his home in Winchester, Conn., at the age of 76. He was the former director of laboratories at Charlotte Hungerford Hospital and director of the Connecticut Dermatopathology Laboratory. Hukill was also on the faculty at Yale as an associate clinical professor of pathology from 1979 until his death.

Margaret F. Knapp, M.P.H. '49, a retired commissioned officer of the U.S. Public Health Service, died on March 20 at the age of 95. While working at the National Cancer Institute in Bethesda, Md., Knapp wrote the first nursing manual on cancer treatment, which was distributed to state health departments. She was also chief of the Division of Nursing Services at the Indian Health Service in Washington.

Ira R. Levine, M.D., an associate clinical professor of psychiatry at Yale and an attending psychiatrist on the Dual Diagnosis Unit of Yale-New Haven Psychiatric Hospital, died after a brief illness on January 31. He was 65. At the VA Connecticut Healthcare System in West Haven, Levine was director of ambulatory services and chief of the day hospital and mental hygiene clinic.

Robert A. Mino, M.D. '42, of Evansville, Ind., died at home on February 8 at the age of 86. Mino was on the surgery staff at St. Mary's Medical Center and Deaconess and Welborn Baptist hospitals in Evansville. He was a member of the American Medical Writers Association and the Mississippi Valley Medical Writers Society, and he published numerous scientific articles in medical and surgical journals.

Russell R. Monroe, M.D. '44, of San Francisco, died on April 4 of pneumonia at the age of 82. Monroe, a former chair of psychiatry at the University of Maryland School of Medicine, explored the relationship between madness and genius, as well as the electrical storms deep in the brain that trigger violence. Monroe studied offenders at the Patuxent Institution in Maryland and wrote several books on episodic behavioral and brain disorders.

Elpenor R. Ohle, M.D., HS '44, died on May 25 in Green Bank, W. Va., at the age of 88. Ohle started a medical practice in Celo, N.C., after a tour of duty with the U.S. Public Health Service in 1944. He was an old-fashioned family physician for nearly 40 years, until he retired to pursue gardening and landscaping. In 1997 Ohle was honored by the National Weather Service for 50 years of continuous recording of weather in the South Toe Valley in North Carolina.

Harold C. Patterson, M.D., HS '48, of North Wilkesboro, N.C., died on February 12 at the Villages of Wilkes Skilled Care at the age of 91. Patterson was a clinical instructor in ophthalmology at Yale and had a private practice in Danbury, Conn.

Claire E. (Burton) Reinhardt, PH.D. '42, of West Hartford, Conn., died on January 30 at the age of 87. Reinhardt spent her career as a public health professional with the Connecticut departments of Public Health and Education until her retirement in 1981.

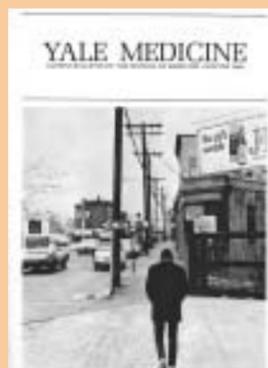
Arnold Schoolman, PH.D. '54, M.D. '57, of Prairie Village, Kan., died on April 14 at the age of 75. Schoolman was professor of surgery (neurology) at the University of Kansas School of Medicine and had a private neurological surgery practice until his retirement in 1998.

David B. Skinner, M.D. '59, former president and CEO of the New York Weill Cornell Medical Center, died of a cerebral hemorrhage on January 24 at the age of 67. Skinner presided over the merger of New York and Presbyterian hospitals and directed the building of the New York-Presbyterian Healthcare System. He oversaw the construction of the Maurice R. and Corinne P. Greenberg Pavilion, an 850,000-square-foot structure that extends over Franklin D. Roosevelt Drive. Skinner continued performing esophageal surgery throughout his administrative career.

Kenneth J.W. Taylor, PH.D., M.D., professor of diagnostic radiology and obstetrics and gynecology at Yale, died on February 15 at the age of 63. Taylor explored the use of diagnostic "grayscale" ultrasound in cancer patients at the Royal Marsden Hospital in Australia and received grant support from the American Cancer Society and the National Institutes of Health for his work on detection of tumor vascularity by Doppler ultrasound. He authored and edited numerous books on diagnostic ultrasound including the *Atlas of Ultrasonography* and *Clinical Applications of Doppler Ultrasound*.

Jack L. Westcott, M.D., clinical professor of diagnostic radiology at Yale, died on January 31 at the age of 71. Westcott, former chair of radiology at the Hospital of St. Raphael, past president of the Society of Thoracic Radiology and a radiologist at Hartford Hospital, was the creator of the Westcott biopsy needle, which is used in hospitals today.

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

**WINTER 1969**

“The Departments of Medicine and Pediatrics have combined forces to organize a Division of Genetics embracing all ages from the fetus to old age. This section ... includes pediatricians and internists whose interests comprise the detection of abnormal chromosomal patterns, screening for inherited defects, and the biochemical and physiological investigation of the nature of these defects.

“A number of important research projects are now under way, including evaluation of the chromosome pattern of all babies born in the Yale-New Haven Hospital during the past year; investigation of the nature of the transport defects in renal glycosuria and in the amino acid ureas; a study in the isolated cells of tissue culture from patients of the nature of the biochemical defect in diseases involving the intermediary metabolism of amino acids and purines.

“Both in its spread of interest and in the range of age of the patients it serves, this group is virtually unique in American academic medical institutions.”

**SPRING 1983**

“Two recent School of Medicine building projects have received awards. The New Haven Preservation Trust presented a Merit Award to the School for its sensitive rehabilitation and creative reuse of the historic Jane Ellen Hope Building. The oldest building on the school’s campus, the red brick and rough stone building was built in 1902 as a clinic building. ...

“First prize for excellence in consulting engineering in the category of mechanical and electrical design was awarded the school by the New York Association of Consulting Engineers for fostering excellence in engineering of its new chilled water thermal storage system. ...

“The facility was built to increase the capacity of the Sterling Power Plant in order to provide air conditioning for the Yale-New Haven Medical Center.”

Providing care in a changed world

Exotic travel is nothing new for David Hilmers, M.S., M.D., M.P.H. Hilmers has already landed in dozens of countries as a Marine pilot and orbited the Earth 400 times on the space shuttles *Atlantis* and *Discovery*. But for Hilmers, an assistant professor of pediatrics and medicine at Baylor College of Medicine, the chance to go to Bolivia as a Yale/Johnson & Johnson Physician Scholar in International Health is appealing. The former astronaut looks forward to learning about tropical diseases like leishmaniasis during two months working in a Bolivian hospital.

Sponsoring established physicians like Hilmers is new for Yale’s International Health Program, which has been sending residents overseas since 1981 [“A World of Difference,” Autumn 2001]. With continuing support from Johnson & Johnson, the program is expanding. This year a \$500,000 grant will fund trips for 14 career doctors, 53 Yale residents and 15 residents from other medical centers. Participants will spend six to eight weeks in 17 foreign countries and at two Indian Health Service clinics in the United States. Despite terrorism, the war in Iraq and SARS, co-director Michele Barry, M.D., HS ’77, said interest in working abroad remains strong. “We got hundreds of applications for these 82 spots.”

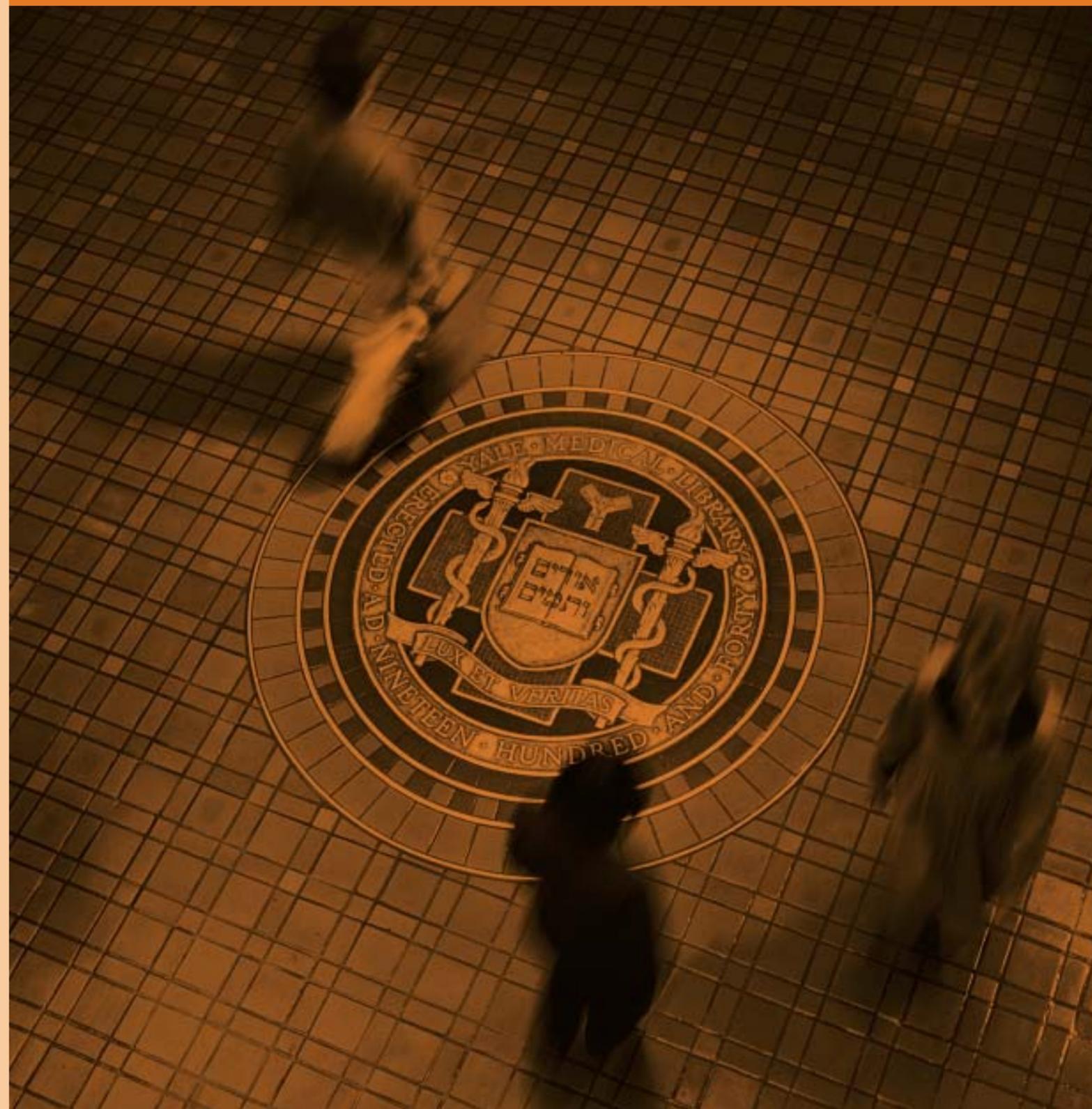
Increasing hostility to Americans has raised safety concerns. “The aura which kept an American off-limits to some threats has diminished,” said co-director Frank J. Bia, M.D., FW ’79. But anti-Americanism may, paradoxically, motivate some physicians to go overseas, Barry said. “When there’s so much anti-Americanism, physicians applying to our program seem to be committed to working in underserved areas overseas in an effort to mitigate this sentiment—to prove that Americans do care past their own self-interests and borders.”

That global perspective became clear to Hilmers from 300 miles above Earth. It motivated him to begin medical school at age 42, after 12 years with NASA. “During the dark times of your orbiting ... you see the backdrop of the stars, and you see the earth as this tiny little rock,” recalled Hilmers, now 53. “You get a different perspective—that we have to take care of each other, and to survive, everyone has to survive together.”

—Cathy Shufro

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